

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS B 1192-4 : 2018

(JMAA/JSA)

**Ball screws—Part 4: Static axial
rigidity**

ICS 25.060.99

Reference number : **JIS B 1192-4 : 2018 (E)**

B 1192-4 : 2018

Date of Establishment: 2018-08-20

Date of Public Notice in Official Gazette: 2018-08-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area

JIS B 1192-4:2018, First English edition published in 2019-03

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

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

© JSA 2019

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

KK/AT

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
4 Symbols and subscripts	1
4.1 Symbols	1
4.2 Subscripts	2
5 Static axial rigidity, R	3
5.1 General	3
5.2 Static axial rigidity, R	5
5.3 Static axial rigidity of ball screw, R_{bs}	6
5.4 Static axial rigidity of ball screw shaft, R_s	6
5.5 Static axial rigidity of ball nut unit, R_{nu}	7
Annex JA (informative) Comparison table between JIS and corresponding International Standard	11

Foreword

This Japanese Industrial Standard has been established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by Japan Machine Accessory Association (JMAA)/Japanese Standards Association (JSA) with the 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 patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

JIS B 1192 series consists of the following parts under the general title “*Ball screws*”:

JIS B 1192-1 *Part 1: Vocabulary and designation*

JIS B 1192-2 *Part 2: Nominal diameters and nominal leads*

JIS B 1192-3 *Part 3: Acceptance conditions and test method*

JIS B 1192-4 *Part 4: Static axial rigidity*

JIS B 1192-5 *Part 5: Static and dynamic axial load ratings and operational life*

Ball screws—Part 4: Static axial rigidity

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 3408-4:2006**, Edition 1 with some modifications of the technical contents in line with actual situations in Japan, such as partial changes in formulae.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the static axial rigidity of ball screws.

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

ISO 3408-4:2006 *Ball screws—Part 4: Static axial rigidity* (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 reference

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

JIS B 1192-1 *Ball screws—Part 1: Vocabulary and designation*

NOTE Corresponding International Standard: ISO 3408-1 *Ball screws—Part 1: Vocabulary and designation*

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS B 1192-1** apply.

4 Symbols and subscripts

4.1 Symbols

For the purpose of this Standard, the following symbols apply.

Symbol	Description	Unit
α	Contact angle	°
φ	Lead angle	°
Δl	Axial elastic deflection	μm