



AEROSPACE RECOMMENDED PRACTICE

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ARP 1232

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Revised

GLAND DESIGN, ELASTOMERIC O-RING SEALS, STATIC RADIAL

1. PURPOSE

The purpose of this document is to provide the aerospace industry with standardized dimensional criteria for static radial elastomeric O-ring seal glands. It supplements ARP 1231, "Gland Design, Elastomeric O-ring Seals, General Considerations".

2. SCOPE

This document establishes standard gland dimensions for static radial O-ring seal applications and provides recommendations for modifying these glands in special applications. No provisions are made in this document for anti-extrusion devices. SI unit conversions for U.S. customary units have been provided for reference purposes.

3. GENERAL REQUIREMENTS

3.1 Applicable Documents

- 3.1.1 ANSI B46.1 - 1962 - Surface Texture
- 3.1.2 AS 568 - Uniform Dash Numbering System for O-Rings
- 3.1.3 ARP 1231 - Gland Design, Elastomeric O-Ring Seals, General Considerations
- 3.1.4 ARP 1233 - Gland Design, Elastomeric O-Ring Seals, Dynamic Radial

3.2 Gland Configurations

- 3.2.1 Standard Glands - Figure 1 depicts rod-mounted and bore-mounted radial O-ring seal glands. Standard dimensions for these glands are tabulated in Table 3. These dimensions are designed for use with seals conforming to AS 568, Class I or Class II tolerances. They are computed in accordance with the criteria defined in paragraph 4 of this document and in ARP 1231.
- 3.2.2 Exemption - Standard glands are not provided for the larger diameter bore-mounted applications. In these larger sizes, Diameter H becomes larger than the outside diameter of the O-ring seal. This condition makes the installation of a seal impractical. Bore-mounted seal glands have been provided up to those sizes where diameter H is equal to or greater than the seal ID plus 1/2 (seal O.D. - seal I.D.).
- 3.2.3 Modified Glands - The standard gland dimensions may be modified to achieve an optimum sealing configuration. In selecting or computing gland dimensions, the criteria defined in ARP 1231 and in paragraph 4 of this document should be consulted.

3.3 Surface Texture

- 3.3.1 Figure 1 defines the preferred surface texture to be used with the glands described in this document. The 63 microinch (1.6 micrometre) texture is satisfactory for most static applications. A 32 microinch (0.8 micrometre) texture may be substituted if there is relative motion between seal and gland sealing surfaces during operation. However, if this relative motion be-

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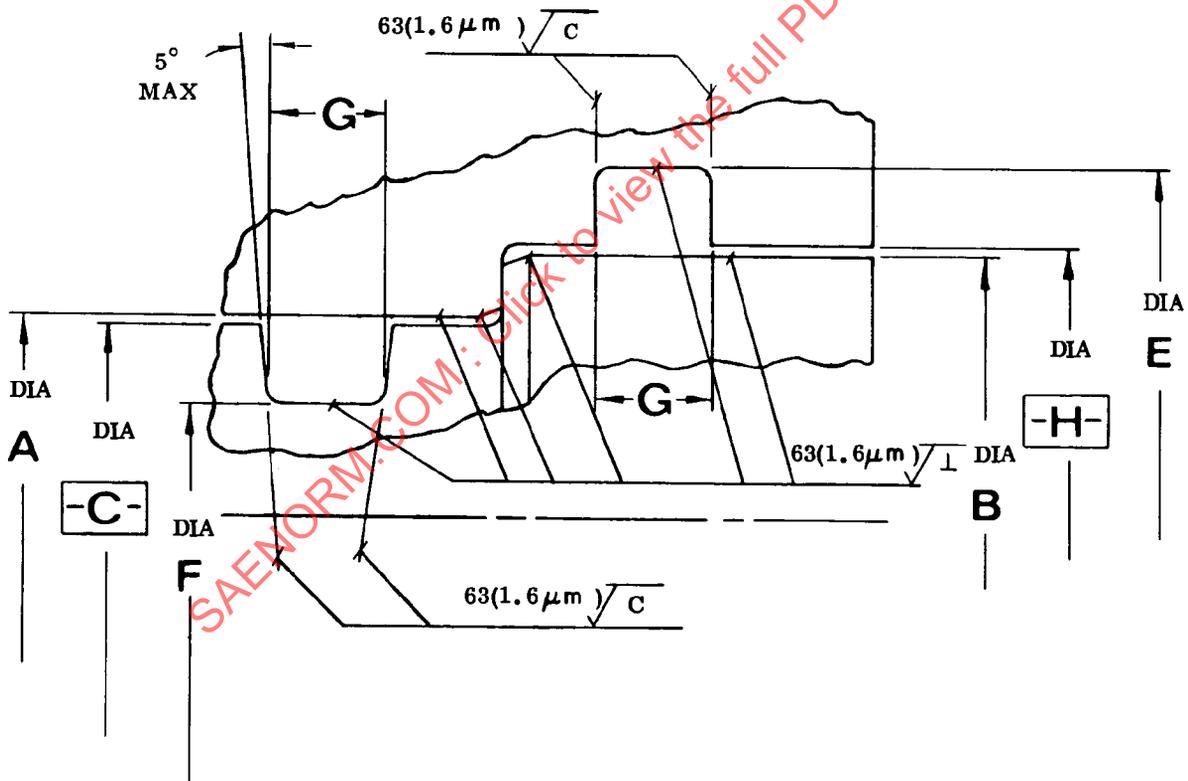
comes excessive, the application should be considered dynamic and ARP 1233 consulted.

4. DESIGN CRITERIA

4.1 O-Ring Seal Stretch

4.1.1 Minimum Stretch - Static seals should be stretched a minimum of two percent as installed in the gland. This assures a snug fit in a short time for elastomers such as fluorocarbons which are slow to return to size after stretching.

4.1.2 Maximum Stretch - The as-installed seal stretch should be held to a low value consistent with the need for a two percent minimum stretch and with the gland dimensional tolerances needed for manufacture. Excessive stretches can cause stress cracking during operation particularly with nitrile seals. The maximum stretch resulting from the standard gland dimensions in table 3 varies from 2.5 % to 10% depending on size. Of the sizes listed, 85% have a maximum stretch of less than 5%. Consideration should be given to reducing the stretch where there is concern over possible stress cracking.



NOTE: SURFACE TEXTURE: ANSI B46.1-1962

GEOMETRIC TOLERANCES, EDGE BREAKS, CORNER RADII,
AND LEAD-IN RAMP DIMENSIONS: SEE ARP 1231

DIMENSIONS IN () ARE MICROMETRES

FIGURE 1. TYPICAL O-RING SEAL GLANDS

4.2 O-Ring Seal Squeeze

4.2.1 To avoid assembly problems and to avoid leakage, static O-ring seal glands should be designed to achieve nominal and minimum squeezes as listed in Table 1. These values have been used in computing the gland dimensions of Table 3. Minimum squeeze should be calculated by considering the following factors: a) diametral tolerances, b) eccentricities, c) offset, and d) seal cross section reduction due to stretch. Offset refers to the condition where the rod has shifted in the bore to the extent that the rod and bore are in contact.

TABLE 1
O-Ring Seal Squeeze

Nominal Cross Section Diameter Per AS 568	Nominal Squeeze % of W Nominal	Minimum Squeeze
.070 in. (1.78 mm)	21.0	.003 in. (.076 mm)
.103 in. (2.62 mm)	19.0	.005 in. (.127 mm)
.139 in. (3.53 mm)	18.5	.007 in. (.178 mm)
.210 in. (5.33 mm)	18.0	.012 in. (.305 mm)
.275 in. (6.98 mm)	17.5	.018 in. (.457 mm)

4.3 O-Ring Seal Swell

4.3.1 To accommodate O-ring seal swell, gland widths should be designed to achieve a minimum gland volume equal to 130% of the O-ring seal free state volume. This will permit glands to be used with several different seal materials and operating fluids. The glands in Table 3 provide a minimum gland volume which is 125% to 135% of the O-ring seal free state volume. If the adjacent structure is strong enough, these glands can be used with all material/fluid combinations, including those where the fully soaked O-ring seal volume exceeds the gland volume.

4.4 Diametral Clearances

4.4.1 The rod-to-bore diametral clearances must be controlled to prevent O-ring seal extrusion during operation. The diametral clearances listed in Table 2 are suitable for use with most elastomers at operating pressures up to 1500 psi (10 MPa). The glands in Table 3 incorporate these diametral clearances.

