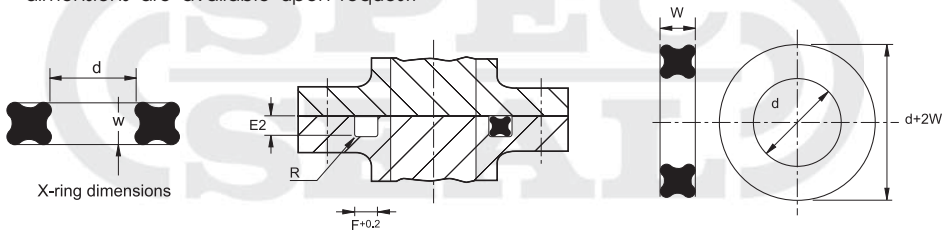
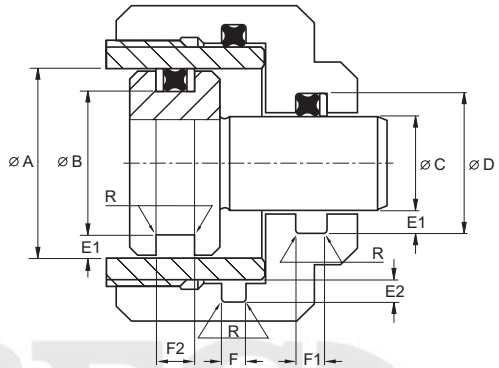


X-RING SEALING PRINCIPLE

X-rings Gland Design Static/Dynamic (METRIC)

The following table shows the groove dimensions for X-rings.

- If the X-rings swells in the applications, the groove width can be enlarged up to 15% max.
- For the X-rings not listed, the groove dimensions are available upon request.



TABLES AS.8A GLAND DIMENSIONS (millimeters)

X-ring size	Cross section *** W	Depth		Width**			Radius R	Max.µ Clearance S max.
		Dynamic E1	Static E2	No backup ring F+0.2	With backup ring F1+0.2	With backup ring F2+0.2		
X-001	1.02+0.08	0.8 +0.025	0.75+0.025	1.2	-	-	0.1	0.05
X-002	1.27+0.08	1.0 +0.025	0.9 +0.025	1.4	-	-	0.15	0.05
X-003	1.52+0.08	1.3 +0.025	1.2 +0.025	1.7	-	-	0.25	0.08
X-003 1/2	1.02+0.08	0.8 +0.025	0.75+0.025	1.2	-	-	0.1	0.05
X-004 - X-050	1.78+0.08	1.55+0.025	1.4 +0.025	2.0	3.5	5.0	0.25	0.10
X-102 - X-178	2.62+0.08	2.35+0.025	2.25+0.025	3.0	4.4	5.8	0.4	0.15
X-201 - X-284	3.53+0.1	3.25+0.025	3.0 +0.025	4.0	5.4	6.8	0.4	0.15
X-309 - X-395	5.33+0.13	4.95+0.05	4.75+0.05	6.0	7.8	9.5	0.6	0.20
X-425 - X-475	7.00+0.15	6.50+0.05	6.2 +0.05	8.0	10.5	13.0	0.6	0.20

Other dimensions and elastomers are available upon request.

Note :

(**) In case of exceptional bending of the rod or shaft, the diameter of the bottom of the groove can be adjusted both in case of vacuum and high pressure.

(***) Similar to O-rings, the X-rings need a squeeze of 10 to 15%.

For critical applications in combination with small cross sections it is recommended to compare squeeze with the actual dimensions and tolerances.

PRECISION X-RING STANDARD SIZES

Nominal and Actual Dimensions

The following tables include nominal and actual dimensions, reflecting a slight built-in size reduction for effective sealing.

