

INCH-POUND

MS17796B  
w/Amendment 1  
14 July 2004  
SUPERSEDING  
MS17796B  
7 May 2004

## DETAIL SPECIFICATION SHEET

Inactive for new design after 16 June 1997.

### BEARING, SLEEVE, FLANGED, SINTERED BRONZE, OIL IMPREGNATED

This specification sheet is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-B-5687, "Bearings, Sleeve, Washers, Thrust, Sintered, Metal Powder, Oil-Impregnated, General Specification for".

#### REQUIREMENTS:

1. Configuration. The bearings shall meet the configuration requirements of figure 1 and be of the dash numbers, dimensions, and characteristics of table I.
2. Material. The bearing material shall be sintered copper base powdered metal in accordance with MIL-B-5687, type I, grade 1 or 2. The yield strength in compression shall be 11,000 psi (minimum) for 0.1 percent permanent set.
3. Hardness. The bearing hardness shall be 30 - 70 HRH.
4. Porosity. The bearing porosity (oil content by volume) shall be 20 percent minimum.
5. Lubrication. Bearings are to be impregnated 18 percent by volume with oil conforming to MIL-PRF-17331, "Lubricating Oil, Steam Turbine and Gear, Moderate Service".
6. Dimensions. All dimensions are in inches.
7. Dimensional tolerances and chamfers. Dimensional tolerances and chamfers are shown in tables II, III, IV, and V.
8. Load ratings. Load ratings are shown in table VI and requirement 9.

AMSC N/A

FSC 3120

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

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9. Permissible load. For shaft velocities above 200 feet per minute, the permissible load is found from the following:

$$P = \frac{50,000}{V}$$

Where: P = Safe load, psi of projected area ( $\pi$  X bearing ID X length).

V = Shaft velocity in ft./min.

10. Static capacity. Specific static capacity is 75 percent of the maximum pure radial load, which will produce a permanent set of less than 0.1 percent in the bearing at any contact area between shaft and bearing at zero velocity. (Note: The specific static capacity given is intended as a guide in selecting the proper bearing and no tests are required to determine this factor for acceptance of bearing).

11. Static load. The maximum load should not exceed 8,500 psi of projected bearing area (length X inside diameter of bearing).

12. Radial crushing strength. The radial crushing strength of cylindrical parts shall be not less than the value determined from the following:

$$S = \frac{Lt^2 \times 22,500}{D-t}$$

Where: S = Radial crushing strength in pounds

D = OD of bearing in inches

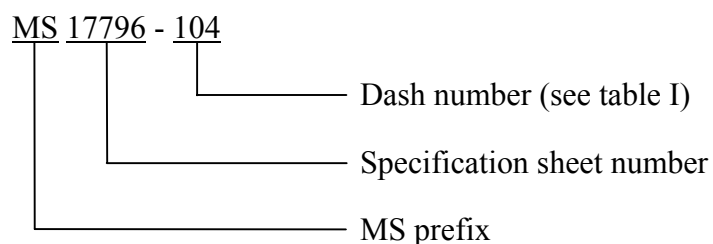
t = Wall thickness in inches

L = Length of bearing in inches

NOTES:

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

1. Part or identifying number (PIN). The PIN to be used for bearings acquired to this specification is created as follows:



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

3. Intended use restrictions.

- a. These bearings are not intended for reaming on assembly.
- b. These bearings are not recommended for military airframe applications.

AMENDMENT ANNOTATIONS: The margins of this specification are marked with vertical lines to indicate where modifications from this amendment 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.

