

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

AS7217™

FEDERAL SUPPLY CLASS
5331

RATIONALE

TO PREVENT STATIC SEAL LEAKAGE IN PHOSPHATE ESTER FLUIDS AT VERY LOW TEMPERATURES AN O-RING SEAL STANDARD IS REQUIRED FOR APPLICATIONS DOWN TO -75 °F (-59 °C). THIS STANDARD MEETS THIS NEED.

1. SCOPE

THIS STANDARD ESTABLISHES THE DIMENSIONAL AND VISUAL QUALITY REQUIREMENTS, LOT REQUIREMENTS AND PACKAGING AND LABELING REQUIREMENTS FOR O-RINGS MOLDED FROM AMS7361 (ETHYLENE-PROPYLENE) RUBBER WHICH IS ABLE TO PROVIDE THE REQUIRED SEALING PERFORMANCE IN STATIC APPLICATIONS AT TEMPERATURES DOWN TO -75 °F (-59 °C). IT SHALL BE USED FOR PROCUREMENT PURPOSES.

1.1 APPLICATION

THIS MATERIAL HAS RESISTANCE TO AS1241 TYPE IV CLASS 1 AND TYPE V GRADE A AND GRADE B PHOSPHATE ESTER FLUIDS, BUT USAGE IS NOT LIMITED TO SUCH APPLICATIONS. THIS MATERIAL IS NOT INTENDED FOR USE IN AS1241 TYPE IV CLASS 2 FLUIDS. THIS MATERIAL HAS AN EXPECTED SERVICE TEMPERATURE RANGE OF -75 TO 250 °F (-59 TO 121 °C), WITH EXCURSIONS UP TO 300 °F. THE EXPECTED LOW TEMPERATURE LIMIT IS DERIVED FROM AN INDUSTRY PRACTICE OF USING 15 °F (8 °C) BELOW THE TEMPERATURE RETRACTION (TR10). THE SERVICE TEMPERATURE RANGE OF THE MATERIAL IS A GENERAL TEMPERATURE RANGE, BUT THE PRESENCE OF PARTICULAR FLUIDS AND SPECIFIC DESIGN REQUIREMENTS MAY MODIFY THIS RANGE. EACH APPLICATION SHOULD BE CONSIDERED SEPARATELY. THIS SPECIFICATION IS INTENDED FOR USE IN STATIC APPLICATIONS AND WAS DEVELOPED TO PROVIDE AN ETHYLENE PROPYLENE RUBBER COMPOUND FOR HYDRAULIC SEALS WITH IMPROVED LOW TEMPERATURE PERFORMANCE. IT HAS NOT BEEN EVALUATED FOR DYNAMIC APPLICATIONS. IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THAT THIS SPECIFICATION IS APPROPRIATE FOR THE ENVIRONMENT (TEMPERATURE RANGE, FLUIDS EXPOSURE, DYNAMIC USAGE, ETC.) IN WHICH IT IS SOUGHT TO BE USED.

2. APPLICABLE REFERENCES

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.

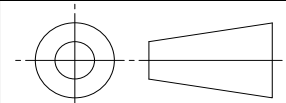
2.1 SAE PUBLICATIONS

AVAILABLE FROM SAE, 400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096-0001, TEL: 877-606-7323 (INSIDE U.S. AND CANADA) OR +1 724-776-4970 (OUTSIDE U.S.), [WWW.SAE.ORG](http://www.sae.org).