Tolerances

The standard seal tooling is dimensioned to the shrink characteristics of the standard NBR 70 hardness. Because every rubber compound has its own shrink characteristics, slight deviations in dimensional tolerances will occur when standard seal tooling is used with materials other than the NBR-70 compound. The majority of the cases encountered involve rubber compounds with a higher shrink factor like a fluoroelastomer, resulting in an undersized seal. A slight adjustment in groove dimension may be required. Please contact SPECSEAL Application Engineers for tolerances when specifying materials other than the NBR-70 compound.

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-001	.031	.093	1/32	1/32	.029	.004	0.74	0.10	.040	.003	1.02	0.08
X-002	.046	.125	3/64	3/64	.042		1.07		.050		1.27	
X-003	.062	.156	1/16	1/16	.056		1.42		.060		1.52	
X-003 1/2	.078	.141	1/16	1/32	.070		1.78		.040		1.02	
X-004	.078	.203	5/64	1/16	.070	.005	1.78	0.13	.070		1.78	
X-005	.109	.234	3/32		.101		2.57					
X-006	.125	.250	1/8		.114		2.90					
X-007	.156	.281	5/32		.145		3.68					
X-008	.187	.312	3/16		.176		4.47					
X-009	.218	.343	7/32		.208		5.28					
X-010	.250	.375	1/4		.239		6.07					
X-011	.312	.437	5/16		.301		7.65					
X-012	.375	.500	3/8		.364		9.25					
X-013	.437	.562	7/16		.426		10.82					
X-014	.500	.625	1/2		.489		12.42					
X-015	.562	.687	9/16		.551	.007	14.00	0.18				

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-016	.625	.750	5/8	1/16	.614	.009	15.60	0.23	.070	.003	1.78	0.08
X-017	.687	.812	11/16		.676		17.17					
X-018	.750	.875	3/4		.739		18.77					
X-019	.812	.937	13/16		.801		20.35					
X-020	.875	1.000	7/8		.864		21.95					
X-021	0.937	1.062	15/16		.926		23.52					
X-022	1.000	1.125	1		.989	.010	25.12	0.25				
X-023	1.062	1.187	1 1/16		1.051		26.70					
X-024	1.125	1.250	1 1/8		1.114		28.23					
X-025	1.187	1.312	1 3/16		1.176	.011	29.87	0.28				
X-026	1.250	1.375	1 1/4		1.239		31.47					
X-027	1.312	1.437	1 5/16		1.301		33.05					
X-028	1.375	1.500	1 3/8		1.364	.013	34.65	0.33				
X-029	1.500	1.625	1 1/2		1.489		37.82					
X-030	1.625	1.750	1 5/8		1.614		41.00					
X-031	1.750	1.875	1 3/4		1.739	.015	44.17	0.38				
X-032	1.875	2.000	1 7/8		1.864		47.35					
X-033	2.000	2.125	2		1.989	.018	50.52	0.46				
X-034	2.125	2.250	2 1/8		2.114		53.70					
X-035	2.250	2.375	2 1/4		2.239		56.87					
X-036	2.375	2.500	2 3/8		2.364		60.05					
X-037	2.500	2.625	2 1/2		2.489		63.22					
X-038	2.625	2.750	2 5/8		2.614	.020	66.40	0.51				
X-039	2.750	2.875	2 3/4		2.739		69.57					
X-040	2.875	3.000	2 7/8		2.864		72.75					
X-041	3.000	3.125	3		2.989	.024	75.92	0.61				
X-042	3.250	3.375	3 1/4		3.239		82.27					
X-043	3.500	3.625	3 1/2		3.489		88.62					
X-044	3.750	3.875	3 3/4		3.739	.027	94.97	0.69				
X-045	4.000	4.125	4		3.989		101.32					
X-046	4.250	4.375	4 1/4		4.239	.030	107.67	0.76				
X-047	4.500	4.625	4 3/4		4.489		114.02					
X-048	4.750	4.875	4 3/4		4.739		120.37					
X-049	5.000	5.125	5		4.989	.037	126.72	0.94				
X-050	5.250	5.375	5 1/4		5.239		133.07					
X-102	0.062	0.250	1/16	3/32	.049	.005	1.24	0.13	.103	0.003	2.62	0.08
X-103	0.094	0.281	3/32		.081		2.06					

