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(JSME/JSA)

**Plain bearings—Symbols—
Part 1: Basic symbols**

ICS 21.100.10

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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 as the result of proposal for establishment of Japanese Industrial Standard submitted by The Japan Society of Mechanical Engineers (JSME)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been prepared based on **ISO 7904-1 : 1995** *Plain bearings—Symbols—Part 1: Basic symbols* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

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.

JIS B 0163 consists of following 2 parts under the general title “*Plain bearings—Symbols*”:

Part 1: Basic symbols

Part 2: Applications

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

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Plain bearings—Symbols— Part 1: Basic symbols

Introduction This Japanese Industrial Standard has been prepared based on the first edition of **ISO 7904-1:1995** *Plain bearings—Symbols—Part 1: Basic symbols* published in 1995 with some modifications of the technical contents.

The portions underlined with dots in this Standard are the matters in which the contents of the original International Standard have been modified. A list of modifications with explanations is given in Annex (informative).

For the letter symbols which are defined with 「—」 in **ISO** standard are defined in this part of **JIS B 0163** without modifications.

1 Scope This part of **JIS B 0163** defines basic symbols for used in the field of plain bearings.

NOTE : The International Standard corresponding to this part of **JIS B 0163** is as follows:

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

ISO 7904-1:1995 *Plain bearings—Symbols—Part 1: Basic symbols*
(MOD)

2 Normative reference The following standard contains provisions which, through reference in this text, constitute provisions of this part of **JIS B 0163**. The most recent edition of the standard (including amendments) indicated below shall be applied.

JIS B 0163-2 *Plain bearings—Symbols—Part 2: Applications*

NOTE : **ISO 7904-2:1995** *Plain bearings—Symbols—Part 2: Applications* is equivalent to the said standard.

3 Basic characters Basic characters consist of one or, in exceptional cases, of two or three capital and/or lower-case letters.

Variables shall be in italic typeface; abbreviations shall be in Roman typeface.

Examples : *N* (rotational frequency);

So (Sommerfeld number);

HRC (Rockwell hardness C scale).

4 Additional signs

4.1 Subscripts Subscripts may consist of one, two or three letters, Arabian digits or letter/digit combinations. In general, the first letter of a subscript corresponds to

the first letter of the English concept which is referred to by the subscripts. Subsequent letters shall also follow this concept. The expressions used should be as short as possible.

When the signs correspond to a variable, they shall be in italic typeface; when they refer to an abbreviation, they shall be in Roman typeface.

Examples : c = circular;
 cr = critical;
 cal = calculated.

If subscripts are combined, they shall be separated by means of commas but without a space between. For example, the permissible minimum lubricant film thickness at the transition to boundary lubrication would then be designated as $h_{lim, tr}$. As such expressions are rather awkward, use of substitute expressions in these cases is also permitted, such as one single letter or (better still) one digit as subscript which has not yet been used; e.g. h_1 instead of $h_{lim, tr}$.

4.2 Superscripts Superscripts shall consist of points, lines, commas, asterisks or other characteristic signs. Only two superscripts are permitted per letter symbol.

Example : $\bar{C}^*$

5 Application and distinction by means of basic characters, subscripts and superscripts Angles and directions of rotation are defined positively as rotating left-hand (counter-clockwise); the same applies to rotational frequencies, peripheral and angular velocities.

A parameter is represented by the basic character with an asterisk (*); e.g. F^* for the bearing capacity parameter. If the bearing capacity parameter of a journal bearing is to be distinguished from that of a thrust bearing, this can be done by the designation F_r^* or F_{ax}^* . However, if several different bearing capacity parameters are used, they can be distinguished in the relevant standard or publication by appropriate subscripts; e.g. 1, 2, 3.

Examples : The letter C may be used to designate the bearing clearance in general, C_{ax} the wedge depth of thrust bearings, C_r the radial clearance and C_D the diametral clearance.

