

# INTERNATIONAL STANDARD

**ISO**  
**13414**

First edition  
1997-12-15

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## **Aerospace — Airframe needle roller bearings, single-row, shielded — Inch series**

*Aéronautique et espace — Roulements à aiguilles, à une rangée, avec  
flasques, pour cellule d'aéronef — Série «inch»*

Preview



Reference number  
ISO 13414:1997(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 13414 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 15, *Airframe bearings*.

Annex A of this International Standard is for information only.

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Preview

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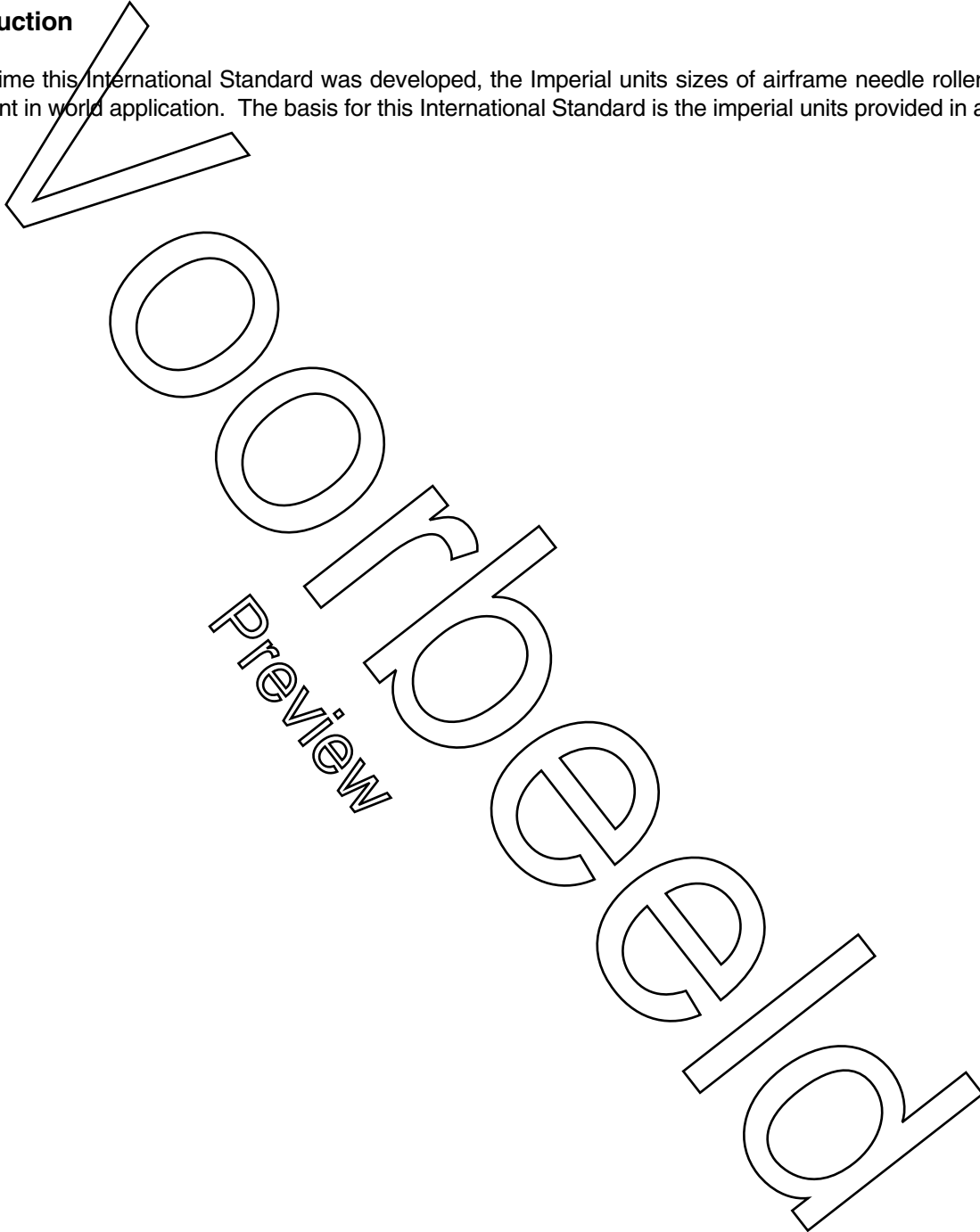
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## Introduction

At the time this International Standard was developed, the Imperial units sizes of airframe needle roller bearings were dominant in world application. The basis for this International Standard is the imperial units provided in annex A.