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-104	.125	.312	1/8	3/32	.112	.005	2.85	0.13	.103	.003	2.62	0.08
X-105	.156	.343	5/32		.143		3.63					
X-106	.187	.375	3/16		.174		4.42					
X-107	.219	.406	7/32		.206		5.23					
X-108	.250	.437	1/4		.237		6.02					
X-109	.312	.500	5/16		.299		7.60					
X-110	.375	.562	3/8		.362		9.20					
X-111	.437	.625	7/16		.424		10.77					
X-112	.500	.687	1/2		.487		12.37					
X-113	.562	.750	9/16		.549	.007	13.95	0.18				
X-114	.625	.812	5/8		.612	.009	15.55	0.23				
X-115	.687	.875	11/16		.674		17.12					
X-116	.750	.937	3/4		.737		18.72	0.25				
X-117	.812	1.000	13/16		.799	.010	20.30					
X-118	.875	1.062	7/8		.862		21.90					
X-119	.937	1.125	15/16		.924		23.47					
X-120	1.000	1.187	1		.987		25.07					
X-121	1.062	1.250	1 1/16		1.049		26.65					
X-122	1.125	1.312	1 1/8		1.112		28.25					
X-123	1.187	1.375	1 3/16		1.174	.012	29.82	0.31				
X-124	1.250	1.437	1 1/4		1.237		31.42					
X-125	1.312	1.500	1 5/16		1.299		33.00					
X-126	1.375	1.562	1 3/8		1.362		34.60					
X-127	1.437	1.625	1 7/16		1.424		36.17					
X-128	1.500	1.687	1 1/2		1.487		37.77					
X-129	1.562	1.750	1 9/16		1.549	.015	39.35	0.38				
X-130	1.625	1.812	1 5/8		1.612		41.00					
X-131	1.687	1.875	1 11/16		1.674		42.52					
X-132	1.750	1.937	1 3/4		1.737		44.12					
X-133	1.812	2.000	1 13/16		1.799		45.70					
X-134	1.875	2.062	1 7/8		1.862		47.30					
X-135	1.938	2.125	1 15/16		1.925	.017	48.90	0.43				
X-136	2.000	2.187	2		1.987		50.47					
X-137	2.063	2.250	2 1/16		2.050		52.07					
X-138	2.125	2.312	2 1/8		2.112		53.65					
X-139	2.188	2.375	2 3/16		2.175		55.25					
X-140	2.250	2.437	2 1/4		2.237		56.82					
X-141	2.313	2.500	2 5/16		2.300	.020	58.42	0.51				
X-142	2.375	2.562	2 3/8		2.362		60.00					
X-143	2.438	2.625	2 7/16		2.425		61.60					