AMS2817	PACKAGING AND IDENTIFICATION OF MOLDED ELASTOMERIC SEALS AND SEALING COMPONENTS
AMS7361	RUBBER: ETHYLENE PROPYLENE. IMPROVED LOW TEMPERATURE PERFORMANCE
AS568	UNIFORM DASH NUMBERING SYSTEM FOR O-RINGS
AS5316	STORAGE OF ELASTOMERS AND SEAL ASSEMBLIES WHICH INCLUDE AN ELASTOMER ELEMENT PRIOR TO HARDWARE ASSEMBLY
AS5798	AEROSPACE SIZE STANDARD FOR OVERSIZE O-RINGS
AS1241	FIRE RESISTANT PHOSPHATE ESTER HYDRAULIC FLUID FOR AIRCRAFT

For more information on this standard, visit
<https://www.sae.org/standards/content/AS7217/>

THIRD ANGLE PROJECTION



CUSTODIAN: SAE A-6C2 SEALS PANEL

PROCUREMENT SPECIFICATION



AEROSPACE STANDARD

O-RINGS MOLDED FROM
AMS7361 ETHYLENE PROPYLENE RUBBER FOR
STATIC APPLICATIONS

AS7217™
SHEET 1 OF 12



Documents

Document Sharing Hub

Copyright © 2023 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Fax: 724-776-0790

Tel: +1 724-776-4970 (outside USA)
Email: CustomerService@sae.org

SAE WEB ADDRESS: <http://www.sae.org>

2.2 ASQ PUBLICATIONS

AVAILABLE FROM AMERICAN SOCIETY FOR QUALITY, 600 NORTH PLANKINTON AVENUE, MILWAUKEE, WI 53203,
WWW.ASQ.ORG.

ANSI/ASQ Z1.4 SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES

2.3 ASME PUBLICATIONS

AVAILABLE FROM ASME, TWO PARK AVENUE, NEW YORK, NY 10016-5990, TEL: +1 800-843-2763,
WWW.CUSTOMERCARE@ASME.ORG.

ASME Y14.5-1994 DIMENSIONING AND TOLERANCING REQUIREMENTS

2.4 ISO PUBLICATIONS

COPIES OF THESE DOCUMENTS ARE AVAILABLE ONLINE AT [HTTPS://WEBSTORE.ANSI.ORG](https://webstore.ansi.org).

ISO 3601-1 FLUID POWER SYSTEMS - O-RINGS - PART 1: INSIDE DIAMETERS, CROSS-SECTIONS, TOLERANCES AND DESIGNATION CODES

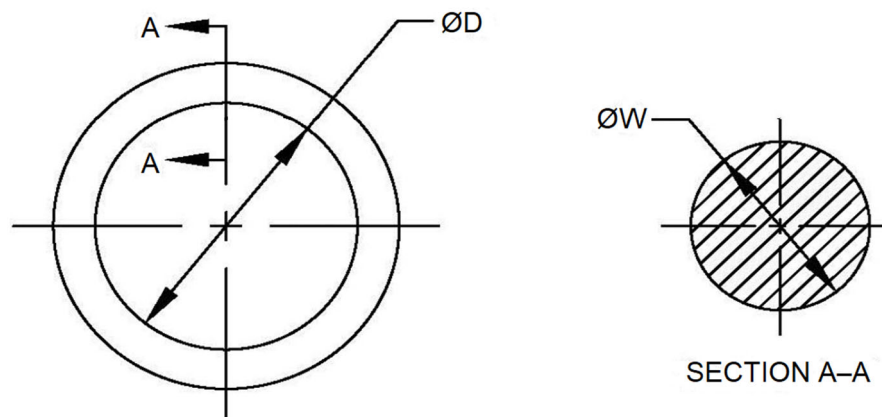
ISO 3601-3 FLUID POWER SYSTEMS - O-RINGS - PART 3: QUALITY ACCEPTANCE CRITERIA

3. O-RING PART NUMBERS, DIMENSIONS AND MASSES

FIGURE 1 ILLUSTRATES THE O-RING DIMENSIONS THAT ARE USED IN THIS STANDARD.

TABLE 1 PROVIDES THE PART NUMBERS, DIMENSIONS AND APPROXIMATE MASSES FOR AEROSPACE STANDARD SIZE O-RINGS.

