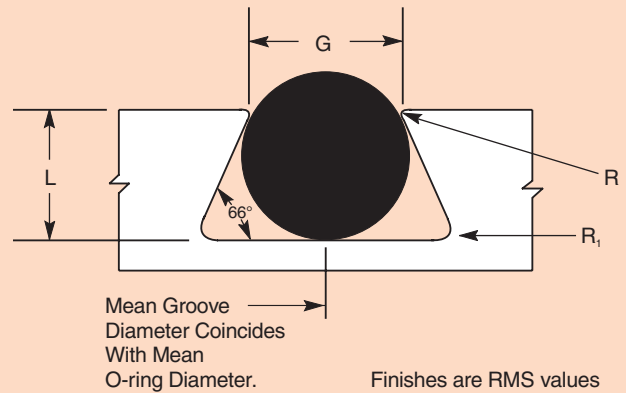


Dovetail Grooves

It is often necessary to provide some mechanical means for holding an O-ring in a face seal groove during assembly and maintenance of equipment. An undercut or dovetail groove has proven beneficial in many applications to keep the O-ring in place. This is an expensive groove to machine, however, and thus should be used only when absolutely necessary.

It should be noted that although this method has been used successfully, it is not generally recommended. The inherent characteristics of the groove design limit the amount of void area. Normally acceptable tolerance extremes, wide service temperature ranges, and fluid media that cause high swell of the elastomer are conditions that cannot be tolerated in this type of groove design.



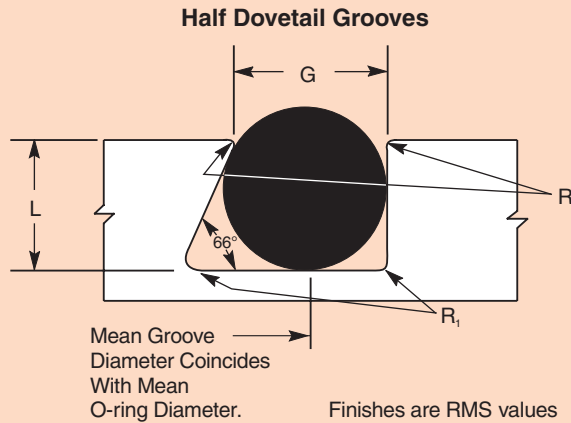
O-Ring Dovetail Grooves

Radius "R" is CRITICAL. Insufficient radius will potentially cause damage to the O-ring during installation, while excessive radius may contribute to extrusion.

O-Ring Size AS568A-	W Cross Section		L Gland Depth	Squeeze %	G Groove Width (To sharp corner)	R	R ₁
	Nominal	Actual					
004 through 050	1/16	.070 ±.003	.053 to .055	23	.057 to .061	.005	1/64
102 through 178	3/32	.103 ±.003	.081 to .083	21	.083 to .087	.010	1/64
201 through 284	1/8	.139 ±.004	.111 to .113	20	.113 to .117	.010	1/32
309 through 395	3/16	.210 ±.005	.171 to .173	18	.171 to .175	.015	1/32
425 through 475	1/4	.275 ±.006	.231 to .234	16	.231 to .235	.015	1/16
Special	3/8	.375 ±.007	.315 to .319	16	.315 to .319	.020	3/32

NOTE: These design recommendations assume metal-to-metal contact. In special applications, for example in the semiconductor industry, deviation from these recommendations may be necessary. When designing with Parofluor elastomers, one should take into consideration that perfluorinated elastomers may require more squeeze than an FKM material to obtain optimum sealing performance. To increase squeeze, modifications of the design recommendations shown above are necessary.

Design Chart 4-4: Dovetail Grooves



O-Ring Half Dovetail Grooves

Radius "R" is CRITICAL. Insufficient radius will potentially cause damage to the O-ring during installation, while excessive radius may contribute to extrusion.

O-Ring Size	W Cross Section		L Gland Depth	Squeeze %	G Groove Width (To sharp corner)	R	R ₁
AS568A-	Nominal	Actual					
004 through 050	1/16	.070 ±.003	.053 to .055	23	.064 to .066	.005	1/64
102 through 178	3/32	.103 ±.003	.083 to .085	19	.095 to .097	.010	1/64
201 through 284	1/8	.139 ±.004	.113 to .115	18	.124 to .128	.010	1/32
309 through 395	3/16	.210 ±.005	.173 to .176	17	.190 to .193	.015	1/32
425 through 475	1/4	.275 ±.006	.234 to .238	15	.255 to .257	.015	1/16
Special	3/8	.375 ±.007	.319 to .323	14	.350 to .358	.020	3/32

NOTE: These design recommendations assume metal-to-metal contact. In special applications, for example in the semiconductor industry, deviation from these recommendations may be necessary. When designing with Parofluor elastomers, one should take into consideration that perfluorinated elastomers may require more squeeze than an FKM material to obtain optimum sealing performance. To increase squeeze, modifications of the design recommendations shown above are necessary.

Design Chart 4-5: Half Dovetail Grooves