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-144	2.500	2.687	2 1/2	3/32	2.487	.020	63.17	0.51	.103	.003	2.62	0.08
X-145	2.563	2.750	2 9/16		2.550		64.77					
X-146	2.625	2.812	2 5/8		2.612		66.34					
X-147	2.688	2.875	2 11/16		2.675	.022	67.95	0.56				
X-148	2.750	2.937	2 3/4		2.737		69.52					
X-149	2.813	3.000	2 13/16		2.800		71.12					
X-150	2.875	3.062	2 7/8		2.862		72.70					
X-151	3.000	3.187	3		2.987	.024	75.87	0.61				
X-152	3.250	3.437	3 1/4		3.237		82.22					
X-153	3.500	3.687	3 1/2		3.487		88.57					
X-154	3.750	3.937	3 3/4		3.737	.028	94.92	0.71				
X-155	4.000	4.187	4		3.987		101.27					
X-156	4.250	4.437	4 1/4		4.237	.030	107.62	0.76				
X-157	4.500	4.687	4 1/2		4.487		113.97					
X-158	4.750	4.937	4 3/4		4.737		120.32					
X-159	5.000	5.187	5		4.987	.035	126.67	0.89				
X-160	5.250	5.437	5 1/4		5.237		133.02					
X-161	5.500	5.687	5 1/2		5.487		139.37					
X-162	5.750	5.937	5 3/4		5.737		145.72					
X-163	6.000	6.187	6		5.987		152.07					
X-164	6.250	6.437	6 1/4		6.237	.040	158.42	1.02				
X-165	6.500	6.687	6 1/2		6.487		164.77					
X-166	6.750	6.937	6 3/4		6.737		171.12					
X-167	7.000	7.187	7		6.987		177.47					
X-168	7.250	7.437	7 1/4		7.237	.045	183.82	1.14				
X-169	7.500	7.687	7 1/2		7.487		190.17					
X-170	7.750	7.937	7 3/4		7.737		196.52					
X-171	8.000	8.187	8		7.987		202.87					
X-172	8.250	8.437	8 1/4		8.237	.050	209.20	1.27				
X-173	8.500	8.687	8 1/2		8.487		215.57					
X-174	8.750	8.937	8 3/4		8.737		221.92					
X-175	9.000	9.187	9		8.987		228.27					
X-176	9.250	9.437	9 1/4		9.237	.055	234.62	1.40				
X-177	9.500	9.687	9 1/2		9.487		240.97					
X-178	9.750	9.937	9 3/4		9.737		247.32					
X-201	0.187	.437	3/16	1/8	.171	.005	4.34	0.13	.139	.004	3.53	0.10
X-202	0.250	.500	1/4		.234		5.94					
X-203	0.312	.562	5/16		.296		7.52					
X-204	0.375	.625	3/8		.359		9.12					
X-205	0.437	.687	7/16		.421		10.69					

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-206	0.500	0.750	1/2	1/8	.484	.005	12.29	0.13	.139	.004	3.53	0.10
X-207	0.562	0.812	9/16		.546	.007	13.87	0.18				
X-208	0.625	0.875	5/8		.609	.009	15.47	0.23				
X-209	0.687	0.937	11/16		.671		17.04					
X-210	0.750	1.000	3/4		.734	.010	18.64	0.25				
X-211	0.812	1.062	13/16		.796		20.22					
X-212	0.875	1.125	7/8		.859		21.82					
X-213	0.937	1.187	15/16		.921		23.39					
X-214	1.000	1.250	1		.984		24.99					
X-215	1.062	1.312	1 1/16		1.046		26.57					
X-216	1.125	1.375	1 1/8		1.109	.012	28.17	0.31				
X-217	1.187	1.437	1 3/16		1.171		29.74					
X-218	1.250	1.500	1 1/4		1.234		31.34					
X-219	1.312	1.562	1 5/16		1.296		32.92					
X-220	1.375	1.625	1 3/8		1.359		34.52					
X-221	1.437	1.687	1 7/16		1.421		36.09					
X-222	1.500	1.750	1 1/2		1.484	.015	37.69	0.38				
X-223	1.625	1.875	1 5/8		1.609		40.87					
X-224	1.750	2.000	1 3/4		1.734		44.04					
X-225	1.875	2.125	1 7/8		1.859	.018	47.22	0.46				
X-226	2.000	2.250	2		1.984		50.39					
X-227	2.125	2.675	2 1/8		2.109		53.57					
X-228	2.250	2.500	2 1/4		2.234	.020	56.74	0.51				
X-229	2.375	2.625	2 3/8		2.359		59.92					
X-230	2.500	2.750	2 1/2		2.484		63.09					
X-231	2.625	2.875	2 5/8		2.609		66.27					
X-232	2.750	3.000	2 3/4		2.734	.024	69.44	0.61				
X-233	2.875	3.125	2 7/8		2.859		72.62					
X-234	3.000	3.250	3		2.984		75.79					
X-235	3.125	3.375	3 1/8		3.109		78.97					
X-236	3.250	3.500	3 1/4		3.234		82.14					
X-237	3.375	3.625	3 3/8		3.359		85.32					
X-238	3.500	2.750	3 1/2		3.484		88.49					
X-239	3.625	3.875	3 5/8		3.609	.028	91.67	0.71				
X-240	3.750	4.000	3 3/4		3.734		94.84					
X-241	3.875	4.125	3 7/8		3.859		98.02					
X-242	4.000	4.250	4		3.984		101.19					
X-243	4.125	4.375	4 1/8		4.109		104.37					
X-244	4.250	4.500	4 1/4		4.234	.030	107.54	0.76				
X-245	4.375	4.625	4 3/8		4.359		110.72					

