

INCH-POUND

A-A-59659B
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SUPERSEDING
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COMMERCIAL ITEM DESCRIPTION

BEARINGS, ROLLER, TAPERED, DOUBLE ROW, STRAIGHT BORE,
TWO SINGLE CONES, CONE BACK FACE RIB GROUND ON THE OUTER DIAMETER
FOR SEALING PURPOSES, ONE DOUBLE CUP WITH LUBRICATION HOLES
AND GROOVE (TYPE TNASWE)

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 straight bore, two single cones, cone back face rib ground on the outer diameter for sealing purposes, one double cup with lubrication holes and groove (type TNASWE) 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 (TNASWE) and classified by the size codes listed [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/>.

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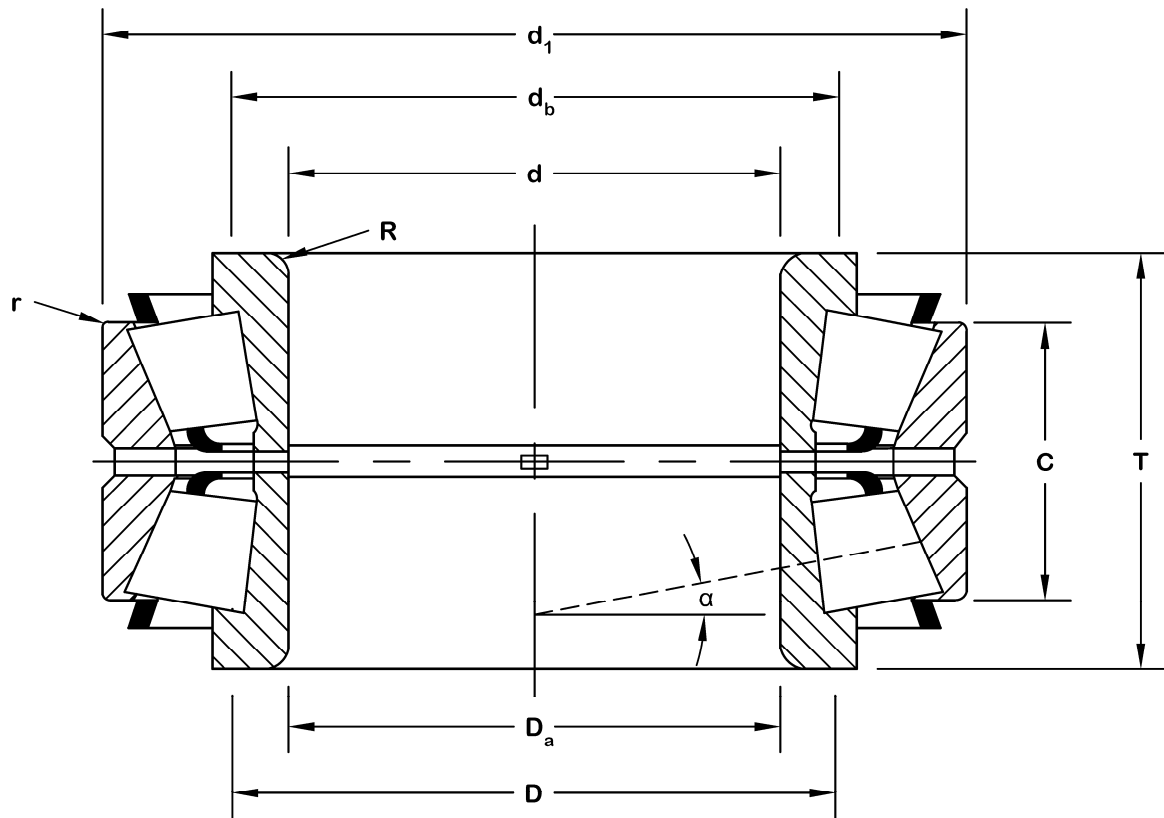


FIGURE 1. Bearing characteristics.

TABLE I. Size codes and dimensions.