TABLE 2
DIAMETRAL CLEARANCES
IN INCHES

TABLE 2
DIAMETRAL CLEARANCES
IN MILLIMETRES

Seal Cross Section (W)	Bore to Rod Clearances	Seal Cross Section (W)	Bore to Rod Clearances
.070 (I.D. \leq .500)	.001-.004	1.78 (I.D. \leq 12.7)	.025-.102
.070 (I.D. over .500)	.001-.005	1.78 (I.D. over 12.7)	.025-.127
.103	.001-.006	2.62	.025-.152
.139	.002-.008	3.53	.051-.203
.210	.003-.009	5.33	.076-.229
.275	.004-.012	6.98	.102-.305

Prepared by

Committee E21 Design and General Standards for
Aerospace Propulsion Systems

Committee G4 Elastic Seals

TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES

GLAND & AS 568 DASH NO.	ROD MOUNTED			BORE MOUNTED			GLAND DIA. E	GLAND WIDTH G				
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. R	BORE DIA. H	GLAND DIA. E						
(1) 001	0.085	0.215	0.086	0.087	0.232	0.037	0.036	0.037	0.038	0.040	0.088	0.101-.111
(1) 002	0.118	0.119	0.122	0.120	0.263	0.049	0.049	0.050	0.051	0.053	0.121	0.101-.111
(1) 003	0.152	0.153	0.156	0.154	0.295	0.063	0.063	0.064	0.065	0.067	0.155	0.106-.116
(1) 004	0.186	0.187	0.190	0.188	0.327	0.078	0.078	0.079	0.080	0.082	0.189	0.114-.124
(1) 005	0.215	0.217	0.220	0.218	0.360	0.109	0.109	0.110	0.111	0.113	0.219	0.114-.124
(1) 006	0.230	0.231	0.234	0.232	0.393	0.122	0.122	0.123	0.124	0.126	0.233	0.110-.120
(1) 007	0.262	0.263	0.266	0.264	0.426	0.154	0.154	0.155	0.156	0.158	0.265	0.110-.120
(1) 008	0.294	0.295	0.298	0.296	0.459	0.186	0.186	0.187	0.188	0.190	0.297	0.105-.115
(1) 009	0.326	0.327	0.330	0.328	0.492	0.218	0.218	0.219	0.220	0.222	0.329	
(1) 010	0.359	0.360	0.363	0.361	0.525	0.251	0.251	0.252	0.253	0.255	0.362	
(1) 011	0.421	0.422	0.425	0.423	0.589	0.314	0.314	0.315	0.316	0.318	0.424	
(1) 012	0.486	0.487	0.490	0.488	0.654	0.378	0.378	0.379	0.380	0.382	0.489	
(1) 013	0.550	0.551	0.554	0.552	0.718	0.442	0.442	0.443	0.444	0.446	0.553	
(1) 014	0.614	0.615	0.618	0.616	0.783	0.506	0.506	0.507	0.508	0.510	0.617	
(1) 015	0.677	0.679	0.682	0.680	0.847	0.569	0.569	0.571	0.572	0.574	0.679	
(1) 016	0.743	0.745	0.748	0.746	0.912	0.635	0.635	0.637	0.638	0.640	0.745	
(1) 017	0.807	0.809	0.812	0.810	0.977	0.699	0.699	0.701	0.702	0.704	0.809	
(1) 018	0.871	0.873	0.876	0.874	1.042	0.763	0.763	0.765	0.766	0.768	0.873	
(1) 019	0.934	0.936	0.939	0.937	1.107	0.826	0.826	0.828	0.829	0.831	0.936	
(1) 020	0.997	0.999	1.002	1.000	1.172	0.890	0.890	0.892	0.893	0.895	0.999	
(1) 021	1.061	1.063	1.066	1.064	1.237	0.954	0.954	0.956	0.957	0.959	1.063	
(1) 022	1.126	1.128	1.131	1.129	1.302	1.019	1.019	1.021	1.022	1.024	1.128	
(1) 023	1.189	1.191	1.194	1.192	1.367	1.082	1.082	1.084	1.085	1.087	1.191	
(1) 024	1.254	1.256	1.259	1.257	1.432	1.146	1.146	1.148	1.149	1.151	1.256	
(1) 025	1.318	1.320	1.323	1.321	1.497	1.211	1.211	1.213	1.214	1.216	1.320	
(1) 026	1.383	1.385	1.388	1.386	1.562	1.275	1.275	1.277	1.278	1.280	1.385	
(1) 027	1.446	1.448	1.451	1.449	1.627	1.338	1.338	1.340	1.341	1.343	1.448	
(1) 028	1.512	1.514	1.517	1.515	1.692	1.405	1.405	1.407	1.408	1.410	1.514	
(1) 029	1.640	1.642	1.645	1.643	1.757	1.532	1.532	1.534	1.535	1.537	1.642	
(1) 030	1.768	1.770	1.773	1.771	1.822	1.660	1.660	1.662	1.663	1.665	1.770	
(1) 031	1.897	1.899	1.902	1.900	1.887	1.789	1.789	1.791	1.792	1.794	1.899	
(1) 032	2.025	2.027	2.030	2.028	1.952	1.917	1.917	1.919	1.920	1.922	2.027	
(1) 033	2.155	2.157	2.160	2.158	2.017	2.047	2.047	2.050	2.051	2.053	2.155	
(1) 034	2.283	2.285	2.288	2.286	2.082	2.175	2.175	2.178	2.179	2.181	2.283	
(1) 035	2.410	2.412	2.415	2.413	2.147	2.302	2.302	2.305	2.306	2.308	2.410	
(1) 036	2.538	2.540	2.543	2.541	2.212	2.430	2.430	2.433	2.434	2.436	2.538	
(1) 037	2.665	2.667	2.670	2.668	2.277	2.557	2.557	2.560	2.561	2.563	2.665	
(1) 038	2.795	2.797	2.800	2.798	2.342	2.687	2.687	2.690	2.691	2.693	2.795	
(1) 039	2.922	2.924	2.927	2.925	2.407	2.814	2.814	2.817	2.818	2.820	2.922	
(1) 040	3.050	3.052	3.055	3.053	2.472	2.942	2.942	2.945	2.946	2.948	3.050	
(1) 041	3.181	3.183	3.186	3.184	2.537	3.073	3.073	3.076	3.077	3.079	3.181	
(1) 042	3.436	3.438	3.441	3.439	2.602	3.328	3.328	3.331	3.332	3.334	3.436	
(1) 043	3.691	3.693	3.696	3.694	2.667	3.694	3.694	3.696	3.697	3.699	3.691	
(1) 044	3.949	3.951	3.954	3.952	2.732	3.841	3.841	3.844	3.845	3.847	3.949	
(1) 045	4.204	4.206	4.209	4.207	2.797	4.096	4.096	4.099	4.100	4.102	4.204	

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED		BORE MOUNTED		ROD DIA. 3	BORE DIA. H	GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. 3				
046	4.462 -	4.464	4.354 -	4.357				
047	4.717 -	4.719	4.609 -	4.612				
048	4.972 -	4.974	4.864 -	4.857				
049	5.235 -	5.237	5.127 -	5.130				
050	5.490 -	5.492	5.382 -	5.385				
(1) 102	0.214 -	0.216	0.056 -	0.060	0.056 -	0.058	0.216 -	.182-.192
(1) 103	0.253 -	0.255	0.089 -	0.093	0.089 -	0.091	0.255 -	.165-.175
(1) 104	0.284 -	0.286	0.120 -	0.124	0.120 -	0.122	0.286 -	.158-.168
(1) 105	0.316 -	0.318	0.152 -	0.156	0.152 -	0.154	0.318 -	.158-.168
(1) 106	0.348 -	0.350	0.184 -	0.188	0.184 -	0.186	0.350 -	.153-.163
107	0.380 -	0.382	0.216 -	0.220	0.216 -	0.218	0.382 -	.153-.163
108	0.413 -	0.415	0.249 -	0.253	0.249 -	0.251	0.415 -	.153-.163
109	0.476 -	0.478	0.312 -	0.316	0.312 -	0.314	0.478 -	.146-.156
110	0.540 -	0.542	0.376 -	0.380	0.376 -	0.378	0.542 -	
111	0.604 -	0.606	0.440 -	0.444	0.440 -	0.442	0.606 -	
112	0.668 -	0.670	0.504 -	0.508	0.504 -	0.506	0.670 -	
113	0.731 -	0.733	0.567 -	0.571	0.567 -	0.569	0.733 -	
114	0.797 -	0.799	0.633 -	0.637	0.633 -	0.635	0.799 -	
115	0.861 -	0.863	0.697 -	0.701	0.697 -	0.699	0.863 -	
116	0.926 -	0.928	0.761 -	0.765	0.761 -	0.763	0.928 -	
117	0.990 -	0.992	0.825 -	0.829	0.825 -	0.827	0.992 -	
118	1.053 -	1.055	0.889 -	0.893	0.889 -	0.891	1.055 -	
119	1.117 -	1.119	0.953 -	0.957	0.953 -	0.955	1.119 -	
120	1.181 -	1.183	1.017 -	1.021	1.017 -	1.019	1.183 -	
121	1.244 -	1.246	1.080 -	1.084	1.080 -	1.082	1.246 -	
122	1.308 -	1.310	1.144 -	1.148	1.144 -	1.146	1.310 -	
123	1.374 -	1.376	1.210 -	1.214	1.210 -	1.212	1.376 -	
124	1.438 -	1.440	1.274 -	1.278	1.274 -	1.276	1.440 -	
125	1.501 -	1.503	1.337 -	1.341	1.337 -	1.339	1.503 -	
126	1.565 -	1.567	1.401 -	1.405	1.401 -	1.403	1.567 -	
127	1.630 -	1.632	1.465 -	1.469	1.465 -	1.467	1.632 -	
128	1.693 -	1.695	1.529 -	1.533	1.529 -	1.531	1.695 -	
129	1.759 -	1.761	1.595 -	1.599	1.595 -	1.597	1.761 -	
130	1.824 -	1.826	1.660 -	1.664	1.660 -	1.662	1.826 -	
131	1.887 -	1.889	1.723 -	1.727	1.723 -	1.725	1.889 -	
132	1.951 -	1.953	1.787 -	1.791	1.787 -	1.789	1.953 -	
133	2.015 -	2.017	1.850 -	1.854	1.850 -	1.852	2.017 -	
134	2.080 -	2.082	1.915 -	1.919	1.915 -	1.917	2.082 -	
135	2.145 -	2.147	1.981 -	1.985	1.981 -	1.983	2.147 -	