# Aerospace — Airframe needle roller bearings, single-row, shielded — Inch series

## 1 Scope

This International Standard specifies the characteristics, boundary dimensions, tolerances, internal clearances and permissible static radial loads of inch series, single-row, needle roller bearings used in airframe applications.

The airframe needle roller bearings covered by this International Standard are designed to operate in the temperature range  $-54\text{ }^{\circ}\text{C}$  to  $+121\text{ }^{\circ}\text{C}$ .

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 683-17:—<sup>1)</sup>, *Heat-treated steels, alloy steels and free-cutting steels — Part 17: Ball and roller bearing steels.*

ISO 1132:1980, *Rolling bearings — Tolerances — Definitions.*

ISO 2082:1986, *Metallic coatings — Electroplated coatings of cadmium on iron or steel.*

ISO 4520:1981, *Chromate conversion coatings on electroplated zinc and cadmium coatings.*

ISO 5593:1997, *Rolling bearings — Vocabulary.*

ISO 6158:1984, *Metallic coatings — Electroplated coatings of chromium for engineering purposes.*

ISO 13411:1997, *Aerospace — Airframe needle roller, cylindrical roller and track roller bearings — Technical specification.*

AMS 2417E:1993, *Plating, zinc-nickel alloy.*<sup>2)</sup>

## 3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5593 apply.

## 4 Symbols

**4.1** For the purposes of this International Standard, the symbols given in ISO 1132 apply. The symbols (except those for tolerances) shown in the figures and the values given in the tables denote nominal dimensions unless specified otherwise.

<sup>1)</sup> To be published. (Revision of ISO 683-17:1976)

<sup>2)</sup> Available from: SAE International  
400 Commonwealth Drive  
Warrendale, PA 15096-0001  
USA

4.2 The following additional symbols for bearings covered by this International Standard also apply.

$B$  overall width (over faces of end washers)

$C_s$  permissible static radial load

$d_a$  clamping face diameter

5 Required characteristics

5.1 Dimensions — Tolerances — Internal clearances — Loads

For values, see table 1. For configuration, see figure 1.

Table 1

Dimensions in millimetres, tolerance and clearance values in micrometres

Diameter code	$d$	$D$	$B$	$C$	Tolerance values			$r_s$	$d_a$	Internal clearance			$C_s$	Mass kg ≈		
					$\Delta_{Dmp}$	$K_{ia}$ max.	$\Delta_{Dmp}$			Radial, $G_r$		Axial, $G_a$ max.				
										min.	min.				max.	
03	4,826	17,463	7,93	5,54	25	-15	0,55	11,2	8	43	635	8	0,01			
05	6,35	19,05	9,53	7,14												
05	7,938	20,638	11,1	8,74												
06	9,525	22,225	14,28	11,92												
07	11,113	23,813	15,88	13,9												
08	12,7	28,575	19,05	16,67												
09	14,288	30,163	22,23	19,84												
10	15,875	31,75	25,4	23,02												
12	19,05	34,925	28,58	25,4												
14	22,225	41,275	31,75	28,58										-18	0,81	31,8
16	25,4	44,45														
20	31,75	50,8														
24	38,1	57,15														
28	44,45	63,5														
32	50,8	69,85														
36	57,15	76,2														
40	63,5	82,55														
44	69,85	88,9														
48	76,2	95,25														
52	82,55	101,6	26,65	0	-20	1,11	92,5	46	104							
56	88,9	111,125														
60	95,25	117,475														
64	101,6	123,825														
80	127	149,225								26,52	0	-25	1,11	113,6	53	114
80	127	149,225														

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