Size code	Part number ¹	d	D	T	C	R ²	r ²	d _b	D _a	K factor	Basic dynamic load ratings (lb.)
		Bore	Outside diameter	Overall width	Overall cup width	Max. shaft fillet radius	Max. housing fillet radius	Recommended shoulder diameter			
	Shaft							Housing			
001	NA05076-SW - 05185D	0.7500	1.8504	1.3750	0.9926	0.03	0.03	0.94	1.67	1.64	7500
002	NA15117-SW - 15251D	1.1813	2.5000	2.0001	1.4375	0.03	0.03	1.40	2.32	1.67	14000
003	NA24776-SW - 24720D	1.5000	3.5000	2.3125	1.5625	0.03	0.03	1.77	2.83	1.49	2100
004	NA439-SW - 432D	1.7500	3.7500	2.6250	2.0000	0.03	0.03	2.05	3.43	2.05	35200
005	NA435-SW - 432D	1.7500	3.7500	2.8126	2.0000	0.14	0.03	2.24	3.43	2.05	35200
006	NA456-SW - 452D	2.0000	4.2500	2.9376	2.1250	0.14	0.03	2.56	3.94	1.74	37400
007	NA483-SW - 472D	2.7559	4.7244	2.9376	2.1250	0.14	0.03	3.27	4.49	1.52	39600
008	NA580-SW - 572D	3.2500	5.5115	3.6250	2.6250	0.14	0.03	3.86	5.24	1.45	51100
009	NA497-SW - 493D	3.3750	5.3750	2.8750	2.1250	0.14	0.03	3.90	5.12	1.31	42800
010	NA596-SW - 592D	3.5000	6.0000	3.6250	2.5000	0.14	0.03	4.09	5.67	1.32	59700
011	NA56425-SW - 56650D	4.2500	6.5000	3.5000	2.5000	0.14	0.03	4.84	6.26	1.18	62700
012	NA48290-SW - 48220D	5.0000	7.1875	3.6874	2.8750	0.14	0.03	5.55	6.93	1.91	74100
013	NA48685-SW - 48620D	5.6250	7.8750	3.6876	2.8750	0.14	0.03	6.22	7.60	1.74	74600
014	NA46790-SW - 46720D	6.5000	8.8750	3.7500	2.7500	0.14	0.03	7.13	8.58	1.52	78200
015	NA87700-SW - 87112D	7.0000	11.1250	4.2500	3.1250	0.14	0.06	7.87	10.50	1.41	119700
016	LM637349-NW - LM637310D	7.2500	9.5625	3.7500	2.7500	0.14	0.06	7.83	9.29	1.39	86500
017	NA67885-SW - 67820CD	7.5000	10.5000	4.3125	3.3125	0.14	0.06	8.23	10.20	1.22	115900
018	LM241149-NW - LM241110D	8.0000	10.8750	3.7500	2.8750	0.14	0.06	8.66	10.51	1.83	112100
019	LM446349-NW - LM446310D	9.2500	12.2500	4.0000	2.8750	0.14	0.06	9.92	11.85	1.61	130200
020	NA8575-SW - 8520CD	9.2500	12.8750	4.6250	3.2500	0.25	0.06	10.20	12.32	1.44	149200
021	LM249747-NW - LM249710D	9.9990	13.6875	4.0000	2.7500	0.14	0.06	10.71	13.11	1.20	105400
022	LM251649-NW - LM251610D	10.500	13.8750	4.2500	3.2500	0.25	0.06	11.46	13.39	1.83	154800
023	L3577049-MW - L357010CD	12.000	15.5000	4.2500	3.2500	0.25	0.06	12.95	14.96	1.63	172900

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.

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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 V.

TABLE II. 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.

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TABLE III. 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 IV. 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 V. 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 normal angle bearings having a contact angle between 10 and 19 degrees. The contact angle is the angle between the line of action of the roller load and a plane perpendicular to the bearing axis.

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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 VI relates the original specification slant sheets to the replacement CIDs.

TABLE VI. 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

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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 3110-2011-028)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST database at <https://assist.daps.dla.mil/>.