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	RCD MOUNTED			BORE MOUNTED			GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	POD DIA. R	BORE DIA. H	GLAND DIA.		
136	2.208	2.210	2.044	2.044	2.047	2.050	2.210	.146-.156
137	2.273	2.275	2.108	2.108	2.111	2.114	2.275	
138	2.337	2.339	2.172	2.172	2.175	2.178	2.339	
139	2.400	2.402	2.236	2.236	2.239	2.242	2.402	
140	2.463	2.465	2.299	2.299	2.302	2.305	2.465	
141	2.530	2.532	2.366	2.366	2.369	2.372	2.532	
142	2.594	2.596	2.430	2.430	2.433	2.436	2.596	
143	2.659	2.661	2.494	2.494	2.497	2.500	2.661	
144	2.721	2.723	2.557	2.557	2.560	2.563	2.723	
145	2.785	2.787	2.621	2.621	2.624	2.627	2.787	
146	2.849	2.851	2.685	2.685	2.688	2.691	2.851	
147	2.916	2.918	2.751	2.751	2.754	2.757	2.918	
148	2.978	2.980	2.814	2.814	2.817	2.820	2.980	
149	3.042	3.044	2.878	2.878	2.881	2.884	3.044	
150	3.106	3.108	2.942	2.942	2.945	2.948	3.108	
151	3.235	3.237	3.071	3.071	3.074	3.077	3.237	
152	3.490	3.492	3.326	3.326				
153	3.745	3.747	3.581	3.581				
154	4.004	4.006	3.840	3.840				
155	4.259	4.261	4.099	4.099				
156	4.516	4.518	4.352	4.352				
157	4.771	4.773	4.607	4.607				
158	5.026	5.028	4.862	4.862				
159	5.286	5.288	5.122	5.122				
160	5.541	5.543	5.377	5.377				
161	5.796	5.798	5.632	5.632				
162	6.051	6.053	5.887	5.887				
163	6.306	6.308	6.142	6.142				
164	6.567	6.569	6.403	6.403				
165	6.822	6.824	6.658	6.658				
166	7.077	7.079	6.913	6.913				
167	7.332	7.334	7.168	7.168				
168	7.592	7.594	7.428	7.428				
169	7.847	7.849	7.683	7.683				
170	8.102	8.104	7.938	7.938				
171	8.357	8.359	8.193	8.193				
172	8.617	8.619	8.453	8.453				
173	8.872	8.874	8.708	8.708				
174	9.127	9.129	8.963	8.963				
175	9.382	9.384	9.218	9.218				
176	9.642	9.644	9.478	9.478				
177	9.897	9.899	9.733	9.733				
178	10.152	10.154	9.988	9.988				

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED		BORE MOUNTED		GLAND DIA. F	ROD DIA. S	BORE DIA. H	GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	BORE DIA. H					
(1) 201	0.403	0.406	0.403	0.411	0.181	0.184	0.186	0.405	0.411
(1) 202	0.469	0.472	0.474	0.477	0.246	0.249	0.251	0.471	0.477
203	0.532	0.535	0.537	0.540	0.309	0.312	0.314	0.534	0.540
204	0.596	0.599	0.601	0.604	0.373	0.376	0.378	0.598	0.604
205	0.659	0.662	0.664	0.667	0.437	0.440	0.442	0.661	0.667
206	0.724	0.727	0.729	0.732	0.501	0.504	0.506	0.726	0.732
207	0.787	0.790	0.792	0.795	0.564	0.567	0.569	0.789	0.795
208	0.853	0.856	0.855	0.861	0.630	0.633	0.635	0.855	0.861
209	0.916	0.919	0.921	0.924	0.694	0.697	0.699	0.918	0.924
210	0.981	0.984	0.986	0.989	0.759	0.762	0.764	0.983	0.989
211	1.045	1.048	1.050	1.053	0.822	0.825	0.827	1.047	1.053
212	1.109	1.112	1.114	1.117	0.886	0.889	0.891	1.111	1.117
213	1.172	1.175	1.177	1.180	0.950	0.953	0.955	1.174	1.180
214	1.237	1.240	1.242	1.245	1.014	1.017	1.019	1.239	1.245
215	1.300	1.303	1.305	1.308	1.077	1.080	1.082	1.302	1.308
216	1.365	1.368	1.370	1.373	1.143	1.146	1.148	1.367	1.373
217	1.430	1.433	1.435	1.438	1.207	1.210	1.212	1.432	1.438
218	1.494	1.497	1.499	1.502	1.271	1.274	1.276	1.496	1.502
219	1.557	1.560	1.562	1.565	1.334	1.337	1.339	1.559	1.565
220	1.621	1.624	1.626	1.629	1.398	1.401	1.403	1.623	1.629
221	1.685	1.688	1.690	1.693	1.462	1.465	1.467	1.687	1.693
222	1.752	1.755	1.757	1.760	1.529	1.532	1.534	1.754	1.760
223	1.819	1.822	1.824	1.827	1.596	1.599	1.601	1.881	1.887
224	2.007	2.010	2.012	2.015	1.784	1.787	1.789	2.009	2.015
225	2.138	2.141	2.143	2.146	1.915	1.918	1.920	2.140	2.146
226	2.265	2.268	2.270	2.273	2.042	2.045	2.047	2.267	2.273
227	2.393	2.396	2.398	2.401	2.170	2.173	2.175	2.395	2.401
228	2.522	2.525	2.527	2.530	2.299	2.302	2.304	2.524	2.530
229	2.650	2.653	2.655	2.658	2.427	2.430	2.432	2.652	2.658
230	2.776	2.779	2.781	2.784	2.554	2.557	2.559	2.778	2.784
231	2.904	2.907	2.909	2.912	2.682	2.685	2.687	2.906	2.912
232	3.036	3.039	3.041	3.044	2.813	2.816	2.818	3.038	3.044
233	3.164	3.167	3.169	3.172	2.941	2.944	2.946	3.166	3.172
234	3.290	3.293	3.295	3.298	3.068	3.071	3.073	3.292	3.298
235	3.418	3.421	3.423	3.426	3.196	3.199	3.201	3.420	3.426
236	3.546	3.549	3.551	3.554	3.323	3.326	3.328	3.548	3.554
237	3.674	3.677	3.679	3.682	3.451	3.454	3.456	3.676	3.682
238	3.801	3.804	3.806	3.809	3.578	3.581	3.583	3.803	3.809
239	3.932	3.935	3.937	3.940	3.710	3.713	3.715	3.934	3.940
240	4.060	4.063	4.065	4.068	3.837	3.840	3.842	4.062	4.068
241	4.188	4.191	4.193	4.196	3.965	3.968	3.970	4.190	4.196
242	4.315	4.318	4.320	4.323	4.092	4.095	4.097	4.317	4.323
243	4.443	4.446	4.448	4.451	4.220	4.223	4.225	4.445	4.451
244	4.572	4.575	4.577	4.580	4.349	4.352	4.354	4.574	4.580
245	4.700	4.703	4.705	4.708	4.477	4.480	4.482	4.701	4.707