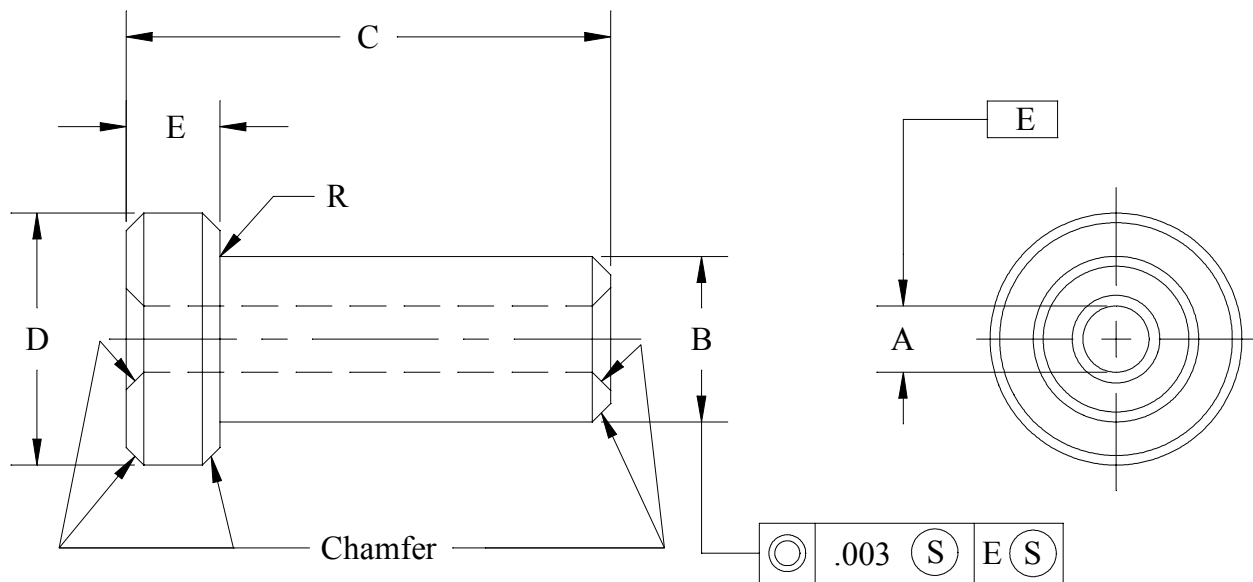


FIGURE 1. Bearing configuration.

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TABLE I. Dash numbers and dimensions.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
1	75	1/8	3/32	0.095	1/32	0.159	3/16	1/32
2	125	3/16						
3	175	1/4						
4	96	1/8	1/8	0.127	1/32	0.1895	1/4	1/32
5	160	3/16				0.253	3/8	1/16
6	222	1/4						
7	65	1/8						
8	130	3/16						
9	193	1/4						
10	255	5/16						
16	290	1/4	3/16	0.1895	1/32	0.3155	7/16	1/16
17	385	5/16						
18	485	3/8						
19	580	7/16						
20	675	1/2						
21	387	1/4	1/4	0.252	1/32	0.378	1/2	1/16
22	516	5/16						
23	645	3/8						
24	773	7/16						
25	902	1/2						
26	1,160	5/8						
27	387	1/4	1/4	0.252	1/32	0.440	9/16	1/16
28	516	5/16						
29	645	3/8						
30	773	7/16						
31	902	1/2						
32	1,160	5/8						
33	485	1/4	5/16	0.3145	1/32	0.440	9/16	1/16
34	645	5/16						
35	805	3/8						
36	970	7/16						
37	1,130	1/2						
38	1,450	5/8						

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TABLE I. Dash numbers and dimensions - Continued.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
39	405	1/4	5/16	0.3145	3/64	0.503	11/16	3/32
40	570	5/16						
41	730	3/8						
42	890	7/16						
43	1,060	1/2						
44	1,375	5/8						
45	580	1/4	3/8	0.377	3/64	0.503	5/8	1/16
46	775	5/16						
47	965	3/8						
48	1,160	7/16						
49	1,355	1/2						
50	1,740	5/8						
51	2,125	3/4	3/8	0.377	3/64	0.628	7/8	1/8
52	580	5/16						
53	775	3/8						
54	965	7/16						
55	1,160	1/2						
56	1,545	5/8						
57	1,920	3/4	7/16	0.4395	3/64	0.565	3/4	1/16
58	1,130	3/8						
59	1,360	7/16	7/16	0.4395	3/64	0.565	3/4	1/16
60	1,585	1/2						
61	2,035	5/8						
62	2,490	3/4	1/2	0.502	3/64	0.628	3/4	1/16
63	1,290	3/8						
64	1,550	7/16						
65	1,810	1/2						
66	2,325	5/8						
67	2,840	3/4						
68	3,355	7/8	1/2	0.502	3/64	0.753	15/16	1/8
70	1,550	1/2						
71	2,070	5/8						
72	2,580	3/4						
73	3,100	7/8						
74	3,615	1-0						