TABLE 2 PROVIDES THE PART NUMBERS, DIMENSIONS AND APPROXIMATE MASSES FOR STRAIGHT THREAD TUBE FITTING BOSS GASKETS.



NOTE: DIMENSIONS AND TOLERANCES AS PER ASME Y14.5-1994

FIGURE 1 - O-RING DIMENSIONS: WIDTH ($\varnothing W$) AND INSIDE DIAMETER ($\varnothing D$)

	AEROSPACE STANDARD	AS7217 SHEET 1	
	O-RINGS MOLDED FROM AMS7361 ETHYLENE PROPYLENE RUBBER FOR STATIC APPLICATIONS		

AVA

Document Sharing Hub

TABLE 1 - AEROSPACE SIZE STANDARDS FOR O-RINGS

BASIC NO. AS7217 SIZE CODE	ØD INCH MIN	ØD INCH MAX	ØD (mm) MIN	ØD (mm) MAX	ØW INCH MIN	ØW INCH MAX	ØW (mm) MIN	ØW (mm) MAX	APPROX MASS LB/100	APPROX MASS (KG/100)
001	.025	.033	0.64	0.84	.037	.043	0.94	1.09	0.0012	0.0006
002	.038	.046	0.97	1.17	.047	.053	1.19	1.35	0.003	0.001
003	.052	.060	1.32	1.52	.057	.063	1.45	1.60	0.005	0.002
004	.065	.075	1.65	1.91	.067	.073	1.70	1.85	0.008	0.003
005	.096	.106	2.44	2.69	.067	.073	1.70	1.85	0.009	0.004
006	.109	.119	2.77	3.02	.067	.073	1.70	1.85	0.010	0.005
007	.140	.150	3.56	3.81	.067	.073	1.70	1.85	0.012	0.005
008	.171	.181	4.34	4.60	.067	.073	1.70	1.85	0.014	0.006
009	.203	.213	5.16	5.41	.067	.073	1.70	1.85	0.015	0.007
010	.234	.244	5.94	6.20	.067	.073	1.70	1.85	0.017	0.008
011	.296	.306	7.52	7.77	.067	.073	1.70	1.85	0.020	0.009
012	.359	.369	9.12	9.37	.067	.073	1.70	1.85	0.024	0.011
013	.421	.431	10.69	10.95	.067	.073	1.70	1.85	0.027	0.012
014	.484	.494	12.29	12.55	.067	.073	1.70	1.85	0.031	0.014
015	.546	.556	13.87	14.12	.067	.073	1.70	1.85	0.034	0.015
016	.609	.619	15.47	15.72	.067	.073	1.70	1.85	0.038	0.017
017	.671	.681	17.04	17.30	.067	.073	1.70	1.85	0.041	0.019
018	.734	.744	18.64	18.90	.067	.073	1.70	1.85	0.044	0.020
019	.795	.807	20.19	20.50	.067	.073	1.70	1.85	0.048	0.022
020	.858	.870	21.79	22.10	.067	.073	1.70	1.85	0.051	0.023