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	PCC MOUNTER		ROCK MOUNTER		ROCK DIA. H	ROCK DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	ROCK DIA. D	ROCK DIA. F			
246	4.827	4.930	4.832	4.835	4.604	4.610	.195-.205
247	4.955	4.958	4.960	4.963	4.732	4.738	
248	5.082	5.085	5.087	5.090	4.859	4.865	
249	5.215	5.218	5.220	5.223	4.992	4.998	
250	5.342	5.345	5.347	5.350	5.119	5.125	
251	5.470	5.473	5.475	5.478	5.247	5.253	
252	5.597	5.600	5.602	5.605	5.374	5.380	
253	5.725	5.728	5.730	5.733	5.502	5.508	
254	5.852	5.855	5.857	5.860	5.629	5.635	
255	5.980	5.983	5.985	5.988	5.757	5.763	
256	6.107	6.110	6.112	6.115	5.884	5.890	
257	6.235	6.238	6.240	6.243	6.012	6.018	
258	6.362	6.365	6.367	6.370	6.140	6.145	
259	6.490	6.493	6.495	6.498	6.268	6.273	
260	6.617	6.620	6.622	6.625	6.396	6.401	
261	6.745	6.748	6.750	6.753	6.524	6.529	
262	6.872	6.875	6.877	6.880	6.652	6.657	
263	6.999	7.002	7.004	7.007	6.780	6.785	
264	7.126	7.129	7.131	7.134	6.908	6.913	
265	7.253	7.256	7.258	7.261	7.036	7.041	
266	7.380	7.383	7.385	7.388	7.164	7.169	
267	7.507	7.510	7.512	7.515	7.292	7.297	
268	7.634	7.637	7.639	7.642	7.420	7.425	
269	7.761	7.764	7.766	7.769	7.548	7.553	
270	7.888	7.891	7.893	7.896	7.676	7.681	
271	8.015	8.018	8.020	8.023	7.804	7.809	
272	8.142	8.145	8.147	8.150	7.932	7.937	
273	8.269	8.272	8.274	8.277	8.060	8.065	
274	8.396	8.399	8.401	8.404	8.188	8.193	
275	8.523	8.526	8.528	8.531	8.316	8.321	
276	8.650	8.653	8.655	8.658	8.444	8.449	
277	8.777	8.780	8.782	8.785	8.572	8.577	
278	8.904	8.907	8.909	8.912	8.700	8.705	
279	9.031	9.034	9.036	9.039	8.828	8.833	
280	9.158	9.161	9.163	9.166	8.956	8.961	
281	9.285	9.288	9.290	9.293	9.084	9.089	
282	9.412	9.415	9.417	9.420	9.212	9.217	
283	9.539	9.542	9.544	9.547	9.340	9.345	
284	9.666	9.669	9.671	9.674	9.468	9.473	
285	9.793	9.796	9.798	9.801	9.596	9.601	
286	9.920	9.923	9.925	9.928	9.724	9.729	
287	10.047	10.050	10.052	10.055	9.852	9.857	
288	10.174	10.177	10.179	10.182	9.980	9.985	
289	10.301	10.304	10.306	10.309	10.108	10.113	
290	10.428	10.431	10.433	10.436	10.236	10.241	
291	10.555	10.558	10.560	10.563	10.364	10.369	
292	10.682	10.685	10.687	10.690	10.492	10.497	
293	10.809	10.812	10.814	10.817	10.620	10.625	
294	10.936	10.939	10.941	10.944	10.748	10.753	
295	11.063	11.066	11.068	11.071	10.876	10.881	
296	11.190	11.193	11.195	11.198	11.004	11.009	
297	11.317	11.320	11.322	11.325	11.132	11.137	
298	11.444	11.447	11.449	11.452	11.260	11.265	
299	11.571	11.574	11.576	11.579	11.388	11.393	
300	11.698	11.701	11.703	11.706	11.516	11.521	
301	11.825	11.828	11.830	11.833	11.644	11.649	
302	11.952	11.955	11.957	11.960	11.772	11.777	
303	12.079	12.082	12.084	12.087	11.900	11.905	
304	12.206	12.209	12.211	12.214	12.028	12.033	
305	12.333	12.336	12.338	12.341	12.156	12.161	
306	12.460	12.463	12.465	12.468	12.284	12.289	
307	12.587	12.590	12.592	12.595	12.412	12.417	
308	12.714	12.717	12.719	12.722	12.540	12.545	
309	12.841	12.844	12.846	12.849	12.668	12.673	
310	12.968	12.971	12.973	12.976	12.796	12.801	
311	13.095	13.098	13.100	13.103	12.924	12.929	
312	13.222	13.225	13.227	13.230	13.052	13.057	
313	13.349	13.352	13.354	13.357	13.180	13.185	
314	13.476	13.479	13.481	13.484	13.308	13.313	
315	13.603	13.606	13.608	13.611	13.436	13.441	
316	13.730	13.733	13.735	13.738	13.564	13.569	
317	13.857	13.860	13.862	13.865	13.692	13.697	
318	13.984	13.987	13.989	13.992	13.820	13.825	
319	14.111	14.114	14.116	14.119	13.948	13.953	
320	14.238	14.241	14.243	14.246	14.076	14.081	
321	14.365	14.368	14.370	14.373	14.204	14.209	
322	14.492	14.495	14.497	14.500	14.332	14.337	
323	14.619	14.622	14.624	14.627	14.460	14.465	
324	14.746	14.749	14.751	14.754	14.588	14.593	
325	14.873	14.876	14.878	14.881	14.716	14.721	
326	15.000	15.003	15.005	15.008	14.844	14.849	
327	15.127	15.130	15.132	15.135	14.972	14.977	
328	15.254	15.257	15.259	15.262	15.100	15.105	
329	15.381	15.384	15.386	15.389	15.228	15.233	
330	15.508	15.511	15.513	15.516	15.356	15.361	
331	15.635	15.638	15.640	15.643	15.484	15.489	
332	15.762	15.765	15.767	15.770	15.612	15.617	
333	15.889	15.892	15.894	15.897	15.740	15.745	
334	16.016	16.019	16.021	16.024	15.868	15.873	
335	16.143	16.146	16.148	16.151	15.996	16.001	
336	16.270	16.273	16.275	16.278	16.124	16.129	
337	16.397	16.400	16.402	16.405	16.252	16.257	
338	16.524	16.527	16.529	16.532	16.380	16.385	
339	16.651	16.654	16.656	16.659	16.508	16.513	
340	16.778	16.781	16.783	16.786	16.636	16.641	
341	16.905	16.908	16.910	16.913	16.764	16.769	
342	17.032	17.035	17.037	17.040	16.892	16.897	
343	17.159	17.162	17.164	17.167	17.020	17.025	
344	17.286	17.289	17.291	17.294	17.148	17.153	
345	17.413	17.416	17.418	17.421	17.276	17.281	
346	17.540	17.543	17.545	17.548	17.404	17.409	
347	17.667	17.670	17.672	17.675	17.532	17.537	
348	17.794	17.797	17.799	17.802	17.660	17.665	
349	17.921	17.924	17.926	17.929	17.788	17.793	
350	18.048	18.051	18.053	18.056	17.916	17.921	
351	18.175	18.178	18.180	18.183	18.044	18.049	
352	18.302	18.305	18.307	18.310	18.172	18.177	
353	18.429	18.432	18.434	18.437	18.300	18.305	
354	18.556	18.559	18.561	18.564	18.428	18.433	
355	18.683	18.686	18.688	18.691	18.556	18.561	
356	18.810	18.813	18.815	18.818	18.684	18.689	
357	18.937	18.940	18.942	18.945	18.812	18.817	
358	19.064	19.067	19.069	19.072	18.940	18.945	
359	19.191	19.194	19.196	19.199	19.068	19.073	
360	19.318	19.321	19.323	19.326	19.196	19.201	
361	19.445	19.448	19.450	19.453	19.324	19.329	
362	19.572	19.575	19.577	19.580	19.452	19.457	
363	19.699	19.702	19.704	19.707	19.580	19.585	
364	19.826	19.829	19.831	19.834	19.708	19.713	
365	19.953	19.956	19.958	19.961	19.836	19.841	
366	20.080	20.083	20.085	20.088	19.964	19.969	
367	20.207	20.210	20.212	20.215	20.092	20.097	
368	20.334	20.337	20.339	20.342	20.220	20.225	
369	20.461	20.464	20.466	20.469	20.348	20.353	
370	20.588	20.591	20.593	20.596	20.476	20.481	
371	20.715	20.718	20.720	20.723	20.604	20.609	
372	20.842	20.845	20.847	20.850	20.732	20.737	
373	20.969	20.972	20.974	20.977	20.860	20.865	
374	21.096	21.099	21.101	21.104	20.988	20.993	
375	21.223	21.226	21.228	21.231	21.116	21.121	
376	21.350	21.353	21.355	21.358	21.244	21.249	
377	21.477	21.480	21.482	21.485	21.372	21.377	
378	21.604	21.607	21.609	21.612	21.500	21.505	
379	21.731	21.734	21.736	21.739	21.628	21.633	
380	21.858	21.861	21.863	21.866	21.756	21.761	
381	21.985	21.988	21.990	21.993	21.884	21.889	
382	22.112	22.115	22.117	22.120	22.012	22.017	
383	22.239	22.242	22.244	22.247	22.140	22.145	
384	22.366	22.369	22.371	22.374	22.268	22.273	
385	22.493	22.496	22.498	22.501	22.396	22.401	
386	22.620	22.623	22.625	22.628	22.524	22.529	
387	22.747	22.750	22.752	22.755	22.652	22.657	
388	22.874	22.877	22.879	22.882	22.780	22.785	
389	23.001	23.004	23.006	23.009	22.908	22.913	
390	23.128	23.131	23.133	23.136	23.036	23.041	
391	23.255	23.258	23.260	23.263	23.164	23.169	
392	23.382	23.385	23.387	23.390	23.292	23.297	
393	23.509	23.512	23.514	23.517	23.420	23.425	

TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED			BORE MOUNTED			GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. R	BORE DIA. H	GLAND DIA. E		
309	0.768 - 0.771	0.774 - 0.777	0.427 - 0.435	0.427 - 0.430	0.433 - 0.436	0.769 - 0.777	.285 - .295	
310	0.832 - 0.835	0.838 - 0.841	0.492 - 0.500	0.492 - 0.495	0.498 - 0.501	0.833 - 0.841		
311	0.895 - 0.898	0.901 - 0.904	0.555 - 0.563	0.555 - 0.558	0.561 - 0.564	0.896 - 0.904		
312	0.961 - 0.964	0.967 - 0.970	0.621 - 0.629	0.621 - 0.624	0.627 - 0.630	0.962 - 0.970		
313	1.024 - 1.027	1.030 - 1.033	0.684 - 0.692	0.684 - 0.687	0.690 - 0.693	1.025 - 1.033		
314	1.091 - 1.094	1.097 - 1.100	0.750 - 0.758	0.750 - 0.753	0.756 - 0.759	1.092 - 1.100		
315	1.153 - 1.156	1.159 - 1.162	0.813 - 0.821	0.813 - 0.816	0.819 - 0.822	1.154 - 1.162		
316	1.218 - 1.221	1.224 - 1.227	0.877 - 0.885	0.877 - 0.880	0.883 - 0.886	1.219 - 1.227		
317	1.280 - 1.283	1.285 - 1.289	0.940 - 0.948	0.940 - 0.943	0.946 - 0.949	1.281 - 1.289		
318	1.346 - 1.349	1.352 - 1.355	1.005 - 1.013	1.005 - 1.008	1.011 - 1.014	1.347 - 1.355		
319	1.409 - 1.412	1.415 - 1.418	1.068 - 1.076	1.068 - 1.071	1.074 - 1.077	1.410 - 1.418		
320	1.474 - 1.477	1.480 - 1.483	1.134 - 1.142	1.134 - 1.137	1.140 - 1.143	1.475 - 1.483		
321	1.538 - 1.541	1.544 - 1.547	1.197 - 1.205	1.197 - 1.200	1.203 - 1.206	1.539 - 1.547		
322	1.603 - 1.606	1.612 - 1.615	1.262 - 1.270	1.262 - 1.265	1.268 - 1.271	1.604 - 1.612		
323	1.665 - 1.668	1.671 - 1.674	1.325 - 1.333	1.325 - 1.328	1.331 - 1.334	1.666 - 1.674		
324	1.729 - 1.732	1.735 - 1.738	1.389 - 1.397	1.389 - 1.392	1.395 - 1.398	1.730 - 1.738		
325	1.861 - 1.864	1.867 - 1.870	1.520 - 1.528	1.520 - 1.523	1.526 - 1.529	1.862 - 1.870		
326	1.987 - 1.990	1.993 - 1.996	1.647 - 1.655	1.647 - 1.650	1.653 - 1.656	1.988 - 1.996		
327	2.115 - 2.118	2.121 - 2.124	1.775 - 1.783	1.775 - 1.778	1.781 - 1.784	2.116 - 2.124		
328	2.243 - 2.246	2.249 - 2.252	1.902 - 1.910	1.902 - 1.905	1.908 - 1.911	2.244 - 2.252		
329	2.371 - 2.376	2.379 - 2.382	2.033 - 2.041	2.033 - 2.036	2.039 - 2.042	2.374 - 2.382		
330	2.501 - 2.504	2.507 - 2.510	2.160 - 2.168	2.160 - 2.163	2.166 - 2.169	2.502 - 2.510		
331	2.629 - 2.632	2.635 - 2.638	2.288 - 2.296	2.288 - 2.291	2.294 - 2.297	2.630 - 2.638		
332	2.756 - 2.759	2.762 - 2.765	2.415 - 2.423	2.415 - 2.418	2.421 - 2.424	2.757 - 2.765		
333	2.886 - 2.889	2.892 - 2.895	2.545 - 2.553	2.545 - 2.548	2.551 - 2.554	2.887 - 2.895		
334	3.013 - 3.016	3.019 - 3.022	2.672 - 2.680	2.672 - 2.675	2.678 - 2.681	3.014 - 3.022		
335	3.140 - 3.143	3.146 - 3.149	2.800 - 2.808	2.800 - 2.803	2.806 - 2.809	3.141 - 3.149		
336	3.267 - 3.270	3.273 - 3.276	2.927 - 2.935	2.927 - 2.930	2.933 - 2.936	3.268 - 3.276		
337	3.400 - 3.403	3.406 - 3.409	3.059 - 3.067	3.059 - 3.062	3.065 - 3.068	3.401 - 3.409		
338	3.527 - 3.530	3.533 - 3.536	3.186 - 3.194	3.186 - 3.189	3.192 - 3.195	3.528 - 3.536		
339	3.654 - 3.657	3.660 - 3.663	3.314 - 3.322	3.314 - 3.317	3.320 - 3.323	3.655 - 3.663		
340	3.781 - 3.784	3.787 - 3.790	3.441 - 3.449	3.441 - 3.444	3.447 - 3.450	3.782 - 3.790		
341	3.909 - 3.912	3.915 - 3.918	3.569 - 3.577	3.569 - 3.572	3.575 - 3.578	3.910 - 3.918		
342	4.042 - 4.045	4.048 - 4.051	3.701 - 3.709	3.701 - 3.704	3.707 - 3.710	4.043 - 4.051		
343	4.168 - 4.171	4.174 - 4.177	3.828 - 3.836	3.828 - 3.831	3.834 - 3.837	4.169 - 4.177		
344	4.296 - 4.299	4.302 - 4.305	3.956 - 3.964	3.956 - 3.959	3.962 - 3.965	4.297 - 4.305		
345	4.423 - 4.426	4.429 - 4.432	4.083 - 4.091	4.083 - 4.086	4.089 - 4.092	4.424 - 4.432		
346	4.551 - 4.554	4.557 - 4.560	4.211 - 4.219	4.211 - 4.214	4.217 - 4.220	4.552 - 4.560		
347	4.680 - 4.683	4.686 - 4.689	4.340 - 4.348	4.340 - 4.343	4.346 - 4.349	4.681 - 4.689		
348	4.808 - 4.811	4.814 - 4.817	4.468 - 4.476	4.468 - 4.471	4.474 - 4.477	4.809 - 4.817		
349	4.936 - 4.939	4.942 - 4.945	4.595 - 4.603	4.595 - 4.598	4.601 - 4.604	4.937 - 4.945		
350	5.064 - 5.067	5.071 - 5.074	4.723 - 4.731	4.723 - 4.726	4.729 - 4.732	5.065 - 5.073		

