INCH-POUND

A-A-59657B
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SUPERSEDING
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COMMERCIAL ITEM DESCRIPTION

BEARINGS, ROLLER, TAPERED, DOUBLE ROW, STEEP ANGLE, TWO SINGLE CONES, ONE DOUBLE CUP, NONADJUSTABLE (TYPE TNAS)

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description (CID) covers government acquisition requirements for complete (cone with rollers and cup) double row, tapered, roller bearings with steep angle, two single cones, and one double cup, nonadjustable (type TNAS) for general purpose use. These bearings are not intended for use in special precision applications such as on aircraft, precision ordnance, or submarine equipment..

2. CLASSIFICATION. The roller bearings shall be of one type (TNAS) and classified by the size codes listed in table I. The column headings in table I refer to bearing characteristics defined in figure 1.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: STDZNMGT@dla.mil or DLA Aviation VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5616. Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at https://assist.daps.dla.mil/.

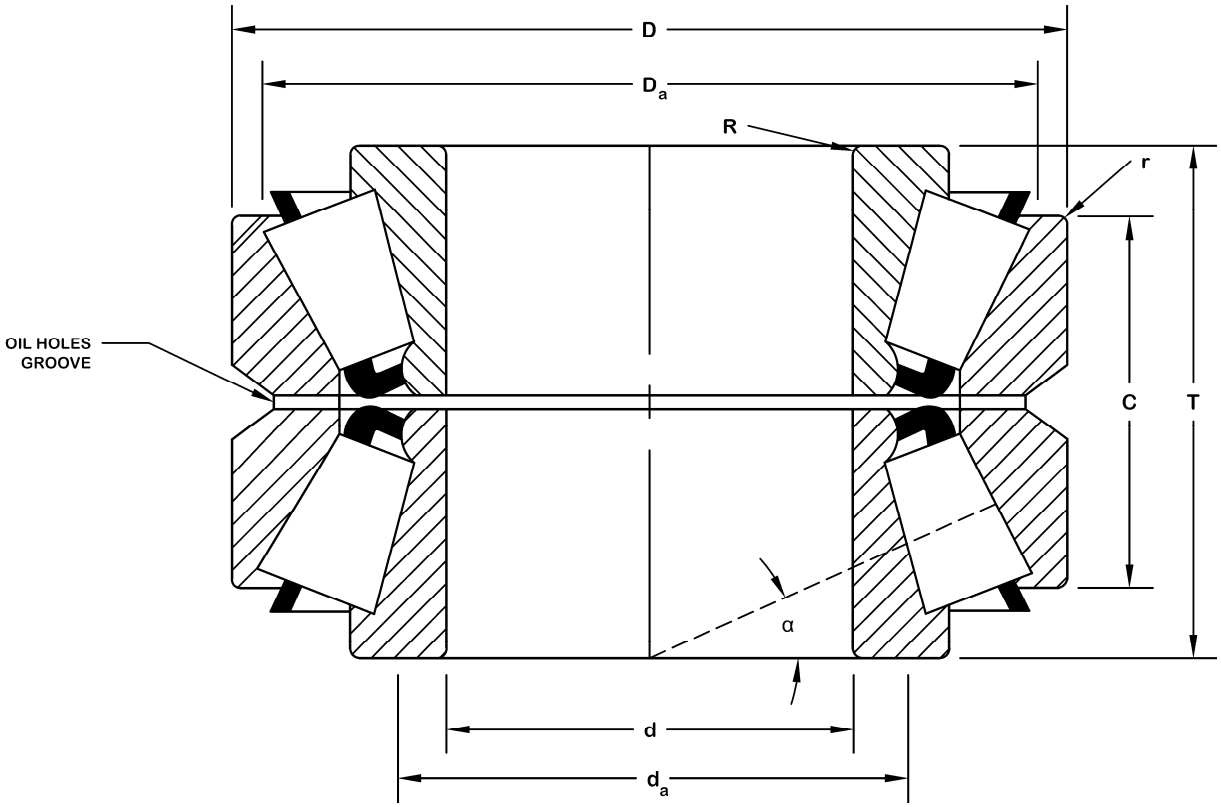

FIGURE 1. Bearing characteristics.

TABLE I. Size codes and dimensions.