021	.920	.932	23.37	23.67	.067	.073	1.70	1.85	0.055	0.025
022	.983	.995	24.97	25.27	.067	.073	1.70	1.85	0.058	0.026
023	1.045	1.057	26.54	26.85	.067	.073	1.70	1.85	0.062	0.028
024	1.108	1.120	28.14	28.45	.067	.073	1.70	1.85	0.065	0.029
025	1.170	1.182	29.72	30.02	.067	.073	1.70	1.85	0.068	0.031
026	1.233	1.245	31.32	31.62	.067	.073	1.70	1.85	0.072	0.033
027	1.295	1.307	32.89	33.20	.067	.073	1.70	1.85	0.075	0.034
028	1.358	1.370	34.49	34.80	.067	.073	1.70	1.85	0.079	0.036
029	1.479	1.499	37.57	38.07	.067	.073	1.70	1.85	0.086	0.039
030	1.604	1.624	40.74	41.25	.067	.073	1.70	1.85	0.092	0.042
031	1.729	1.749	43.92	44.42	.067	.073	1.70	1.85	0.099	0.045
032	1.854	1.874	47.09	47.60	.067	.073	1.70	1.85	0.106	0.048
033	1.979	1.999	50.27	50.77	.067	.073	1.70	1.85	0.113	0.051
034	2.104	2.124	53.44	53.95	.067	.073	1.70	1.85	0.120	0.054
035	2.229	2.249	56.62	57.12	.067	.073	1.70	1.85	0.127	0.057
036	2.354	2.374	59.79	60.30	.067	.073	1.70	1.85	0.134	0.061
037	2.479	2.499	62.97	63.47	.067	.073	1.70	1.85	0.140	0.064
038	2.604	2.624	66.14	66.65	.067	.073	1.70	1.85	0.147	0.067
039	2.724	2.754	69.19	69.95	.067	.073	1.70	1.85	0.154	0.070
040	2.849	2.879	72.36	73.13	.067	.073	1.70	1.85	0.161	0.073
041	2.974	3.004	75.54	76.30	.067	.073	1.70	1.85	0.168	0.076
042	3.224	3.254	81.89	82.65	.067	.073	1.70	1.85	0.182	0.082
043	3.474	3.504	88.24	89.00	.067	.073	1.70	1.85	0.195	0.089
044	3.724	3.754	94.59	95.35	.067	.073	1.70	1.85	0.209	0.095
045	3.974	4.004	100.94	101.70	.067	.073	1.70	1.85	0.223	0.101
046	4.224	4.254	107.29	108.05	.067	.073	1.70	1.85	0.237	0.107
047	4.474	4.504	113.64	114.40	.067	.073	1.70	1.85	0.250	0.113
048	4.724	4.754	119.99	120.75	.067	.073	1.70	1.85	0.264	0.120
049	4.966	5.012	126.14	127.30	.067	.073	1.70	1.85	0.278	0.126
050	5.216	5.262	132.49	133.65	.067	.073	1.70	1.85	0.291	0.132



