

## NOTICE

Technical drawing of a PTFE liner assembly, showing side and end views with dimensions and tolerances.

**MAX SET-BACK**

-5	.030	
-6	THRU -8	.035
-9	AND -10	.040
-12	THRU -16	.045

**MAX SET-BACK (TYP)** .025

**PTFE LINER**

**DETAIL A**

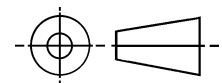
**Dimensions and Tolerances:**

- Width:** W
- Height:** H
- Inner Diameter:**  $\phi D$   $\phi .008$  A
- Outer Diameter:**  $\phi E$   $\phi .006$  A
- Inner Radius:** .005 RAD MAX
- Flatness:** .030 MIN FLAT (TYP)
- Break Edge:** .005 MAX (BOTH SIDES BEFORE LINING)
- Marking Location:** (SEE PROCUREMENT SPECIFICATION)
- End View Dimensions:**
  - Inner Radius: .012 RAD -5, .005
  - Outer Radius: .017 RAD -6 THRU -16, .010
  - Angle: 30°
  - Angle: 30°
  - Angle:  $\alpha$  (REF)
  - Dimension: P

TABLE 1 - DIMENSIONS AND STRENGTHS

PART NO.	ØB	ØD	H	F	Q	W	ØE	STATIC LIMIT LOAD		OSCIL- LATING LOAD LB	NO-LOAD ROTATIONAL BREAKAWAY TORQUE IN-LB		WT LB MAX (REF)
	+ .0000 - .0010	+ .0000 - .0005	± .005	+ .000 - .010	(REF)	+ .000 - .002	+ .000 - .008	RADIAL LB	AXIAL LB		STANDARD	K * TYPE	
M81820/3 -5	.3135	.6875	.317	.025	14	.437	.625	9300	1840	4450	1.0-15.0	0-1.0	.035
M81820/3 -6	.3760	.8125	.406	.035	8	.500	.712	13000	2630	6200			.060
M81820/3 -7	.4385	.9375	.442		10	.562	.837	17300	3650	8250			.080
M81820/3 -7A	.4385	.9062	.442		10	.562	.806	17300	3650	8250			.100
M81820/3 -8	.5010	1.0000	.505		9	.625	.900	21400	4970	10600			.135
M81820/3 -9	.5635	1.1250	.536		10	.687	1.025	26600	5370	13200			.160
M81820/3 -10	.6260	1.1875	.567		12	.750	1.087	29000	6130	16150			.240
M81820/3 -12	.7510	1.3750	.630	.055	13	.875	1.251	37000	7730	24800			1.0-25.0
M81820/3 -14	.8760	1.6250	.755		6	.875	1.501	56000	10800	26750	.970		
M81820/3 -16	1.0010	2.1250	1.005		12	1.375	2.001	103000	19300	49300			

### THIRD ANGLE PROJECTION



PREPARED BY AIRFRAME CONTROL BEARINGS GROUP

**SAE Aerospace**  
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**AEROSPACE STANDARD**  
 (R) BEARING, PLAIN, SELF-ALIGNING, SELF-LUBRICATING,  
 LINED BORE, LOW SPEED, WIDE, GROOVED  
 RACE, -65 TO 325 °F

**AS81820/3**  
SHEET 1 OF 3

**REV.**  
**A**

REV.  
A

AS81820/3

TABLE 2 - OVERSIZE BEARING DIMENSIONS 1/ 2/

RESTRICTED USAGE FOR REPAIR WORK ONLY

.010 AND .020 OVERSIZE OUTSIDE DIAMETER FOR  
REPLACEMENT OF BEARINGS SHOWN ON SHEET 1

PART NO.	NOMINAL SIZE	1st OVERSIZE (.010) ØD
M81820/3 -5 T	.3125	.6975
M81820/3 -6 T	.3750	.8225
M81820/3 -7 T	.4375	.9475
M81820/3 -7A T	.4375	.9162
M81820/3 -8 T	.5000	1.0100
M81820/3 -9 T	.5625	1.1350
M81820/3 -10 T	.6250	1.1975
M81820/3 -12 T	.7500	1.3850
M81820/3 -14 T	.8750	1.6350
M81820/3 -16 T	1.0000	2.1350