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TABLE I. Dash numbers and dimensions - Continued.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
80	1,935	1/2	5/8	0.627	3/64	0.879	1-1/8	1/8
81	2,580	5/8						
82	3,220	3/4						
83	3,865	7/8						
84	4,510	1-0						
85	5,155	1-1/8						
86	5,800	1-1/4						
87	2,320	1/2	3/4	0.752	3/64	0.941	1-3/16	1/8
88	3,080	5/8						
89	3,865	3/4						
90	4,645	7/8						
91	5,415	1-0						
92	6,180	1-1/8						
93	6,960	1-1/4						
94	2,325	1/2	3/4	0.752	1/16	1.003	1-1/2	1/8
99	6,195	1-1/8						
103	10,065	1-3/4						
104	3,610	5/8	7/8	0.877	1/16	1.004	1-1/4	1/8
105	4,510	3/4						
106	5,415	7/8						
107	6,315	1-0						
108	8,120	1-1/4						
109	9,925	1-1/2						
110	11,730	1-3/4						
117	4,640	3/4	1-0	1.003	3/64	1.379	1-3/4	3/16
118	6,705	1-0						
119	8,760	1-1/4						
120	10,730	1-1/2						
121	12,895	1-3/4						
122	14,995	2-0						
123	8,380	1-0	1-1/4	1.2535	1/16	1.504	1-3/4	3/16
124	10,960	1-1/4						
125	13,540	1-1/2						
126	16,121	1-3/4						
127	18,695	2-0						
128	23,850	2-1/2						

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TABLE I. Dash numbers and dimensions - Continued.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
129	17,015	1-1/2	1-1/2	1.504	1/16	1.755	2-0	1/8
130	23,200	2-0						
131	29,390	2-1/2						
132	21,660	1-3/4	1-3/4	1.754	3/32	2.254	3-0	1/4
133	25,270	2-0						
134	32,485	2-1/2						
135	39,705	3-0						
136	97	3/16	3/32	0.095	1/32	0.159	1/4	1/16
137	145	1/4						
138	193	5/16						
139	322	3/8	1/8	0.127	1/32	0.253	3/8	1/16
140	201	3/16	5/32	0.158	1/32	0.253	3/8	1/32
141	282	1/4						
142	363	5/16						
143	443	3/8						
144	195	3/16	3/16	0.1895	1/32	0.253	5/16	1/16
145	290	1/4						
146	385	5/16						
147	485	3/8						
148	580	7/16						
149	675	3/8	1/4	0.252	1/32	0.378	1/2	3/64
150	725	3/8	5/16	0.3145	1/32	0.440	9/16	3/32
151	1,045	1/2						
152	1,690	3/4						
153	805	3/8	5/16	0.3145	3/64	0.503	11/16	1/16
154	965	13/32	3/8	0.377	3/64	0.503	5/8	3/32
155	965	3/8	3/8	0.377	3/64	0.503	11/16	1/16
156	1,355	1/2						
157	2,125	3/4						
158	870	3/8	3/8	0.377	3/64	0.503	11/16	3/32
159	1,255	1/2						
160	2,030	3/4						
161	965	3/8	3/8	0.377	3/64	0.628	7/8	1/16
162	1,355	1/2						
163	2,125	3/4						
164	1,585	1/2	7/16	0.4395	3/64	0.565	11/16	1/16
165	2,490	3/4						

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TABLE I. Dash numbers and dimensions - Continued.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
166	1,030	3/8	1/2	0.502	3/64	0.628	7/8	1/8
167	1,290	7/16						
168	1,545	1/2						
169	2,060	5/8						
170	2,580	3/4						
171	3,095	7/8						
172	3,610	1-0	1/2	0.502	3/64	0.753	1-0	1/8
173	1,550	1/2						
174	2,070	5/8						
175	2,580	3/4						
176	3,100	7/8						
177	3,615	1-0						
178	1,935	1/2	5/8	0.627	3/64	0.753	1-0	1/8
179	2,580	5/8						
180	3,220	3/4						
181	4,510	1-0						
182	5,155	1-1/8						
183	2,705	1/2	3/4	0.752	3/64	0.879	1-0	1/16
184	4,255	3/4						
185	2,320	1/2	3/4	0.752	3/64	0.941	1-1/4	1/8
186	3,865	3/4						
187	5,415	1-0						
188	6,960	1-1/4						
189	2,320	1/2	3/4	0.752	3/64	0.941	1-5/16	1/8
190	2,705	9/16						
191	3,865	3/4						
192	5,415	1-0						
193	6,960	1-1/4	3/4	0.752	3/64	0.941	1-5/16	1/8
194	1,935	1/2	3/4	0.752	3/64	1.004	1-1/4	3/16
195	3,480	3/4						
196	5,415	1-0						
197	6,575	1-1/4						
198	4,060	3/4						
199	5,865	1-0	7/8	0.877	3/64	1.004	1-1/4	3/16
200	4,510	3/4	7/8	0.877	3/64	1.129	1-1/2	1/8
201	6,315	1-0						
202	8,120	1-1/4						

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TABLE I. Dash numbers and dimensions - Continued.