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED:			CORE MOUNTED:			GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. D	BORE DIA. H	GLAND DIA. E	
351	5.176	5.179	4.835	4.835	4.844	5.177	.285-.295
352	5.303	5.312	4.967	4.967	4.971	5.304	
353	5.431	5.434	5.090	5.090	5.099	5.432	
354	5.566	5.569	5.225	5.228	5.234	5.567	
355	5.694	5.697	5.353	5.356	5.362	5.695	
356	5.821	5.824	5.480	5.483	5.489	5.822	
357	5.949	5.952	5.608	5.611	5.617	5.950	
358	6.075	6.078	5.735	5.738	5.744	6.076	
359	6.203	6.206	5.863	5.866	5.872	6.204	
360	6.330	6.333	5.990	5.993	5.999	6.331	
361	6.458	6.461	6.118	6.121	6.127	6.459	
362	6.713	6.716	6.373	6.376	6.382	6.714	
363	6.968	6.971	6.628	6.631	6.637	6.969	
364	7.223	7.226	6.883	6.886	6.892	7.224	
365	7.479	7.482	7.138	7.141	7.147	7.480	
366	7.741	7.744	7.400	7.403	7.409	7.742	
367	7.995	7.998	7.655	7.658	7.664	7.996	
368	8.250	8.253	7.910	7.913	7.919	8.251	
369	8.505	8.508	8.165	8.168	8.174	8.506	
370	8.760	8.763	8.420	8.423	8.429	8.761	
371	9.015	9.018	8.675	8.678			
372	9.270	9.273	8.930	8.933			
373	9.526	9.529	9.185	9.193			
374	9.781	9.784	9.440	9.448			
375	10.036	10.039	9.695	9.703			
376	10.291	10.294	9.950	9.958			
377	10.546	10.549	10.205	10.213			
378	11.056	11.059	10.715	10.723			
379	11.566	11.569	11.225	11.233			
380	12.076	12.079	11.735	11.743			
381	12.586	12.589	12.245	12.253			
382	13.605	13.608	13.611	13.614			
383	14.625	14.628	14.631	14.634			
384	15.645	15.648	15.651	15.654			
385	16.661	16.664	16.667	16.670			
386	17.681	17.684	17.687	17.690			
387	18.701	18.704	18.707	18.710			
388	19.721	19.724	19.727	19.730			
389	20.741	20.744	20.747	20.750			
390	21.761	21.764	21.767	21.770			
391	22.780	22.783	22.786	22.789			
392	23.801	23.804	23.807	23.810			
393	24.821	24.824	24.827	24.830			
394	25.841	25.844	25.847	25.850			
395	26.861	26.864	26.867	26.870			

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED			BORE MOUNTED			GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. B	BORE DIA. H	GLAND DIA. E	
425	5.047 - 5.050	5.054 - 5.058	4.598 - 4.608	4.598 - 4.601	4.606 - 4.610	5.048 - 5.058	.360-.370
426	5.175 - 5.178	5.182 - 5.186	4.726 - 4.736	4.726 - 4.729	4.734 - 4.738	5.176 - 5.186	
427	5.303 - 5.306	5.310 - 5.314	4.853 - 4.863	4.853 - 4.856	4.861 - 4.865	5.304 - 5.314	
428	5.431 - 5.434	5.438 - 5.442	4.981 - 4.991	4.981 - 4.984	4.989 - 4.993	5.432 - 5.442	
429	5.561 - 5.564	5.568 - 5.572	5.112 - 5.122	5.112 - 5.115	5.120 - 5.124	5.562 - 5.572	
430	5.689 - 5.692	5.696 - 5.700	5.240 - 5.250	5.240 - 5.243	5.248 - 5.252	5.690 - 5.700	
431	5.817 - 5.820	5.824 - 5.828	5.367 - 5.377	5.367 - 5.370	5.375 - 5.379	5.818 - 5.828	
432	5.945 - 5.948	5.952 - 5.956	5.495 - 5.505	5.495 - 5.498	5.503 - 5.507	5.946 - 5.956	
433	6.072 - 6.075	6.079 - 6.083	5.622 - 5.632	5.622 - 5.625	5.630 - 5.634	6.073 - 6.083	
434	6.200 - 6.203	6.207 - 6.211	5.750 - 5.760	5.750 - 5.753	5.758 - 5.762	6.201 - 6.211	
435	6.326 - 6.329	6.333 - 6.337	5.877 - 5.887	5.877 - 5.880	5.885 - 5.889	6.327 - 6.337	
436	6.454 - 6.457	6.461 - 6.465	6.005 - 6.015	6.005 - 6.008	6.013 - 6.017	6.455 - 6.465	
437	6.581 - 6.584	6.588 - 6.592	6.132 - 6.142	6.132 - 6.135	6.140 - 6.144	6.582 - 6.592	
438	6.709 - 6.712	6.716 - 6.720	6.260 - 6.270	6.260 - 6.263	6.270 - 6.274	6.701 - 6.711	
439	7.094 - 7.097	7.101 - 7.105	6.385 - 6.395	6.385 - 6.388	6.396 - 6.400	6.840 - 6.850	
440	7.349 - 7.352	7.356 - 7.360	6.510 - 6.520	6.510 - 6.513	6.521 - 6.525	7.095 - 7.105	
441	7.605 - 7.608	7.612 - 7.616	6.635 - 6.645	6.635 - 6.638	6.646 - 6.650	7.350 - 7.360	
442	7.864 - 7.867	7.871 - 7.875	6.760 - 6.770	6.760 - 6.763	6.771 - 6.775	7.606 - 7.616	
443	8.119 - 8.122	8.126 - 8.130	6.885 - 6.895	6.885 - 6.888	6.896 - 6.900	7.855 - 7.865	
444	8.374 - 8.377	8.381 - 8.385	7.010 - 7.020	7.010 - 7.013	7.021 - 7.025	8.120 - 8.130	
445	8.630 - 8.633	8.637 - 8.641	7.135 - 7.145	7.135 - 7.138	7.146 - 7.150	8.375 - 8.385	
446	9.150 - 9.153	9.157 - 9.161	7.260 - 7.270	7.260 - 7.263	7.271 - 7.275	8.631 - 8.641	
447	9.660 - 9.663	9.667 - 9.671	7.385 - 7.395	7.385 - 7.388	7.396 - 7.400	9.151 - 9.161	
448	10.170 - 10.173	10.177 - 10.181	7.510 - 7.520	7.510 - 7.513	7.521 - 7.525	9.661 - 9.671	
449	10.681 - 10.684	10.688 - 10.692	7.635 - 7.645	7.635 - 7.638	7.646 - 7.650		
450	11.195 - 11.198	11.202 - 11.206	7.760 - 7.770	7.760 - 7.763	7.771 - 7.775		
451	11.706 - 11.709	11.713 - 11.717	7.885 - 7.895	7.885 - 7.888	7.896 - 7.900		
452	12.216 - 12.219	12.223 - 12.227	8.010 - 8.020	8.010 - 8.013	8.021 - 8.025		
453	12.725 - 12.728	12.732 - 12.736	8.135 - 8.145	8.135 - 8.138	8.146 - 8.150		
454	13.235 - 13.238	13.242 - 13.246	8.260 - 8.270	8.260 - 8.263	8.271 - 8.275		
455	13.745 - 13.748	13.752 - 13.756	8.385 - 8.395	8.385 - 8.388	8.396 - 8.400		
456	14.265 - 14.268	14.272 - 14.276	8.510 - 8.520	8.510 - 8.513	8.521 - 8.525		
457	14.775 - 14.778	14.782 - 14.786	8.635 - 8.645	8.635 - 8.638	8.646 - 8.650		
458	15.285 - 15.288	15.292 - 15.296	8.760 - 8.770	8.760 - 8.763	8.771 - 8.775		
459	15.795 - 15.798	15.802 - 15.806	8.885 - 8.895	8.885 - 8.888	8.896 - 8.900		
460	16.305 - 16.308	16.312 - 16.316	9.010 - 9.020	9.010 - 9.013	9.021 - 9.025		
461	16.770 - 16.773	16.777 - 16.781	9.135 - 9.145	9.135 - 9.138	9.146 - 9.150		
462	17.280 - 17.283	17.287 - 17.291	9.260 - 9.270	9.260 - 9.263	9.271 - 9.275		
463	17.790 - 17.793	17.797 - 17.801	9.385 - 9.395	9.385 - 9.388	9.396 - 9.400		
464	18.300 - 18.303	18.307 - 18.311	9.510 - 9.520	9.510 - 9.513	9.521 - 9.525		
465	18.810 - 18.813	18.817 - 18.821	9.635 - 9.645	9.635 - 9.638	9.646 - 9.650		

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TABLE 3 STANDARD GLAND DIMENSIONS IN INCHES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTER		BORE MOUNTED		ROD DIA. R	GLAND DIA. F	BORE DIA. H	GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	BORE DIA. H	BORE DIA. H					
466	19.320 - 19.323	19.327 - 19.331	18.870 - 19.880						.360-.370 ↓
467	19.829 - 19.832	19.836 - 19.840	19.380 - 19.390						
468	20.339 - 20.342	20.346 - 20.350	19.890 - 19.900						
469	20.849 - 20.852	20.856 - 20.860	20.400 - 20.410						
470	21.869 - 21.872	21.876 - 21.880	21.420 - 21.430						
471	22.889 - 22.892	22.896 - 22.900	22.440 - 22.450						
472	23.910 - 23.913	23.917 - 23.921	23.460 - 23.470						
473	24.930 - 24.933	24.937 - 24.941	24.480 - 24.490						
474	25.950 - 25.953	25.957 - 25.961	25.500 - 25.510						
475	26.969 - 26.972	26.976 - 26.980	26.520 - 26.530						

(1) The standard gland dimensions for these sizes have been provided for reference purposes only. Due to their small size, a gland cannot be designed which will meet all the stated criteria. The dimensions given in this table will result in max seal stretch, max and min seal squeeze and min gland volume that differ significantly from the desirable values.

