SAE Aerospace
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AEROSPACE RECOMMENDED PRACTICE

SAE ARP5448/9 | REV. A

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Superseding ARP5448/9

Plain Bearing Lined Inside Diameter Plug Gaging

RATIONALE

ARP5448/9A has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE

This test method establishes a standard procedure for using plug gages to evaluate dimensional conformance of lined inside diameters of bearings. Bearings covered by this test method include sleeve bearings and lined bore spherical bearings. Note that this method gives no indication of true cylindricity.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and 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.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org

AS81934 Bearings, Sleeve, Plain and Flanged, Self-Lubricating, General Specification for

2.2 ANSI Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org

ANSI/ASME B1.2 Gages and Gaging for Unified Inch Screw Threads

ANSI/ASME B47.1 Gage Blanks

ANSI/NCSL Z540-1 Calibration Laboratories and Measuring and Test Equipment - General Requirements

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/ARP5448/9A

3. DEFINITIONS

GAGING FORCE: A specified maximum force applied to a plug gage for evaluation of a particular bearing bore diameter.

GO GAGE: The first cylindrical gaging element of the two concurrent and concentric elements of the plug gage is the "GO" gage. The diameter of the "GO" gaging element is defined to be 0.00010 in less than the low limit diameter of the lined bore diameter being evaluated.

HIGH LIMIT DIAMETER: The largest bore diameter specified for the bearing under evaluation.

LOW LIMIT DIAMETER: The smallest bore diameter specified for the bearing under evaluation.

NO-GO GAGE: The second cylindrical gaging element of the two concurrent and concentric elements of the plug gage is the "NO-GO" gage. The diameter of the "NO-GO" gaging element is defined to be 0.00010 in greater than the high limit diameter of the lined bore diameter being evaluated.

PLUG GAGE: A gage consisting of two concurrent and concentric cylindrical gaging elements, named "GO" and "NO-GO" and equipped with a suitable gage handle to permit easy usage thereof.

4. GENERAL REQUIREMENTS

4.1 Plug Gage

Figure 1 defines gages for use with standard (i.e., AS81934) sleeve inside diameters. Either Type A or Type B is permitted. For nonstandard sleeve inside diameters the referencing document must specify gage dimensions in accordance with the definitions of Section 3.

4.2 Handle

The plug gage shall be equipped with a handle fabricated to the user's option.

4.3 Calibration

The gaging elements shall meet the calibration requirements set forth in ANSI/NCSL. Z 540-1.

4.4 Temperature

Temperature of the test area shall be 70 °F ± 5 °F.

