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MIL-STD-1647D
04 October 1993
SUPERSEDING
MIL-STD-1647C
20 December 1987

MILITARY STANDARD

IDENTIFICATION MARKINGS FOR
DOMESTICALLY MANUFACTURED
BEARINGS, BALL, ANNULAR FOR INSTRUMENTS
AND PRECISION COMPONENTS



AMSC - N/A

FSC 3310

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MIL-STD-1647D

FOREWORD

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Commanding Officer, Naval Air Warfare Center Aircraft Division Lakehurst, Systems Requirements Department (Code SR3), Lakehurst, NJ 08733-5100 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1. SCOPE

1.1 Scope. This standard specifies the marking requirements for Identification and certification of miniature and Instrument type annular ball bearings of domestic manufacture.

1.2 Purpose. This standard establishes the symbolic markings to be used for the identification of bearings manufactured in the United States and Canada for use in defense contracts. The markings chosen comply with those established and accepted as standard by the bearing industry.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this standard to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the Issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

QQ-S-763 - Steel Bars, Wire, Shapes and Forgings,
Corrosion Resisting

MILITARY

MIL-B-81793 - Bearings, Ball, Annular, for Instruments and
Precision Rotating Components.

STANDARDS

MILITARY

MIL-STD-129 - Marking for Shipment and Storage.

MIL-STD-1334 - Process for Barrier Coating of Anti-friction
Bearings.

(Unless otherwise Indicated, copies of military specifications and standards are available from the Defense Printing Service, Subscription Services Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094.)

2.2 Non-Governments Publications. The following documents form a part of this standard to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD (Department of Defense) adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the Issues of the documents not listed in the DODISS are the issues of the documents cited in the solicitation.

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

AMS 6444 Steel Bars, Forgings and Tubing; 1.45 Cr (0.98-10c)
SAE 52100) Premium Aircraft - Quality, Consumable Electrode
Vacuum Melted

(Application for copies should be addressed to the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.)

2.3 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specified exemption has been obtained.

3. DEFINITIONS.

3.1 Miniature and instrument type annular ball bearings. For purposes of this standard, any reference to "bearings" or "ball bearings" shall be understood to mean miniature and instrument type annular ball bearings, ABEC 1 tolerance or better and 30mm O.D. and smaller.

3.2 Domestic manufacture. Domestically manufactured ball bearings are those which are assembled in the United States or Canada. When a ball bearing is involved, all components of the assembly must also have been manufactured in the United States or Canada.

3.3 Made in U.S.A. Made in U.S.A. refers to ball bearings and components of ball bearings completely manufactured, assembled and tested within the United States of America.

3.4 Basic bearing part number. The basic bearing part number refers to the group of numbers or letters in a manufacturer's part number which specifies the bore, outside diameter, width, material and the number of shields or seals used.

4. GENERAL REQUIREMENTS

4.1 Identification. All bearings used in any DOD contract, or bearings supplied for the repair of a DOD contract item shall be marked in accordance with one of the following methods:

4.1.1 Symbolic marking. The applicable symbolic marking illustrated in figure 1 shall be marked on the inner or outer ring face of bearings, ABEC 1 or better 30mm/1.1811 in. outer diameter or less. Symbolic markings shall fully identify the manufacturer of the bearing and the material used in its manufacture (QQ-S-763 or AMS 6444).

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4.1.2 Indirect marking. Bearings having an inadequate face width for the symbolic markings (see figure 1) shall be exempt from the marking requirements of 4.1.1. The unit packages of such bearings shall be marked in accordance with MIL-STD-129.

4.1.3 Barrier coated bearing marking. In addition to the requirements of 4.1.1 and 4.1.2, barrier coated bearings shall be marked in accordance with MIL-STD-1334. Such markings shall be accomplished prior to barrier coating of the bearing.

4.1.4 Duplex bearing marking. Duplex bearings shall be marked in accordance with the requirements of 4.1.1, 4.1.2 and MIL-B-81793. In addition, bearings furnished as duplex pairs shall be marked to identify their relative position to each other in the assembly. Instructions shall be included with duplex bearings to properly identify such markings.

