



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

**GB/T 20081.3-2021**

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**Pneumatic fluid power - Compressed air pressure regulators  
and filter-regulators - Part 3: Alternative test methods for  
measuring the flow-rate characteristics of pressure regulators**

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## Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 3 of GB/T 20081 "Pneumatic Pressure Reducing Valves and Filter Pressure Reducing Valves". GB/T 20081 has released the following

part.

---Part 1. The main characteristics and product identification requirements that should be included in the business documents;

---Part 2. Test methods for evaluating the main characteristics that should be included in the business documents;

---Part 3. Alternative methods for testing the flow characteristics of the pressure reducing valve.

This document uses the translation method to be equivalent to ISO 6953-3:2012 "Pneumatic pressure reducing valves and filter pressure reducing valves Part 3. Test pressure reduction

Alternative methods of valve flow characteristics".

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 14513.1-2017 Determination of flow characteristics of compressible fluid components used in pneumatics Part 1.Steady-state flow

General rules and test methods (ISO 6358-1.2013, IDT)

---GB/T 14513.2-2019 Determination of flow characteristics of compressible fluid components used in pneumatics Part 2.Alternative measurement

Test method (ISO 6358-2.2013, IDT)

---GB/T 17446-2012 Fluid Power System and Components Vocabulary (ISO 5598.2008, IDT)

---GB/T 20081.1-2021 Pneumatic pressure reducing valve and filter pressure reducing valve Part 1.Main features that should be included in business documents

Sex and product identification requirements (ISO 6953-1.2015, IDT)

---GB/T 20081.2-2021 Pneumatic pressure reducing valve and filter pressure reducing valve Part 2.Evaluation of the main

Test methods for key characteristics (ISO 6953-2.2015, IDT)

---GB/T 39956.1-2021 Pneumatic electro-pneumatic pressure control valve Part 1.Main characteristics that should be included in commercial documents

(ISO 10094-1.2010, IDT)

For ease of use, this document has made the following editorial changes.

---Corrected a few editorial errors in ISO 6953-3.2012, and revised "ISO 10094-2" in Chapter 2 to

"ISO 10094-1".

## Introduction

In a pneumatic system, power is transmitted and controlled by compressed air in the loop. Need to reduce or adjust the pressure in the circuit, various reductions

Pressure valve and filter pressure reducing valve are components designed to maintain stable air pressure. Therefore, it is necessary to understand some of the performance characteristics of these components to

Then determine the adaptability of their application. GB/T 20081 is composed of three parts.

---Part 1.The main characteristics and product identification requirements that should be included in the business documents. The purpose is to stipulate that the business documents should include

The main characteristics and product identification requirements of the included pressure reducing valve and filter pressure reducing valve.

---Part 2.Test methods to assess the main characteristics that should be included in the business documents. The purpose is to stipulate the gas according to GB/T 20081.1

The test items, test procedures, and testing of the main characteristics contained in the commercial documents of the dynamic pressure reducing valve and the filter pressure reducing valve are tested.

The presentation method of the test results.

---Part 3.Alternative methods for testing the flow characteristics of the pressure reducing valve. The purpose is to specify optional tests for testing the flow characteristics of pneumatic components.

This document defines an optional test method for the flow characteristics of a pneumatic pressure reducing valve, which uses an isothermal gas tank instead of a flow meter.

This method measures the forward flow characteristics by passing the compressed air in the gas tank through the pressure reducing valve under test, and inflating the isothermal gas tank to measure the forward flow characteristics;

The compressed air in the tank flows through the tested pressure reducing valve and is discharged to the atmosphere to obtain the overflow flow characteristics.

Compared with ISO 6953-2, the test method specified in this document has the following advantages.

- a) No need for a large flow gas source;
- b) It is easy to test large flow components;
- c) Reduce air consumption;
- d) Shorten the test time.

Pneumatic pressure reducing valve and filter pressure reducing valve

Part 3.Test the flow characteristics of the pressure reducing valve

Alternative method

## 1 Scope

This document specifies optional test methods for testing the flow characteristics of

pneumatic components.

This document is only applicable to the test of the decreasing part of the hysteresis curve of the forward flow and overflow flow characteristics that meet the following conditions.

- Compared with the response of the pressure change in the inflation and deflation test, the pressure change of the component under test is fast enough and can be ignored;
- There is no overshoot or oscillation in the pressure response.

This document specifies the requirements for test equipment, test procedures and test results.

This document gives examples of test results (see Appendix A), various data processing methods (see Appendix B), and visual data processing procedures

(See Appendix C), and a diagram showing the overshoot and undershoot of the adjustment pressure response and the inlet pressure change beyond the allowable range (see Appendix D).

This document applies to the following components.

- Comply with ISO 6953-1 pressure reducing valve and filter pressure reducing valve;
- Electric-pneumatic pressure control valve conforming to ISO 10094;
- Other components, such as overflow valves.

Note. If pressure regulation characteristics are required, ISO 6953-2 is applicable.

## 2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

ISO 5598 Fluid power systems and components-Vocabulary  
(Fluidpowersystemsandcomponents-Vocabulary)

ISO 6358-1 Determination of flow characteristics of compressible fluid components used in pneumatics. Part 1.General rules and tests for steady-state flow

Test method

(Pneumaticfluidpower-Determinationofflow-ratecharacteristicsofcomponents-Part 1.

Generalrulesandtestmethodsforsteady-stateflow)