Size code	Part number [1]	d	D	T	B	R [2]	r [2]	d_a	D_a	K factor	Basic dynamic load ratings (lb.)
		Bore	Outside diameter	Bearing width over cups	Cone width	Max. shaft fillet radius	Max. housing fillet radius	Recommended shoulder diameter			
	Cone-cup							Shaft	Housing		Two row radial
001	NA21075 - 21226D	0.7500	2.2500	1.4375	1.9375	0.06	0.03	1.24	2.01	.99	12800
002	NA43131 - 43319D	1.3125	3.1875	1.5625	2.1875	0.09	0.06	1.91	2.91	.87	21500
003	NA44143 - 44363D	1.4375	3.6250	1.5625	2.1875	0.03	0.06	2.01	3.35	.75	23300
004	NA44163 - 44363D	1.6250	3.6250	1.5625	2.1875	0.03	0.06	2.13	3.35	.75	13600
005	NA53176 - 53390D	1.7500	3.8750	1.7500	2.5626	0.09	0.06	2.40	3.54	.79	27700
006	NA55200 - 55444D	2.0000	4.4375	1.8125	2.5625	0.09	0.06	2.72	4.13	.66	29400
007	NA66212 - 66462D	2.1250	4.6250	2.1250	2.8750	0.14	0.03	2.87	4.37	.93	41200
008	NA72212 - 72488D	2.1250	4.8750	2.1875	3.0625	0.09	0.06	2.91	4.53	.79	50000
009	NA9378 - 9320D	3.0000	7.0000	2.9375	4.3065	0.14	0.09	4.13	6.46	.76	49100
010	NA98350 - 98789D	3.5000	7.8750	3.1581	4.5625	0.14	0.09	4.65	7.40	.92	112100
011	NA97450 - 97901D	4.5000	9.0000	3.3125	4.5625	0.14	0.09	5.51	8.38	.79	102600

[1] Part numbers are for reference only. Part numbers reflect the cup and cone numbers used by industry and the ABMA. Some cones and cups may be used in multiple configurations and are not limited to one bearing assembly.
[2] These maximum fillet radii shall be cleared by the bearing corners.
[3] Minus value indicates load center inside cone backface.

3. SALIENT CHARACTERISTICS

3.1 Dimensions. Bearing dimensions (and dynamic load ratings, see 3.4) shall conform to the requirements specified in table I for each of the bearing part numbers. The listed dimensions conform to the requirements specified in American Bearing Manufacturers Association (ABMA) Standard 19.2, "Tapered Roller Bearings - Radial Inch Design". The bearing size shall be specified in the acquisition order (see 7.3(b)). For any unlisted bearing size codes, the associated dimensional and dynamic load rating requirements should also be specified in the acquisition order.

3.2 Materials.

3.2.1 Cones (inner rings), cups (outer rings), and rollers. The bearing cones, cups, and rollers shall be made of case carburized or through-hardened steel produced in accordance with the ASTM International (ASTM) A295/A295M, "Standard Specification for High-Carbon Anti-Friction Bearing Steel", or ASTM A534, "Standard Specification for Carburizing Steels for Anti-Friction Bearings". The steel shall show a fine fracture grain size in accordance with ASTM E112, "Standard Test Methods for Determining Average Grain Size". Material hardness shall be no less than Rockwell hardness number of 58 on Rockwell C scale (HRC) and no more than 64 HRC as defined in ASTM E18, "Standard Test Methods for Rockwell Hardness of Metallic Materials".

3.2.2 Cage. The bearing cage material shall be impervious to deterioration from any lubricant, preservative, solvent, or other chemical substance expected to contact the bearing during normal use or storage. Similarly, the material shall not cause any chemical deterioration of any other bearing component. The cages shall be made from carbon steel (one piece stamped). Materials shall operate from -65 to 230 °F (-53.9 to 110 °C).

3.3 Tolerance class. The tolerance limits for bearings shall conform to tolerance class 4 as tabulated in ABMA Standard 19.2. Allowable tolerances for bearing components and assembled bearings are listed in tables II through VI.

TABLE II. Running clearance.

Bearings manufactured with correct running clearance for these fits			
Size code (ref)	Live shaft diameter limits	Housing	
	Tight fit	Live shaft bore limits	Dead shaft bore limits
		Loose fit	Tight fit
001	0.7515 - 0.7510	2.2530 - 2.2520	2.2490 - 2.2480
002	1.3140 - 1.3135	3.1905 - 3.1895	3.1865 - 3.1855
003	1.4390 - 1.4385	3.6280 - 3.6270	3.6240 - 3.6230
004	1.6265 - 1.6260	3.6280 - 3.6270	3.6240 - 3.6230
005	1.7515 - 1.7510	3.8780 - 3.8770	3.8740 - 3.8730
006	2.0020 - 2.0010	4.4405 - 4.4395	4.4365 - 4.4355
007	2.1270 - 2.1260	4.6280 - 4.6270	4.6240 - 4.6230
008	2.1270 - 2.1260	4.8780 - 4.8770	4.8740 - 4.8730
009	3.0025 - 3.0015	7.0030 - 7.0020	6.9990 - 6.9980
010	3.5030 - 3.5020	7.8780 - 7.8770	7.8740 - 7.8730
011	4.5035 - 4.5025	9.0030 - 9.0020	8.9990 - 8.9980

TABLE III. Cone bore tolerance.