Dash no.	Static capacity (lbs.)	C Length	Nominal ID	A-basic ID	R-radius (max.)	B-basic OD	D-flange OD	E-flange thickness
203	9,925	1-1/2	7/8	0.877	3/64	1.129	1-1/2	1/8
204	11,730	1-3/4						
205	5,155	3/4	1-0	1.003	3/64	1.254	1-1/2	1/8
206	7,220	1-0						
207	9,280	1-1/4						
208	11,345	1-1/2						
209	7,220	1-0	1-0	1.003	3/64	1.254	1-7/8	1/8
210	4,640	3/4	1-0	1.003	3/64	1.379	1-5/8	3/16
211	6,705	1-0						
212	10,730	1-1/2						
213	12,895	1-3/4						
214	14,955	2-0	1-1/4	1.2535	3/64	1.504	1-3/4	3/16
215	8,380	1-0						
216	10,960	1-1/4						
217	13,540	1-1/2						
218	16,121	1-3/4	1-1/4	1.2535	3/64	1.630	1-3/4	3/16
219	8,380	1-0						
220	13,540	1-1/2	1-1/2	1.504	3/64	1.755	2-0	3/16
221	13,150	1-1/2	1-1/2	1.504	3/64	1.880	2-0	3/16
222	13,150	1-1/2						
223	25,525	2-1/4	2-0	2.004	1/16	2.254	2-1/2	1/8
224	30,935	2-0						
225	47,440	3-0	2-0	2.004	1/16	2.505	3-0	1/4
226	28,875	2-0						
227	45,375	3-0	2-1/2	2.505	3/32	3.006	3-1/4	1/8
228	38,675	2-0						
229	59,295	3-0						
230	79,920	4-0	2-1/2	2.505	3/32	3.006	3-1/2	1/4
231	36,095	2-0						
232	56,720	3-0						
233	77,345	4-0	3-0	3.006	3/32	3.507	3-3/4	1/4
234	55,685	2-1/2						
235	68,060	3-0						
236	80,435	3-1/2						
237	92,810	4-0						
238	105,185	4-1/2						
239	117,560	5-0						
240	4,645	7/8	3/4	0.752	3/64	0.941	1-5/16	1/8

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TABLE II. Dimensional tolerances.

Dimensions	Bearing size	Tolerance
Inside diameter "A" and outside diameter "B"	Up to 1.510 ID incl.	+0.000 -0.001
	1.511 to 2.510	+0.0000 -0.0015
	2.511 to 3.010	+0.000 -0.002
	3.011 to 3.507	+0.000 -0.003
Flange outside diameter "D"	Up to 1.510 flanged OD incl.	±0.005
	1.511 to 3.010	±0.010
	3.011 to 3.750	±0.025
Flange thickness "E"	Up to 1.510 flanged OD	±0.005
	1.511 to 3.010 flanged OD	±0.010
	3.011 to 3.750 flanged OD	±0.015
Length "C"	Up to 1.495 incl	±0.005
	1.496 to 2.990	±0.0075
	2.991 to 4.985	±0.010
Concentricity full indicator movement (FIM)	Outside diameter (basic)	Tolerances
	Up to 1.510	0.003
	1.511 to 2.010	0.004
	2.011 to 3.507	0.005

TABLE III. Chamfers.

Range	Size
Wall thickness up to and including 3/32"	Break edges
Wall thickness greater than 3/32" up to 3" outside diameter	1/64 inch X 45 degrees
All bearings over 3" outside diameter	1/32 inch X 45 degrees

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TABLE IV. Shaft running clearance.

Shaft size	Clearance minimum
Up to 0.760	0.0005
0.761 to 1.510	0.0010
1.511 to 2.510	0.0015
Over 2.510	0.0020

TABLE V. Recommended press fits.

Outside diameter "B"	Press fits	
	Max.	Min.
Up to 0.760	0.003	0.001
0.761 to 1.510	0.004	0.0015
1.511 to 2.510	0.005	0.002
2.511 to 3.010	0.006	0.002
Over 3.010	0.007	0.002

TABLE VI. Permissible load ratings.

Shaft velocity (feet per minute)	Permissible load (pounds per square inch)
Slow and intermittent	4,000
25	2,000
26 to 50 incl.	1,000
51 to 100 incl.	500
101 to 150 incl.	325
151 to 200 incl.	250
Over 200	See requirement 9

Custodians:  
Army - AT  
Navy - OS  
Air Force - 99

Preparing Activity:  
DLA - GS4  
  
(Project 3120-0030)

Review Activity:  
Air Force - 84

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