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TABLE 3 STANDARD GLAND DIMENSIONS IN MILLIMETRES

GLAND & AS 568 DASH NO.	BORE MOUNTED			BORE MOUNTED			GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	BORE DIA. H	BORE DIA. I	GLAND DIA. J		
(1) 001	2.159	2.184	0.914	0.914	0.940	0.914	2.235	2.56-2.82
(1) 002	2.997	3.023	1.245	1.245	1.270	1.245	3.073	2.56-2.82
(1) 003	3.861	3.886	1.600	1.600	1.626	1.600	3.937	2.69-2.95
(1) 004	4.724	4.750	1.981	1.981	2.007	1.981	4.801	2.90-3.15
(1) 005	5.486	5.512	2.769	2.769	2.794	2.769	5.563	2.90-3.15
(1) 006	5.942	5.967	3.099	3.099	3.124	3.099	5.918	2.79-3.05
(1) 007	6.655	6.680	3.912	3.912	3.937	3.912	6.731	2.79-3.05
008	7.468	7.493	4.724	4.724	4.750	4.724	7.569	2.67-2.92
009	8.280	8.306	5.537	5.537	5.563	5.537	8.357	
010	9.119	9.144	6.375	6.375	6.401	6.375	9.220	
011	10.693	10.719	7.976	7.976	8.001	7.976	10.770	
012	12.344	12.370	9.601	9.601	9.627	9.601	12.446	
013	13.970	13.995	11.227	11.227	11.252	11.227	14.046	
014	15.596	15.621	12.852	12.852	12.878	12.852	15.672	
015	17.196	17.247	14.453	14.453	14.503	14.453	17.247	
016	18.872	18.923	16.129	16.129	16.180	16.129	18.923	
017	20.498	20.549	17.755	17.755	17.805	17.755	20.549	
018	22.123	22.174	19.380	19.380	19.431	19.380	22.174	
019	23.724	23.774	20.980	20.980	21.031	20.980	23.774	
020	25.324	25.375	22.606	22.606	22.657	22.606	25.375	
021	26.949	27.000	24.232	24.232	24.282	24.232	27.000	
022	28.600	28.651	25.883	25.883	25.933	25.883	28.651	
023	30.277	30.328	27.483	27.483	27.534	27.483	30.328	
024	31.851	31.902	29.108	29.108	29.159	29.108	31.902	
025	33.477	33.528	30.759	30.759	30.810	30.759	33.528	
026	35.128	35.179	32.436	32.436	32.486	32.436	35.179	
027	36.728	36.779	33.985	33.985	34.036	33.985	36.779	
028	38.405	38.455	35.687	35.687	35.738	35.687	38.455	
029	41.056	41.107	38.913	38.913	38.964	38.913	41.107	
030	44.907	44.958	42.164	42.164	42.215	42.164	44.958	
031	48.184	48.234	45.440	45.440	45.491	45.440	48.234	
032	51.435	51.486	48.692	48.692	48.742	48.692	51.486	
033	54.737	54.788	51.994	51.994	52.045	51.994	54.788	
034	57.988	58.039	55.245	55.245	55.296	55.245	58.039	
035	61.214	61.265	58.471	58.471	58.522	58.471	61.265	
036	64.465	64.516	61.722	61.722	61.773	61.722	64.516	
037	67.691	67.742	64.948	64.948	65.024	64.948	67.742	
038	70.993	71.044	68.250	68.250	68.326	68.250	71.044	
039	74.219	74.269	71.476	71.476	71.552	71.476	74.269	
040	77.470	77.521	74.727	74.727	74.803	74.727	77.521	
041	80.797	80.848	78.054	78.054	78.130	78.054	80.848	
042	87.274	87.325	84.531	84.531	84.607	84.531	87.325	
043	93.751	93.802	91.008	91.008	91.084	91.008	93.802	
044	100.304	100.355	97.561	97.561	97.637	97.561	100.355	
045	106.781	106.832	104.038	104.038	104.115	104.038	106.832	

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TABLE 3 STANDARD GLAND DIMENSIONS IN MILLIMETRES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED		BORF MOUNTED		GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	ROD DIA. B	BORF DIA. H		
046	113.335 - 113.385	113.411 - 113.462	110.592 - 110.668			2.67-2.92
047	119.812 - 119.862	119.888 - 119.939	117.068 - 117.145			
048	126.289 - 126.339	126.365 - 126.416	123.545 - 123.622			
049	132.969 - 133.020	133.045 - 133.096	130.226 - 130.302			
050	139.446 - 139.497	139.522 - 139.573	136.703 - 136.779			
(1)102	5.436 - 5.486	5.512 - 5.588	1.422 - 1.52	1.473	1.499 - 1.575	5.49 - 5.59
(1)103	6.426 - 6.477	6.502 - 6.579	2.261 - 2.36	2.311	2.337 - 2.413	6.48 - 6.58
(1)104	7.214 - 7.264	7.290 - 7.366	3.048 - 3.15	3.099	3.124 - 3.200	7.26 - 7.37
(1)105	8.026 - 8.077	8.179 - 8.179	3.861 - 3.96	3.912	3.937 - 4.013	8.08 - 8.18
(1)106	8.839 - 8.890	8.992 - 8.992	4.674 - 4.78	4.724	4.750 - 4.826	8.89 - 8.99
107	9.652 - 9.703	9.728 - 9.804	5.486 - 5.59	5.537	5.563 - 5.639	9.70 - 9.80
108	10.490 - 10.541	10.566 - 10.642	6.325 - 6.43	6.375	6.401 - 6.477	10.54 - 10.64
109	12.090 - 12.141	12.167 - 12.243	7.925 - 8.03	7.976	8.001 - 8.077	12.14 - 12.24
110	13.716 - 13.767	13.792 - 13.868	9.550 - 9.65	9.601	9.627 - 9.703	13.77 - 13.87
111	15.342 - 15.392	15.494 - 15.494	11.176 - 11.28	11.227	11.252 - 11.328	15.39 - 15.49
112	16.967 - 17.018	17.043 - 17.120	12.802 - 12.852	12.878	12.954 - 13.030	17.02 - 17.12
113	18.567 - 18.618	18.720 - 18.720	14.402 - 14.50	14.453	14.478 - 14.554	18.62 - 18.72
114	20.244 - 20.295	20.396 - 20.396	16.076 - 16.18	16.129	16.154 - 16.231	20.29 - 20.40
115	21.869 - 21.920	22.022 - 22.022	17.704 - 17.81	17.755	17.780 - 17.856	21.92 - 22.02
116	23.520 - 23.571	23.673 - 23.673	19.329 - 19.43	19.380	19.406 - 19.482	23.57 - 23.67
117	25.146 - 25.197	25.298 - 25.298	20.955 - 21.06	20.906	21.031 - 21.107	25.20 - 25.30
118	26.746 - 26.797	26.898 - 26.898	22.581 - 22.68	22.631	22.657 - 22.733	26.80 - 26.90
119	28.372 - 28.423	28.524 - 28.524	24.206 - 24.31	24.257	24.282 - 24.359	28.42 - 28.52
120	29.997 - 30.048	30.150 - 30.150	25.832 - 25.93	25.883	25.908 - 25.984	30.05 - 30.15
121	31.598 - 31.648	31.750 - 31.750	27.432 - 27.53	27.483	27.508 - 27.584	31.65 - 31.75
122	33.223 - 33.274	33.376 - 33.376	29.058 - 29.16	29.108	29.134 - 29.210	33.27 - 33.38
123	34.899 - 34.950	35.052 - 35.052	30.734 - 30.84	30.785	30.810 - 30.886	34.95 - 35.05
124	36.525 - 36.576	36.601 - 36.678	32.360 - 32.46	32.410	32.436 - 32.512	36.58 - 36.68
125	38.125 - 38.176	38.202 - 38.278	33.960 - 34.06	34.011	34.036 - 34.112	38.18 - 38.28
126	39.751 - 39.802	39.827 - 39.903	35.585 - 35.69	35.636	35.661 - 35.738	39.80 - 39.90
127	41.402 - 41.453	41.554 - 41.554	37.211 - 37.31	37.262	37.287 - 37.363	41.45 - 41.55
128	43.002 - 43.053	43.155 - 43.155	38.837 - 38.94	38.887	38.913 - 38.989	43.05 - 43.15
129	44.678 - 44.729	44.755 - 44.831	40.513 - 40.61	40.564	40.589 - 40.665	44.73 - 44.83
130	46.329 - 46.380	46.406 - 46.482	42.164 - 42.27	42.215	42.240 - 42.316	46.38 - 46.48
131	47.950 - 47.980	48.006 - 48.082	43.764 - 43.87	43.815	43.840 - 43.916	47.98 - 48.08
132	49.555 - 49.606	49.631 - 49.708	45.390 - 45.49	45.440	45.466 - 45.542	49.61 - 49.71
133	51.181 - 51.232	51.333 - 51.333	46.990 - 47.09	47.041	47.066 - 47.142	51.23 - 51.33
134	52.832 - 52.883	52.908 - 52.984	48.641 - 48.74	48.692	48.717 - 48.793	52.88 - 52.98
135	54.483 - 54.534	54.559 - 54.635	50.317 - 50.42	50.368	50.393 - 50.470	54.55 - 54.64