AEROSPACE STANDARD

O-RINGS MOLDED FROM
AMS7361 ETHYLENE PROPYLENE RUBBER FOR
STATIC APPLICATIONS

AS7217
SHEET

Documents

Document Sharing Hub

TABLE 1 - AEROSPACE SIZE STANDARDS FOR O-RINGS (CONTINUED)

BASIC NO. AS7217 SIZE CODE	ØD INCH MIN	ØD INCH MAX	ØD (mm) MIN	ØD (mm) MAX	ØW INCH MIN	ØW INCH MAX	ØW (mm) MIN	ØW (mm) MAX	APPROX MASS LB/100	APPROX MASS (KG/100)
102	.044	.054	1.12	1.37	.100	.106	2.54	2.69	0.018	0.008
103	.076	.086	1.93	2.18	.100	.106	2.54	2.69	0.022	0.010
104	.107	.117	2.72	2.97	.100	.106	2.54	2.69	0.026	0.012
105	.138	.148	3.51	3.76	.100	.106	2.54	2.69	0.029	0.013
106	.169	.179	4.29	4.55	.100	.106	2.54	2.69	0.033	0.015
107	.201	.211	5.11	5.36	.100	.106	2.54	2.69	0.037	0.017
108	.232	.242	5.89	6.15	.100	.106	2.54	2.69	0.040	0.018
109	.294	.304	7.47	7.72	.100	.106	2.54	2.69	0.048	0.022
110	.357	.367	9.07	9.32	.100	.106	2.54	2.69	0.055	0.025
111	.419	.429	10.64	10.90	.100	.106	2.54	2.69	0.063	0.028
112	.482	.492	12.24	12.50	.100	.106	2.54	2.69	0.070	0.032
113	.544	.554	13.82	14.07	.100	.106	2.54	2.69	0.077	0.035
114	.607	.617	15.42	15.67	.100	.106	2.54	2.69	0.085	0.039
115	.669	.679	16.99	17.25	.100	.106	2.54	2.69	0.092	0.042
116	.732	.742	18.59	18.85	.100	.106	2.54	2.69	0.100	0.045
117	.793	.805	20.14	20.45	.100	.106	2.54	2.69	0.107	0.049
118	.856	.868	21.74	22.05	.100	.106	2.54	2.69	0.115	0.052
119	.918	.930	23.32	23.62	.100	.106	2.54	2.69	0.122	0.055
120	.981	.993	24.92	25.22	.100	.106	2.54	2.69	0.130	0.059
121	1.043	1.055	26.49	26.80	.100	.106	2.54	2.69	0.137	0.062
122	1.106	1.118	28.09	28.40	.100	.106	2.54	2.69	0.144	0.065
123	1.168	1.180	29.67	29.97	.100	.106	2.54	2.69	0.152	0.069
124	1.231	1.243	31.27	31.57	.100	.106	2.54	2.69	0.159	0.072
125	1.293	1.305	32.84	33.15	.100	.106	2.54	2.69	0.167	0.076
126	1.356	1.368	34.44	34.75	.100	.106	2.54	2.69	0.174	0.079
127	1.418	1.430	36.02	36.32	.100	.106	2.54	2.69	0.181	0.082
128	1.481	1.493	37.62	37.92	.100	.106	2.54	2.69	0.189	0.086
129	1.539	1.559	39.09	39.60	.100	.106	2.54	2.69	0.196	0.089
130	1.602	1.622	40.69	41.20	.100	.106	2.54	2.69	0.204	0.092
131	1.664	1.684	42.27	42.77	.100	.106	2.54	2.69	0.211	0.096
132	1.727	1.747	43.87	44.37	.100	.106	2.54	2.69	0.219	0.099
133	1.789	1.809	45.44	45.95	.100	.106	2.54	2.69	0.226	0.103
134	1.852	1.872	47.04	47.55	.100	.106	2.54	2.69	0.234	0.106
135	1.915	1.935	48.64	49.15	.100	.106	2.54	2.69	0.241	0.109
136	1.977	1.997	50.22	50.72	.100	.106	2.54	2.69	0.248	0.113
137	2.040	2.060	51.82	52.32	.100	.106	2.54	2.69	0.256	0.116
138	2.102	2.122	53.39	53.90	.100	.106	2.54	2.69	0.263	0.119
139	2.165	2.185	54.99	55.50	.100	.106	2.54	2.69	0.271	0.123
140	2.227	2.247	56.57	57.07	.100	.106	2.54	2.69	0.278	0.126
141	2.290	2.310	58.17	58.67	.100	.106	2.54	2.69	0.286	0.130
142	2.352	2.372	59.74	60.25	.100	.106	2.54	2.69	0.293	0.133
143	2.415	2.435	61.34	61.85	.100	.106	2.54	2.69	0.300	0.136
144	2.477	2.497	62.92	63.42	.100	.106	2.54	2.69	0.308	0.140
145	2.540	2.560	64.52	65.02	.100	.106	2.54	2.69	0.315	0.143
146	2.602	2.622	66.09	66.60	.100	.106	2.54	2.69	0.323	0.146
147	2.660	2.690	67.56	68.33	.100	.106	2.54	2.69	0.330	0.150
148	2.722	2.752	69.14	69.90	.100	.106	2.54	2.69	0.338	0.153
149	2.785	2.815	70.74	71.50	.100	.106	2.54	2.69	0.345	0.156



AEROSPACE STANDARD

O-RINGS MOLDED FROM
AMS7361 ETHYLENE PROPYLENE RUBBER FOR
STATIC APPLICATIONS

AS7217
SHEET 1



Documents

Document Sharing Hub