4.5 Relative Humidity

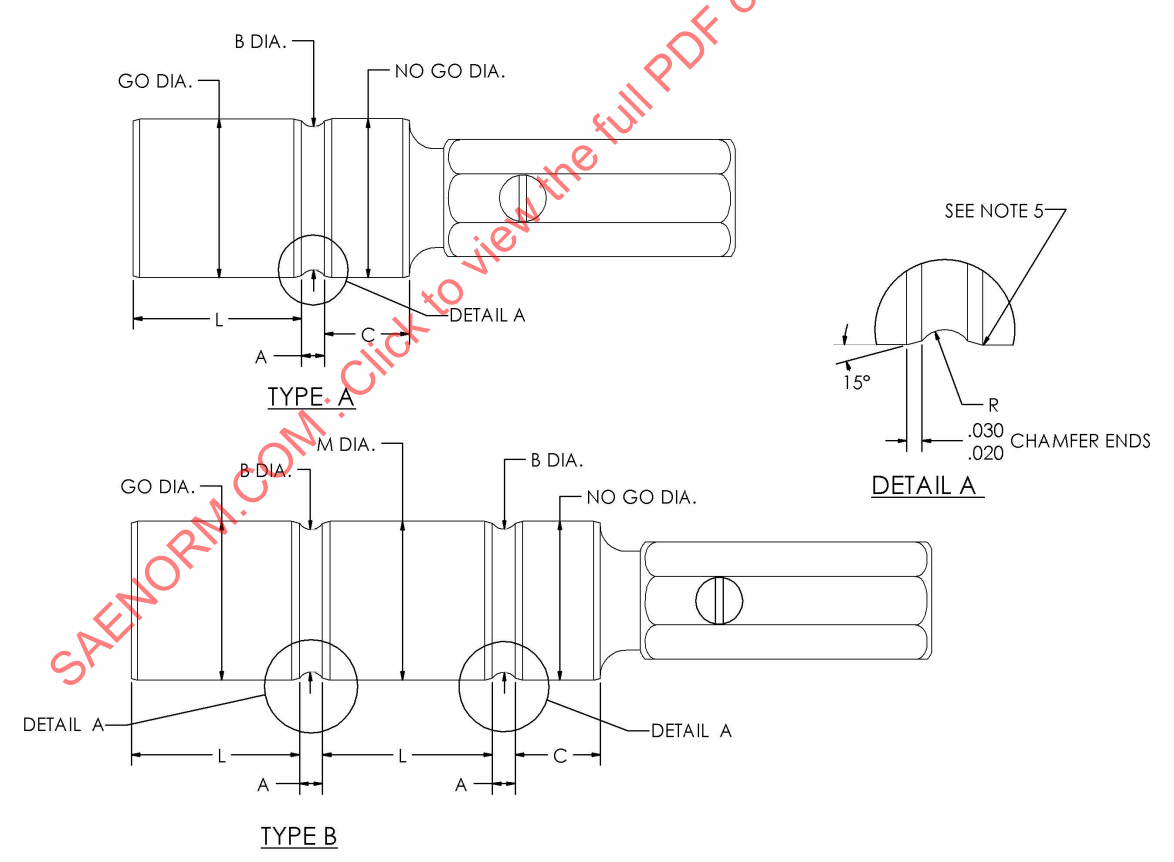
Relative humidity of the test area shall not exceed 70%.

5. DETAILED REQUIREMENTS

5.1 Procedure

The plug gages and the bearings to be evaluated shall be stabilized at the temperature and relative humidity of the inspection area.

Bearing Dash No.	GO Dia.	M Dia.	NO-GO Dia.	C ± .030	R Ref.	B Dia. Ref.	A + .000 - .020	L + .030 - .000
-04	.2504	.2514	.2516	.140	.030	.170	.080	.280
-05	.3129	.3139	.3141	.170		.230		.340
-06	.3754	.3764	.3766	.200		.290		.400
-07	.4379	.4389	.4391	.235		.350		.470
-08	.5004	.5014	.5016	.265	.040	.410	.100	.530
-09	.5629	.5639	.5641	.295		.470		.590
-10	.6254	.6264	.6266	.330		.530		.660
-11	.6879	.6889	.6891	.360		.590		.720
-12	.7504	.7514	.7516	.390		.660		.780
-14	.8754	.8764	.8766	.455	.050	.750	.125	.910
-16	1.0004	1.0014	1.0016	.515		.890		1.030
-18	1.1254	1.1264	1.1266	.545		1.000		1.160
-20	1.2504	1.2514	1.2516	.640	.060	1.120	.150	1.280
-22	1.3754	1.3764	1.3766	.700		1.220		1.400
-24	1.5004	1.5014	1.5016	.765		1.350		1.530
-26	1.6254	1.6264	1.6266	.830	.070	1.490	.180	1.660
-28	1.7504	1.7514	1.7516	.890		1.570		1.780
-32	2.0004	2.0014	2.0016	1.015		1.820		2.030



NOTES:
1. ALL GAGING DIAMETERS AND CHAMFER SURFACE FINISH 8 Ra.
2. ALL GAGING DIAMETER TOLERANCES CLASS X PER ASME B1.2.
3. GAGE HANDLES PER ASME B47.1 OR EQUIVALENT.
4. GAGE MEMBER TO BE PROGRESSIVE CONFIGURATION PER ASME B47.1.
5. RADIUS BLEND FROM CHAMFERS INTO FLATS (SEE DETAIL A).
6. BEARING DASH NUMBERS REFER TO AS81934/1 AND AS81934/2.

FIGURE 1 - PLUG GAGE