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TABLE 3 STANDARD GLAND DIMENSIONS IN MILLIMETRES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED			BORE MOUNTED			GLAND WIDTH G
	PISTON DIA. C	ROPE DIA. A	GLAND DIA. F	ROD DIA. B	ROPE DIA. H	GLAND DIA. E	
136	56.083	56.134	51.92	51.917	51.968	56.13	3.71-3.96
137	57.734	57.785	53.54	53.543	53.594	57.78	
138	59.360	59.411	55.17	55.169	55.219	59.41	
139	60.960	61.011	56.79	56.794	56.845	61.01	
140	62.560	62.611	58.39	58.395	58.445	62.61	
141	64.262	64.313	60.00	60.096	60.147	64.31	
142	65.888	65.938	61.72	61.722	61.773	65.94	
143	67.539	67.589	63.45	63.348	63.398	67.59	
144	69.113	69.164	65.05	64.948	64.999	69.16	
145	70.739	70.790	66.67	66.573	66.624	70.79	
146	72.365	72.415	68.20	68.199	68.250	72.42	
147	74.066	74.117	69.88	69.875	69.926	74.42	
148	75.641	75.692	71.48	71.476	71.526	75.79	
149	77.267	77.317	73.10	73.101	73.152	77.32	
150	78.892	78.943	74.73	74.727	74.778	78.94	
151	82.169	82.220	78.00	78.003	78.054	82.22	
152	88.644	88.697	84.48	84.48	84.58	88.69	
153	95.123	95.174	90.96	90.96	91.06	95.17	
154	101.701	101.752	97.54	97.54	97.64	101.75	
155	108.178	108.229	104.01	104.01	104.11	108.23	
156	114.706	114.757	110.54	110.54	110.64	114.76	
157	121.183	121.234	117.02	117.02	117.12	121.23	
158	127.660	127.711	123.49	123.49	123.60	127.71	
159	134.264	134.315	130.10	130.10	130.20	134.31	
160	140.741	140.792	136.58	136.58	136.68	140.79	
161	147.218	147.269	143.05	143.05	143.15	147.27	
162	153.695	153.746	149.53	149.53	149.63	153.74	
163	160.172	160.223	156.01	156.01	156.11	160.22	
164	166.802	166.852	162.64	162.64	162.74	166.85	
165	173.279	173.329	169.11	169.11	169.21	173.33	
166	179.756	179.806	175.59	175.59	175.69	179.80	
167	186.233	186.283	182.07	182.07	182.17	186.28	
168	192.837	192.887	188.67	188.67	188.77	192.89	
169	199.313	199.364	195.15	195.15	195.25	199.36	
170	205.790	205.841	201.62	201.62	201.73	205.84	
171	212.267	212.318	208.10	208.10	208.20	212.32	
172	218.871	218.922	214.71	214.71	214.81	218.92	
173	225.348	225.399	221.18	221.18	221.28	225.40	
174	231.825	231.876	227.66	227.66	227.76	231.88	
175	238.303	238.353	234.14	234.14	234.24	238.35	
176	244.907	244.957	240.74	240.74	240.84	244.96	
177	251.383	251.434	247.22	247.22	247.32	251.43	
178	257.860	257.911	253.69	253.69	253.80	257.91	

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TABLE 3 STANDARD GLAND DIMENSIONS IN MILLIMETRES (CONTINUED)

GLAND & AS 568 DASH NO.	ROD MOUNTED			BORE MOUNTED			GLAND DIA. E	GLAND WIDTH G
	PISTON DIA. C	BORE DIA. A	GLAND DIA. F	ROD DIA. B	BORE DIA. H	GLAND DIA. D		
201	10.236	10.312	10.439	4.597	4.674	4.724	10.29	5.21-5.46
202	11.913	11.989	12.116	6.248	6.325	6.375	11.96	5.21-5.46
203	13.513	13.589	13.716	7.849	7.925	7.976	13.56	4.95-5.21
204	15.138	15.215	15.342	9.474	9.550	9.601	15.19	
205	16.739	16.815	16.942	11.100	11.176	11.227	16.79	
206	18.390	18.466	18.593	12.725	12.802	12.852	18.44	
207	19.990	20.066	20.193	14.326	14.402	14.453	20.04	
208	21.666	21.742	21.869	16.002	16.078	16.129	21.72	
209	23.266	23.343	23.470	17.628	17.704	17.755	23.32	
210	24.917	24.994	25.121	19.279	19.355	19.406	24.97	
211	26.543	26.619	26.746	20.879	20.955	21.006	26.59	
212	28.169	28.245	28.372	22.504	22.580	22.631	28.22	
213	29.769	29.845	29.972	24.130	24.206	24.257	29.82	
214	31.420	31.496	31.623	25.756	25.832	25.883	31.47	
215	33.020	33.096	33.223	27.356	27.432	27.483	33.07	
216	34.671	34.747	34.874	29.032	29.108	29.159	34.72	
217	36.322	36.398	36.525	30.658	30.734	30.785	36.37	
218	37.947	38.024	38.151	32.283	32.359	32.410	38.00	
219	39.548	39.624	39.751	33.884	33.960	34.011	39.60	
220	41.173	41.249	41.377	35.509	35.585	35.636	41.22	
221	42.799	42.875	43.002	37.135	37.211	37.262	42.85	
222	44.501	44.577	44.704	38.837	38.913	38.963	44.55	
223	47.726	47.803	47.930	42.062	42.138	42.189	47.78	
224	50.978	51.054	51.181	45.313	45.390	45.440	51.03	
225	54.305	54.381	54.508	48.644	48.717	48.768	54.36	
226	57.531	57.607	57.734	51.867	51.943	51.994	57.58	
227	60.782	60.858	60.985	55.118	55.194	55.245	60.83	
228	64.059	64.135	64.262	58.395	58.471	58.521	64.11	
229	67.310	67.386	67.513	61.646	61.722	61.773	67.36	
230	70.510	70.587	70.714	64.872	64.948	64.999	70.56	
231	73.762	73.838	73.965	68.123	68.199	68.250	73.81	
232	77.114	77.190	77.318	71.450	71.526	71.577	77.17	
233	80.365	80.442	80.569	74.701	74.778	74.828	80.42	
234	83.566	83.642	83.769	77.927	78.003	78.054	83.62	
235	86.817	86.893	87.020	81.178	81.254	81.305	86.87	
236	90.068	90.144	90.271	84.404	84.480	84.531	90.12	
237	93.319	93.396	93.523	87.655	87.731	87.782	93.37	
238	96.545	96.621	96.748	90.881	90.957	91.008	96.60	
239	99.873	99.949	100.075	94.234	94.310	94.361	99.92	
240	103.124	103.200	103.327	97.460	97.536	97.587	103.17	
241	106.375	106.451	106.578	100.711	100.787	100.838	106.43	
242	109.601	109.677	109.804	103.937	104.013	104.064	109.65	
243	112.852	112.928	113.055	107.191	107.267	107.318	112.90	
244	116.129	116.205	116.332	110.465	110.541	110.592	116.18	
245	119.380	119.456	119.583	113.72	113.72	113.87	119.63	