4.1.5 Source and specification control bearing marking. These bearings shall be marked in accordance with the requirements specified in 4.1.1 thru 4.1.4. The packaging of these bearings shall be in accordance with MIL-STD-129.

4.1.6 Exemptions from marking requirements. Bearings made of materials other than QQ-S-763 and AMS 6444 steels, bearings of configuration other than conventional radial or angular contact type, and bearings, where marking is specifically prohibited by the Government, shall be exempt from all marking requirements of this standard. Such bearings shall be marked per 4.1.1 through 4.1.5 only when specified in the applicable contract (except where marking is prohibited).

4.2 Certification of symbolic markings. All bearing manufacturers utilizing symbolic markings shall furnish to: Commander, Naval Air Systems Command (AIR-5166M), 1421 Jefferson Davis Highway, Arlington, VA 22243-5160, a notarized certification that the use of symbolic markings shall have the same meaning as the words "Made in U.S.A.", "U.S.A." or "Made in Canada", "Canada" and shall indicate the bearing was manufactured of corrosion-resistant steel (QQ-S-763) or chrome steel (AMS 6444) to tolerances which are equal to or exceed the requirements for ABEC 1.

4.3 Marking methods. Markings shall not result in raised metal or in any way affect the function of the bearing. The marking may be applied by stamping, electroetch, or any other permanent method. Selection of the marking method is left to the manufacturer.

5. NOTES

5* Supersession data. This standard supersedes MIL-STD-1647C.

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5.2 Subject term (keyword) listing.

Barrier coated
Duplex
Miniature
Symbolic

5.3 Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content Irrespective of the marginal notations and relationship to the last previous Issue."

Custodians:

Army - AT
Navy - AS
Air Force - 99

Preparing activity:

Navy - AS
(Project No. 3110-0875)

Review activities:

Air Force - 84
DISC- IS

MIL-STD-1647D

COMPANY NAME

ABEC 1 to ABEC 3

ABEC 5 or better

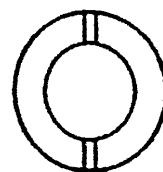
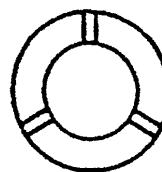
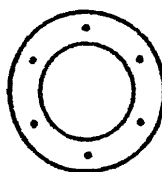
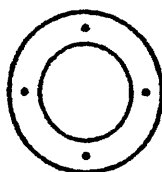
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QQ-S-763

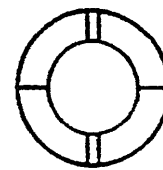
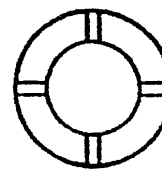
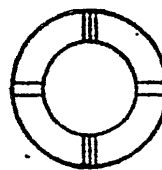
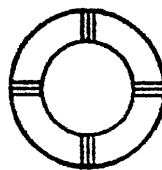
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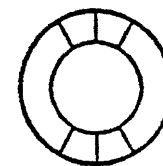
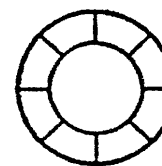
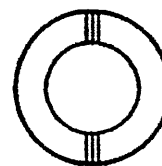
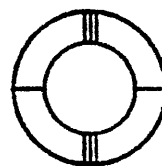
NEW HAMPSHIRE
BALL BEARING INC.
(PETERBOURGH, NH)



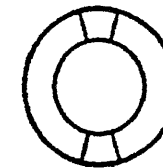
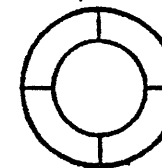
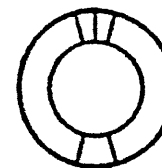
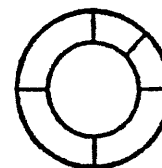
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(CHATSWORTH, CA)



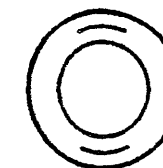
PACAMOR/KUBAR
BEARINGS INC.



MINATURE PRECISION BEARING
DIV. MPB CORP.



BARDEN CORP.