Cone bore (d)			
Size range		Tolerance	
Over	Inclusive	Plus	Minus
0.0000	3.0000	5	0
3.0000	6.0000	10	0

Note: Allowable tolerances are in 0.0001 inch.

TABLE IV. Cup diameter tolerance.

Cup diameter (D)			
Size range		Tolerance	
Over	Inclusive	Plus	Minus
0.0000	12.0000	10	0
12.0000	24.0000	20	0

Note: Allowable tolerances are in 0.0001 inch.

TABLE V. Bearing width tolerance.

Bearing width (T)			
Bore size range		Tolerance	
Over	Inclusive	Plus	Minus
0.0000	5.0000	100	0
5.0000	12.0000	300	0

Note: Allowable tolerances are in 0.0001 inch.

TABLE VI. Assembled bearing tolerance.

Assembled bearing maximum radial runout		
Cup outside diameter (D)		Tolerance
Over	Inclusive	
0.0000	24.0000	20

Note: Allowable tolerances are in 0.0001 inch.

3.4 Dynamic load rating. The bearing dynamic load rating shall conform to the requirements specified in table I for each bearing size code. The listed ratings conform to the requirements specified in ABMA Standard 11, "Load Ratings and Fatigue Life for Roller Bearings".

3.5 Lubrication. The bearings shall be furnished without lubrication.

3.6 Contact angle. All bearings are steep angle bearings having a contact angle between 22 and 31 degrees. The contact angle is the angle between the line of action of the roller load and a plane perpendicular to the bearing axis.

4. REGULATORY REQUIREMENTS

4.1 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4.2 Foreign acquisition restrictions. Unless otherwise indicated in the solicitation and resulting contract, the foreign acquisition restrictions in Section 252.225, Clause 252.225.7016, of the Defense Federal Acquisition Regulation Supplement (DFARS) apply to products described by this CID.

5. PRODUCT CONFORMANCE PROVISIONS

5.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

5.2 Market acceptability. The products offered must have been previously sold either to the government or on the commercial market.

6. PACKAGING

6.1 Preservation, packing, and marking. Unless otherwise specified in the acquisition order, the bearings shall be preserved, packaged, and marked in accordance with MIL-DTL-197, "Packaging of Bearings, Associated Parts and Subassemblies" (see 7.3(c)).

7. NOTES

7.1 Part or identification number (PIN). The following PIN procedure is for government purposes and does not constitute a requirement for the contractor.

AA59657 - 002 Example of reference part number

- 002 — Size code (see table I)
- AA59657 — CID Number

AA59657 - 002 indicates: Bearing bore 1.3125 inches; outside diameter 3.1875 inches; width 1.5625 inches.

7.2 Sources of documents.

7.2.1 DFARS and FAR. Copies of DFARS and FAR may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Electronic copies of DFARS may be obtained from http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html. Electronic copies of FAR may be obtained from https://www.acquisition.gov/far/.

7.2.2 Military specifications. Copies of military specifications may be obtained from Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Electronic copies may be obtained from https://assist.daps.dla.mil/.

7.2.3 ABMA standards. Copies of ABMA standards may be obtained from the American Bearing Manufacturers Association, 2025 M Street NW, Suite 800, Washington, DC 20036. Electronic copies may be obtained from http://www.abma-dc.org/.

7.2.4 ASTM standards. Copies of ASTM standards may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Electronic copies may be obtained from http://www.astm.org/.

7.3 Ordering data. The acquisition order should specify the following information:

a. CID document number, revision, and CID PIN.
b. Bearing size (with dimension/load requirements if size is unlisted) (see 3.1).
c. Preservation, packaging, and marking requirements (see 6.1).

7.4 Cross-reference information. Table VII relates the original specification slant sheets to the replacement CIDs.

TABLE VII. Federal specification to CID cross-reference.

FF-B-187B specification sheets	Replacement CID numbers	ABMA types
1	A-A-59649	TS
2	A-A-59650	TSF
3	A-A-59651	TSS
4	A-A-59652	TSSF
5	A-A-59653	TDI and TDIS
6	A-A-59654	TDO
7	A-A-59655	TDOS
8	A-A-59656	TNA (normal angle)
9	A-A-59657	TNAS (steep angle)
10	A-A-59658	TNASW
11	A-A-59659	TNASWE

7.5 Subject term (key word) listing.

Bore
Cone
Cup
Load
Width

MILITARY INTERESTS:

Custodians:
Army - AR
Navy - MC
Air Force - 99
DLA - GS

Review Activities:
Navy - OS
Air Force - 84

CIVIL AGENCY
COORDINATING ACTIVITY:

GSA - FAS

Preparing Activity:
DLA - GS4

(Project 3110-2011-026)

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