K-35-05

The Engineering Society For Advancing Mobility Land Sea Air and Space®
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE STANDARD

AS4088

Issued 10-18-88
Revised 2-22-89

REV. A

Submitted for recognition as an American National Standard

ROD SCRAPER GLAND DESIGN STANDARD

1. INTRODUCTION:

1.1 The Scraper Installation Gland Design Standard MS 33675 accepts the MS 28776 Piston Rod Scraper. The scraper is usually a split bronze ring designed to clean the surface of a piston rod. The scraper does not actually exclude contamination from migrating into the rod gland bushing or seal cavity. Although non-metallic exclusion devices that offer design improvements to the MS 28776 scraper are available, the design options are limited by the small space provided by the MS 33675 gland configuration.

2. PURPOSE:

2.1 This SAE Aerospace Standard offers gland details that provide sufficient space to fit efficient and reliable exclusion devices.

2.2 Exclusion device configurations are not specified in this aerospace standard.

3. SCOPE:

3.1 Gland details are described for rod diameters from 1/4 to 15-1/2 inches, inclusive, corresponding to AS 568 O-Ring Dash No. sizes -108/-111, -206/-222, -325/-349 and -425/-460.

4. GENERAL NOTES:

4.1 Rod and gland diameters, gland widths and tolerances are in accordance with MIL-G-5514F with the exception described in 4.3.

4.2 One gland width is defined for each rod diameter from 1/4 to 15-1/2 inches, inclusive.

4.3 This document is similar to AS4052 except it has one gland width and adds the 100 and 200 series sizes.

4.4 The diametral clearance on the ambient side of the gland is greater than specified in MIL-G-5514F to minimize the possibility of trapping contaminants between the rod and gland bushing diametral clearance.

4.5 A two-piece gland is shown as optional.

5. REFERENCES:

AS 568A - Aerospace Size Standard for O-Rings
AS 4052 - Gland Design; Scraper, Landing Gear Installation
MIL-G-5514 - Gland Design, Packings, Hydraulics, General Requirements For
MS 28776 - Scraper Piston Rod
MS 33675 - Scraper Installation, Packing Gland Ring