6 Symbols and terms

6.1 Basic characters (Roman alphabet)

Symbol	Term (Japanese)	Reading	English equivalent (informative)
<i>A</i>	面積 破断時の伸び 放熱表面積	MENSEKI HADANZI NO NOBI HÔNETU HYÔMENSEKI	area elongation at fracture area of heat-emitting surface
<i>a</i>	距離 加速度 熱拡散率	KYORI KASOKU DO NETU KAKUSAN RITU	distance acceleration thermal diffusivity
<i>B</i>	(滑り方向と直角の) 幅 有効軸受幅	(SUBERI HÔKÔ TO TYOKKAKU NO) HABA YÛKÔ ZIKUUEKE HABA	(breadth); width (at right angles to the direction of motion) effective bearing width
<i>b</i>	幅	HABA	width
<i>C</i>	すき間 濃度 面取り	SUKIMA NÔDO MENTORI	clearance concentration chamfer
<i>c</i>	比熱 剛性係数	HINETU GÔSEI KEISÛ	specific heat stiffness coefficient
<i>D</i>	軸受直径	ZIKUUE TYOKKEI	bearing diameter
<i>d</i>	直径 減衰係数	TYOKKEI GENSUI KEISÛ	diameter damping coefficient
<i>E</i>	縦弾性係数	ZYÛDANSEI KEISÛ	modulus of elasticity
<i>e</i>	偏心量	HENSIN RYÔ	absolute eccentricity
<i>F</i>	軸受荷重 力	ZIKUUE KAZYÛ TIKARA	bearing force (load) force
<i>f</i>	摩擦係数 関数	MASATU KEISÛ KANSÛ	coefficient of friction function

Symbol	Term (Japanese)	Reading	English equivalent (informative)
G	横弾性係数	ÔDANSEI KEISÛ	shear modulus
g	重力の加速度	ZYÛRYOKU NO KASOKU DO	acceleration due to gravity
H	高さ	TAKASA	height
HB	ブリネル硬さ	BURINERU KATASA	Brinell hardness
HRB	ロックウェル硬さ (B スケール)	ROKKUWERU KATASA (B SUKÊRU)	Rockwell hardness (ball)
HRC	ロックウェル硬さ (C スケール)	ROKKUWERU KATASA (C SUKÊRU)	Rockwell hardness (cone)
HV	ビッカース硬さ	BIKKÂSU KATASA	Vickers hardness
h	高さ 膜厚さ 局所潤滑剤膜厚さ	TAKASA MAKU ATUSA KYOKUSYO ZYUNKATUZAI MAKU ATUSA RAININGU ATUSA	height film thickness local lubricant film thickness
I	慣性モーメント 定積分	KANSEI MÔMENTO TEISEKI BUN	moment of inertia definite integral
i	虚数単位	KYOSÛ TAN'I	imaginary unit ($\sqrt{-1}$)
J	—	—	—
j	虚数単位	KYOSÛ TAN'I	imaginary unit ($\sqrt{-1}$)
K	係数 定数 補助変数	KEISÛ TEISÛ HOZO HENSÛ	coefficient constant auxiliary variable
k	熱伝達率	NETU DENTATU RITU	coefficient of heat transfer

Symbol	Term (Japanese)	Reading	English equivalent (informative)
L	長さ 滑り方向の滑り面長さ パッドの円周方向長さ	NAGASA SUBERI HÔKÔ NO SUBERI MEN NAGASA PADDO NO ENSHÛ HÔKÔ NAGASA	length length of sliding surface in direction of motion length of pad in circumferential direction
l	長さ	NAGASA	length
M	モーメント 混合係数	MÔMENTO KONGÔ KEISÛ	moment mixing factor
m	質量	SITURYÔ	mass
N	回転速度 (単位時間における回転 の数)	KAITEN SOKUDO (TAN'I ZIKAN NI OKERU KAITEN NO KAZU)	rotational frequency (revolutions per time unit)
n	数	KAZU	number
O	—	—	—
o	—	—	—
P	動力 熱の流れ	DÔRYOKU NETU NO NAGARE	power heat flow
p	圧力	ATURYOKU	pressure
Q	流量 体積流量	RYÛRYÔ TAISEKI RYÛRYÔ	flow rate volume flow rate
q	—	—	—
R	半径 表面粗さ 抵抗 材料強度	HANKEI HYÔMEN ARASA TEIKÔ ZAIKYÔ KYÔDO	radius roughness (surface finish) resistance material strength
Re	レイノルズ数	REINORUZU SÛ	Reynolds number
r	半径 再現性	HANKEI SAIGEN SEI	radius repeatability