* BARDEN HAS NO SYMBOLS FOR ABEC 1 AND ABEC 3

FIGURE 1. Symbolic markings.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER

MIL-STD-1647D

2. DOCUMENT DATE (YYMMDD)

931004

3. DOCUMENT TITLE IDENTIFICATION MARKINGS FOR DOMESTICALLY MANUFACTURED BEARINGS, BALL, ANNULAR FOR INSTRUMENTS AND PRECISION COMPONENTS

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

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d. TELEPHONE (Include Area Code)

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(2) AUTOVON
(if applicable)

7. DATE SUBMITTED

(YYMMDD)

8. PREPARING ACTIVITY

a. RECOMMENDING OFFICER, NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION LAKEHURST SYSTEMS REQUIREMENTS DEPARTMENT

b. TELEPHONE (Include Area Code)

(1) Commercial

(908) 323-7488

(2) AUTOVON

624-7488

c. ADDRESS (Include Zip Code)

CODE SR3
LAKEHURST, NJ 08733-5100

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:

Defense Quality and Standardization Office
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466
Telephone (703) 756-2340 AUTOVON 289-2340

<p>NOT MEASUREMENT SENSITIVE</p>

NOTICE OF
CHANGE

MIL-STD-1647D
NOTICE 1
24 January 1994

MILITARY STANDARD

IDENTIFICATION MARKINGS FOR
DOMESTICALLY MANUFACTURED BEARINGS, BALL,
ANNULAR FOR INSTRUMENTS AND PRECISION COMPONENTS

TO ALL HOLDERS OF MIL-STD-1647D:

1. THE FOLLOWING PAGE OF MIL-STD-1647D HAS BEEN REVISED AND SUPERSEDES THE PAGE LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
5	24 January 1994	5	04 October 1993

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-STD-1647D will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with the appended page, is a separate publication. Each notice is to be retained by stocking points until the military standard is completely revised or canceled.

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Preparing activity:
Navy - AS
(Project 3110-0906)

Review activities:
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MIL-STD-1647D

COMPANY NAME

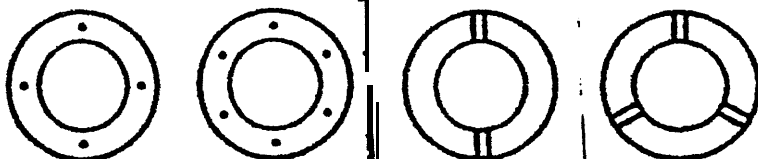
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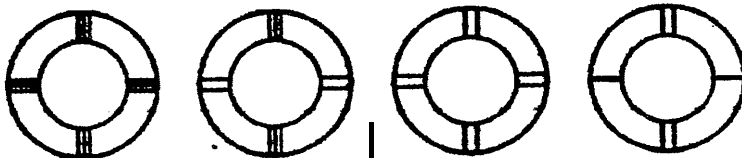
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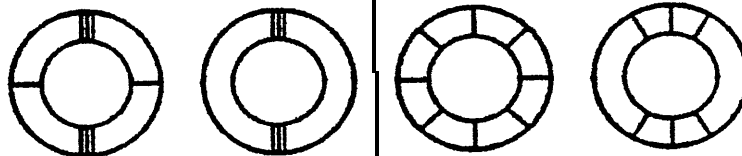
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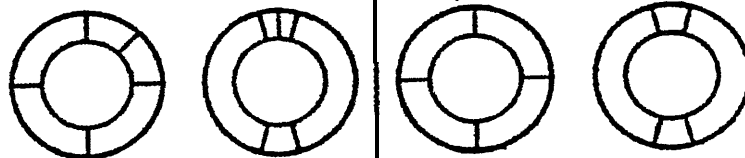
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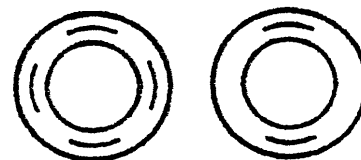


MINIATURE PRECISION BEARING
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*



* BARDEN HAS NO SYMBOLS FOR ABEC 1 AND ABEC 3

FIGURE 1. Symbolic markings.