



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS B 8419 : 2010

(JFPA/JSA)

**Pneumatic fluid power—Directional
control valves—Measurement of
shifting time and response time**

ICS 23.100.50

Reference number : JIS B 8419 : 2010 (E)

PROTECTED BY COPYRIGHT

 **Documents**
Document Sharing Hub

10 S

B 8419 : 2010

Date of Establishment: 2010-05-20

Date of Public Notice in Official Gazette: 2010-05-20

Investigated by: Japanese Industrial Standards Committee
Standards Board

Technical Committee on Machine Elements

JIS B 8419 : 2010, First English edition published in 2011-05

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and units	2
5 Test equipment	3
6 Test accuracy	5
7 Test procedure	7
8 Calculation of measurement data	8
9 Report on measurement data of test	8
10 Reference to this Standard	8
Annex A (informative) Related standards on switching characteristics	9
Annex JA (informative) Comparison table between JIS and corresponding International Standard	12

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance to the proposal of establishing a Japanese Industrial Standard submitted by Japan Fluid Power Association (JFPA)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

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, utility model right or application for registration of utility model after opening to the public which have technical properties. 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, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Pneumatic fluid power — Directional control valves — Measurement of shifting time and response time

Introduction

This Japanese Industrial Standard has been prepared based on the first edition of **ISO 12238** published in 2001 with some modifications of the technical contents to add the measuring method of “response time” widely used in Japan.

The portions given sidelines or dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the testing procedures for measuring the shifting time and the response time of electrically- or pneumatically-operated directional control valves and moving-part logic elements.

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

ISO 12238 : 2001 *Pneumatic fluid power — Directional control valves — Measurement of shifting time* (MOD)

In addition, 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. For standards with the year indication, only the editions of the indicated year shall be applied and any revisions (including amendments) made thereafter shall not be applied. For those without the indication of the year, the most recent edition (including amendments) shall be applied.

JIS B 0125-1 *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols for conventional use and data processing applications*

NOTE : Corresponding International Standard : ISO 1219-1 *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols for conventional use and data-processing applications* (MOD)

JIS B 0142 : 1994 *Glossary of terms for oil hydraulics and pneumatics*

NOTE : Corresponding International Standard : ISO 5598 : 1985 *Fluid power systems and components — Vocabulary* (NEQ)

JIS B 8390 *Pneumatic fluid power — Components using compressible fluids — Determination of flow-rate characteristics*

NOTE : Corresponding International Standard : ISO 6358 *Pneumatic fluid power — Components using compressible fluids — Determination of flow-rate characteristics* (MOD)

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS B 0142** and the following terms and definitions apply.

3.1 shifting time

time lapse measured from a change in the control signal (electrical or pneumatic) until the time at which the pressure in the associated outlet port changes by 10 % between specified pressure levels, with only a pressure transducer connected to the outlet

NOTE : Many national standards, as well as **ISO 5598**, give definitions for terms related to the shifting characteristics of directional control valves. Such standards and related terms are given in Annex A.

3.2 shifting on-time

shifting time when the control signal is applied

3.3 shifting off-time

shifting time when the control signal is removed

3.4 response time

time lapse measured from a change in the control signal until the time at which the pressure in the associated outlet port changes, with only a pressure transducer connected to the outlet

3.5 response on-time

response time when the control signal is applied

3.6 response off-time

response time when the control signal is removed

4 Symbols and units

4.1 For the purposes of this Standard, symbols, meanings and units shall be as given in table 1.