



Seal Types & Gland Design



One general guideline for good O-ring application and design is to maintain a range of % squeeze on the O-ring (~10-40% for static and no more than 30% for dynamic).

No less than 75% of the seal cross-section should be contained within the groove to ensure the seal does not “roll” or extrude out of the groove. See Section 5 for more detail on determining the allowable clearance gap.

Finally, be sure to consider the void/volume relationship in worse case tolerance conditions. The maximum O-ring volume should not exceed 90% of the minimum gland void. The groove width may be increased to provide additional void.

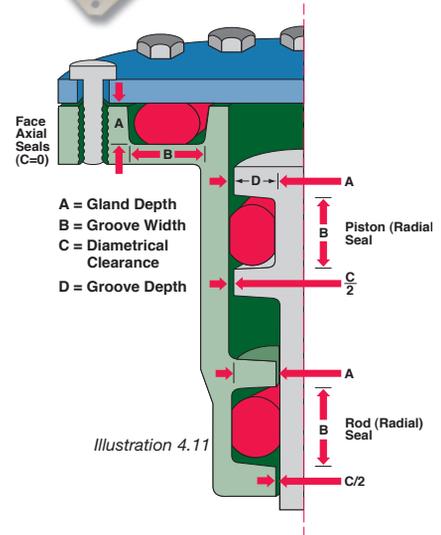


Table A O-Ring Gland Design For Dynamic Seals

Note: Table A contains general sealing guidelines. More specific information is available throughout this guide.

O-Ring Cross Section	Gland Depth	Squeeze		Diametrical Clearance Max.	Groove Width. ±.005			Groove Radius	Eccentricity Max.
		Inches	%		No Backup Rings	One Backup Ring	Two Backup Rings		
.040	.031/.033	.004/.012	11-28	.004	.063	-	-	.005-.008	.002
.050	.039/.041	.006/.014	13-26	.004	.073	-	-	.005-.008	.002
.060	.047/.049	.008/.016	14-25	.004	.084	-	-	.005-.008	.002
.070	.055/.057	.010/.018	15-25	.004	.095	.150	.208	.005-.015	.002
.103	.087/.090	.010/.019	10-18	.005	.145	.187	.249	.005-.020	.003
.139	.119/.123	.012/.024	9-17	.006	.185	.222	.301	.005-.030	.004
.210	.183/.188	.017/.032	8.5-15	.006	.285	.338	.428	.005-.050	.006
.275	.234/.240	.029/.047	10.5-17	.007	.375	.440	.579	.005-.060	.008

O-Ring Gland Design For Static Seals

O-Ring Cross Section	Gland Depth		Squeeze				Dia-metrical Clearance Max.	Groove Width. ±.005			Groove Radius	Eccentricity Max
			Radial →○←		Axial ○↑			No Backup Rings	One Backup Ring	Two Backup Rings		
	Radial	Axial	Inches	%	Inches	%						
†.020	.013-.014	.013-.014	.004-.009	22-41	.004-.009	22-41	.002	.035	-	-	-	.0015
.030	.020-.022	.020-.022	.005-.013	19-39	.005-.013	19-39	.003	.045	-	-	-	.0015
.040	.027-.030	.027-.030	.007-.016	19-37	.007-.016	19-37	.003	.060	-	-	.005-.008	.002
.050	.035-.039	.034-.038	.008-.018	17-34	.009-.019	19-36	.004	.075	-	-	.005-.008	.002
.060	.042-.047	.042-.046	.010-.021	18-33	.011-.021	19-33	.004	.090	-	-	.005-.008	.002
.070	.050-.055	.049-.054	.012-.023	18-32	.013-.024	19-33	.004	.105	.150	.208	.005-.015	.002
.103	.080-.086	.075-.081	.014-.026	14-25	.019-.031	19-29	.005	.146	.182	.244	.005-.020	.003
.139	.110-.116	.100-.108	.019-.033	14-23	.027-.043	20-30	.006	.195	.217	.296	.005-.030	.004
.210	.170-.176	.155-.165	.029-.045	14-21	.040-.060	20-28	.006	.280	.333	.423	.005-.050	.006
.275	.225-.235	.205-.215	.034-.056	13-20	.054-.076	20-27	.007	.350	.435	.574	.005-.060	.008

†Note: It is recommended that an O-ring with tighter CS tolerance (±.002) be requested.