PREPARED BY SAE COMMITTEE G-4, ELASTIC SEALS, AND
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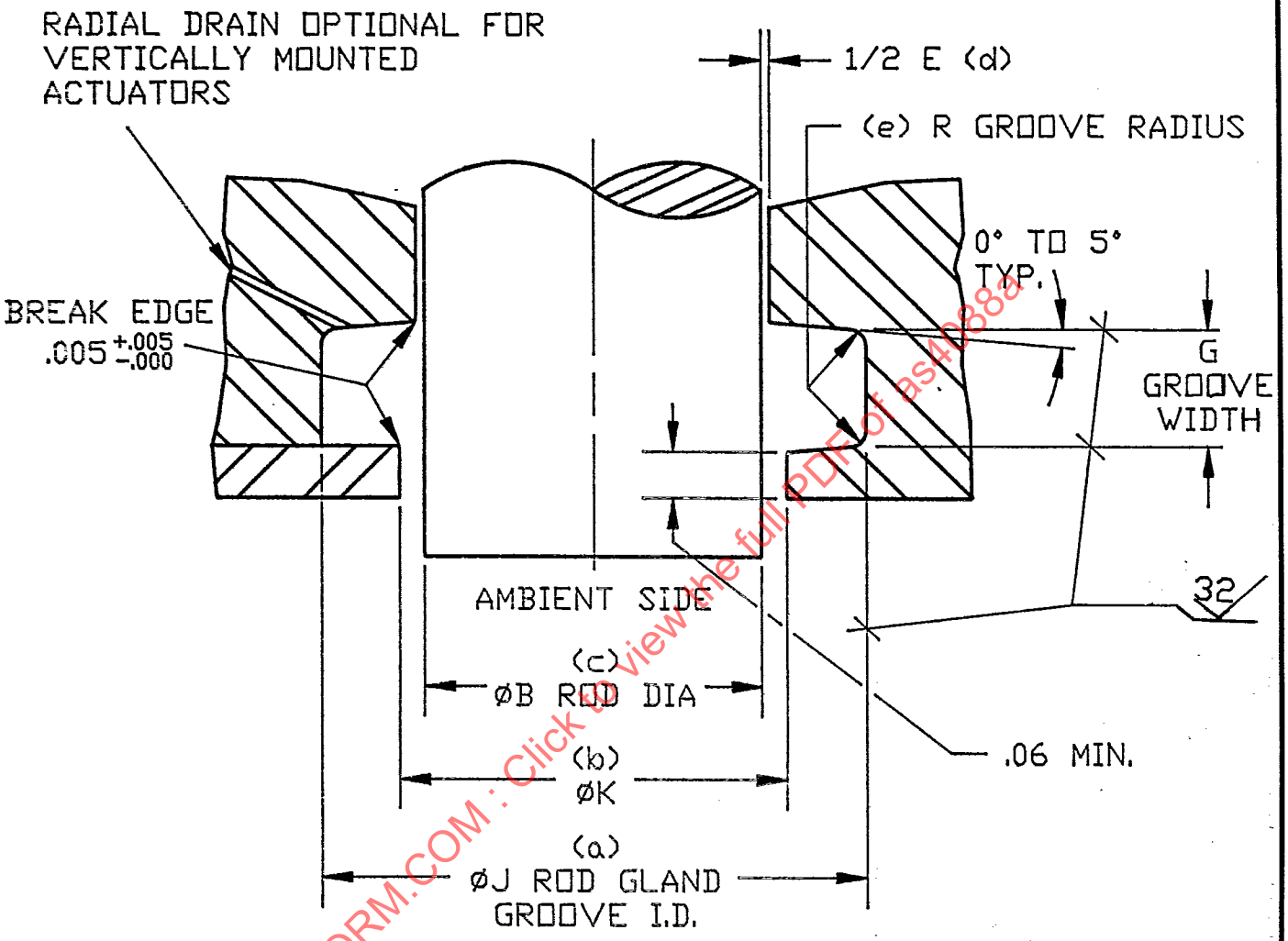

(a) MAJOR DIAMETER (J) TO BE CONCENTRIC WITH ROD BUSHING BORE WITHIN .005 T.I.R.

(b) MINOR DIAMETER (K) TO BE CONCENTRIC WITH ROD BUSHING BORE WITHIN .010 T.I.R.

(c) ROD DIAMETER (B) FROM MIL-G-5514F.

(d) ROD CLEARANCE (E) FROM MIL-G-5514F.

(e) GROOVE RADIUS (R) FROM MIL-G-5514F.

FIGURE 1 - Gland Design, Rod Scraper, Installation

TABLE I - Gland Dimensions

DASH NO.	ØB ROD DIA. (c) NOMINAL	ØB ROD DIA. (c) +.000 −.002	ØJ ROD GLAND DIA. (a) +.002 −.000	'G' GROOVE WIDTH +.010 −.000	ØK MINOR DIA. (b) +.010 −.000
108	1/4	.248	.426	.141	.278
109	5/16	.310	.488	.141	.340
110	3/8	.373	.551	.141	.403
111	7/16	.435	.613	.141	.465
206	1/2	.498	.741	.235	.528
207	9/16	.560	.803	.235	.590
208	5/8	.623	.866	.235	.653
209	11/16	.685	.928	.235	.715
210	3/4	.748	.991	.235	.778
211	13/16	.810	1.053	.235	.852
212	7/8	.873	1.116	.235	.915
213	15/16	.935	1.178	.235	.977
214	1	.998	1.241	.235	1.040
215	1 1/16	1.060	1.303	.235	1.102
216	1 1/8	1.123	1.366	.235	1.165
217	1 3/16	1.185	1.428	.235	1.227
218	1 1/4	1.248	1.491	.235	1.290
219	1 5/16	1.310	1.553	.235	1.352
220	1 3/8	1.373	1.616	.235	1.415
221	1 7/16	1.435	1.678	.235	1.477
222	1 1/2	1.498	1.741	.235	1.540

NOTE: ALL DIMENSIONS IN INCHES