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STANDARD

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(IEC 60534-4 : 2006)

(JVMA)

**Industrial-process control valves—
Part 4: Inspection and routine
testing**

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Valve Manufacturers' Association (JVMA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS B 2005-4:2008** is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public or utility model right. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public or utility model right.

JIS B 2005 series consists of the following 17 parts under the general title “*Industrial-process control valves*”:

JIS B 2005-1 *Part 1: Control valve terminology and general considerations*

JIS B 2005-2-1 *Part 2-1: Flow capacity—Sizing equations for fluid flow under installed conditions*

JIS B 2005-2-3 *Part 2-3: Flow capacity—Test procedures*

JIS B 2005-2-4 *Part 2: Flow capacity—Section Four: Inherent flow characteristics and rangeability*

JIS B 2005-3-1 *Part 3-1: Dimensions—Face-to-face dimensions for flanged, two-way, globe-type, straight pattern and centre-to-face dimensions for flanged, two-way, globe-type, angle pattern control valves*

JIS B 2005-3-2 *Part 3-2: Dimensions—Face-to-face dimensions for rotary control valves except butterfly valves*

JIS B 2005-3-3 *Part 3-3: Dimensions—End-to-end dimensions for butt-weld, two-way, globe-type, straight pattern control valves*

JIS B 2005-4 *Part 4: Inspection and routine testing*

JIS B 2005-5 *Part 5: Marking*

JIS B 2005-6-1 *Part 6: Mounting details for attachment of positioners to control valves—Section 1: Positioner mounting on linear actuators*

JIS B 2005-6-2 *Part 6-2: Mounting details for attachment of positioners to control valves—Positioner mounting on rotary actuators*

JIS B 2005-7 *Part 7: Control valve data sheet*

JIS B 2005-8-1 *Part 8: Noise considerations—Section One: Laboratory measurement of noise generated by aerodynamic flow through control valves*

- JIS B 2005-8-2 *Part 8: Noise considerations—Section 2: Laboratory measurement of noise generated by hydrodynamic flow through control valves*
- JIS B 2005-8-3 *Part 8-3: Noise considerations—Control valve aerodynamic noise prediction method*
- JIS B 2005-8-4 *Part 8-4: Noise considerations—Prediction of noise generated by hydrodynamic flow*
- JIS B 2005-9 *Part 9: Test procedure for response measurements from step inputs*
(to be published)

Industrial-process control valves— Part 4: Inspection and routine testing

Introduction

This Japanese Industrial Standard has been prepared based on the third edition of **IEC 60534-4** published in 2006 without any modifications of the technical contents.

The portions underlined with dots are the matters not given in the corresponding International Standard.

1 Scope

This Standard specifies the requirements for the inspection and routine testing of control valves manufactured in conformity with the other parts of **JIS B 2005** series.

This Standard is applicable to valves with pressure ratings not exceeding Class 2500. The requirements for actuators apply only to pneumatic actuators.

This Standard does not apply to the types of control valves where radioactive service, fire safety testing, or other hazardous service conditions are encountered. If a standard for hazardous service conflicts with the requirements of this Standard, the standard for hazardous service should take precedence.

NOTE 1 This Standard can be extended to higher pressure ratings by agreement between purchaser and manufacturer.

NOTE 2 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows:

IEC 60534-4:2006 *Industrial-process control valves—Part 4: Inspection and routine testing* (IDT)

The symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 2005 (series) *Industrial-process control valves*

NOTE : Corresponding International Standard: IEC 60534 (all parts) *Industrial-process control valves* (IDT)

JIS C 1805 (series) *Process measurement and control devices—General methods and procedures for evaluating performance*

NOTE : Corresponding International Standard: IEC 61298 (all parts) *Process measurement and control devices—General methods and procedures for evaluating performance* (MOD)

3 Terms and definitions

For the purposes of this Standard, the following definitions, as well as those given in **JIS B 2005** series, apply.

3.1 bench range

range of pressures to the actuator within which the nominal travel is performed in both directions, with no pressure in the valve, but including friction forces

NOTE : The actuator operating range, i.e. when the valve is installed under actual process conditions, will be different from the bench range.

3.2 dead band

finite range of values within which reversal of the input variable does not produce any noticeable change in the output variable (see figure 1)

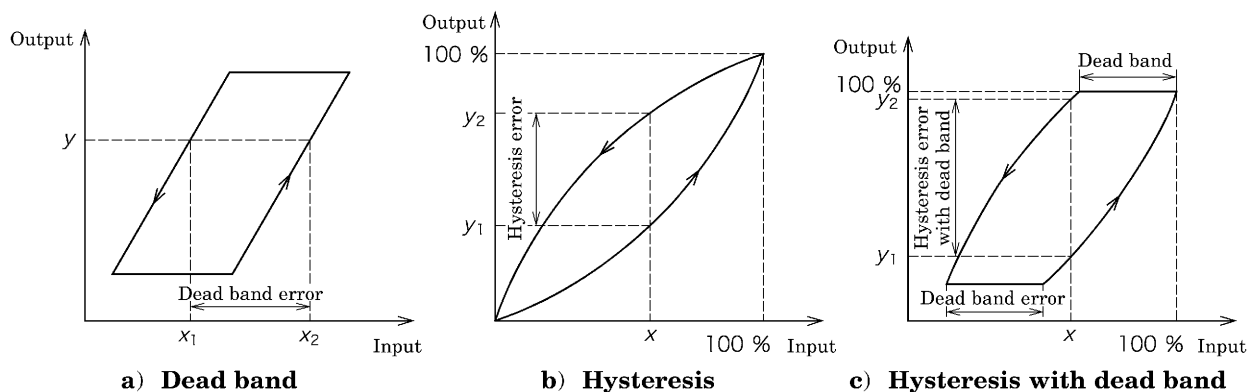


Figure 1 Hysteresis and dead band

3.3 dead band error

maximum value of the span of the dead band (over the measuring range)

3.4 hysteresis

property of a device or instrument whereby it gives different output values in relation to its input values depending on the directional sequence in which the input values have been applied (see figure 1)

3.5 hysteresis error

maximum deviation between the two calibration curves of the measured variable as obtained by an upscale going traverse and a downscale going traverse over the full range and subtracting the value of the dead band

3.6 type inspection and testing

inspection and testing carried out by the manufacturer in accordance with its own procedures to assess whether products made by the same manufacturing process meet the requirements of the purchase order

The products inspected and tested need not necessarily be the products actually supplied.