PART NO.	NOMINAL SIZE	2nd OVERSIZE (.020) ØD
M81820/3 -5 U	.3125	.7075
M81820/3 -6 U	.3750	.8325
M81820/3 -7 U	.4375	.9575
M81820/3 -7A U	.4375	.9262
M81820/3 -8 U	.5000	1.0200
M81820/3 -9 U	.5625	1.1450
M81820/3 -10 U	.6250	1.2075
M81820/3 -12 U	.7500	1.3950
M81820/3 -14 U	.8750	1.6450
M81820/3 -16 U	1.0000	2.1450

- 1/ BEFORE INITIATING A REPAIR PROCEDURE TO USE AN OVERSIZE BEARING, APPROVAL FOR MODIFYING AND REIDENTIFYING THE BEARING HOUSING MUST BE OBTAINED FROM THE COGNIZANT ENGINEERING AUTHORITY.
- 2/ REFER TO NAS0331 FOR INSTALLATION PROCEDURE AND STAKING FORCES.

## REQUIREMENTS:

- MATERIAL: BALL: PH13-8 Mo STEEL ALLOY PER AMS 5629, CONDITION H1000.  
RACE: 17-4 PH STEEL ALLOY PER AMS 5643.  
LINER: POLYTETRAFLUOROETHYLENE (PTFE) SHALL BE INCLUDED IN THE LINER.
- SURFACE TEXTURE: BALL DIA. Ra 8 MAX; BALL FACES, Ra 16 MAX; RACE DIA Ra 32 MAX; ALL OTHER METALLIC SURFACES Ra 125 MAX. LINER SURFACES ARE EXEMPT FROM SURFACE TEXTURE MEASUREMENTS.
- SURFACE FINISH:  
  
OUTER RACE: PLATING, WHEN SPECIFIED, SHALL BE ZINC-NICKEL PLATING PER AMS 2417, TYPE 2 OR CADMIUM PLATING PER AMS-QQ-P-416, TYPE II, CLASS 2 WITH A THICKNESS RANGE OF 0.0003 TO 0.0006 INCHES.  
  
PLATE ON THE OUTSIDE DIAMETER SURFACE AND ON THE FLAT BETWEEN THE OUTSIDE DIAMETER AND THE GROOVE.  
  
PLATING RUNOUT MAY EITHER OCCUR IN THE GROOVE OR IN THE AREA BETWEEN THE GROOVE AND THE BALL.  
  
THE PTFE LINER IN THE OUTER RACE INSIDE DIAMETER AND IN THE BALL BORE SHALL BE PROTECTED FROM EXPOSURE TO PLATING SOLUTIONS DURING PROCESSING.  
  
BALL: PASSIVATE PER AMS-QQ-P-35 OR ASTM A 967.
- HARDNESS: BALL: Rc 43 MIN; RACE: Rc 28 MIN, Rc 37 MAX BEFORE SWAGING.
- NO-LOAD TORQUE: WHEN THE LETTER "K" IS PRESENT IN THE PART NUMBER, LOWER VALUES OF NO-LOAD TORQUE ARE SPECIFIED PER TABLE 1. IF THE MEASURED TORQUE OF A "K" TYPE BEARING IS LESS THAN 0.1 INCH-POUND, THE INTERNAL RADIAL CLEARANCE SHALL BE MEASURED AND SHALL NOT EXCEED THE VALUES IN TABLE 3. THESE REQUIREMENTS APPLY TO THE TORQUE AND INTERNAL PLAY BETWEEN THE SPHERICAL BALL AND THE RACE. THIS STANDARD DOES NOT DEFINE REQUIREMENTS FOR TORQUE OR INTERNAL PLAY BETWEEN THE BEARING BORE AND SHAFT.

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