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-246	4.500	4.750	4 1/2	1/8	4.484	.030	113.89	0.76	.139	.004	3.53	0.10
X-247	4.625	4.875	4 5/8		4.609		117.07					
X-248	4.750	5.000	4 3/4		4.734		120.24					
X-249	4.875	5.125	4 7/8		4.859	.035	123.42	0.89				
X-250	5.000	5.250	5		4.984		126.59					
X-251	5.125	5.375	5 1/8		5.109		129.77					
X-252	5.250	5.500	5 1/4		5.234		132.95					
X-253	5.375	5.625	5 3/8		5.359		136.12					
X-254	5.500	5.750	5 1/2		5.484		139.29					
X-255	5.625	5.875	5 5/8		5.609		142.47					
X-256	5.750	6.000	5 3/4		5.734		145.64					
X-257	5.875	6.125	5 7/8		5.859		148.82					
X-258	6.000	6.250	6		5.984		151.99					
X-259	6.250	6.500	6 1/4		6.234	.040	158.34	1.02				
X-260	6.500	6.750	6 1/2		6.484		164.69					
X-261	6.750	7.000	6 3/4		6.734		171.04					
X-262	7.000	7.250	7		6.984		177.39					
X-263	7.250	7.500	7 1/4		7.234	.045	183.74	1.14				
X-264	7.500	7.750	7 1/2		7.484		190.10					
X-265	7.750	8.000	7 3/4		7.737		196.44					
X-266	8.000	8.250	8		7.984		202.79					
X-267	8.250	8.500	8 1/4		8.234	.050	209.14	1.27				
X-268	8.500	8.750	8 1/2		8.484		215.49					
X-269	8.750	9.000	8 3/4		8.734		221.84					
X-270	9.000	9.250	9		8.984		228.19					
X-271	9.250	9.500	9 1/4		9.234	.055	234.54	1.40				
X-272	9.500	9.750	9 1/2		9.484		240.89					
X-273	9.750	10.000	9 3/4		9.734		247.24					
X-274	10.000	10.250	10		9.984		253.59					
X-275	10.500	10.750	10 1/2		10.484		266.29					
X-276	11.000	11.250	11		10.984	.065	278.99	1.65				
X-277	11.500	11.750	11 1/2		11.484		291.69					
X-278	12.000	12.250	12		11.984		304.39					
X-279	13.000	13.250	13		12.984		329.79					
X-280	14.000	14.250	14		13.984		355.19					
X-281	15.000	15.250	15		14.984		380.59					
X-282	16.000	16.250	16		15.955	.075	405.26	1.91				
X-283	17.000	17.250	17		16.955	.080	430.66	2.03				
X-284	18.000	18.250	18		17.955	.085	456.06	2.16				

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-309	.437	.812	7/16	3/16	.412	.005	10.47	0.13	.210	.005	5.33	0.13
X-310	.500	.875	1/2		.475		12.07					
X-311	.562	.937	9/16		.537	.007	13.64	0.18				
X-312	.625	1.000	5/8		.600	.009	15.24	0.23				
X-313	.687	1.062	11/16		.662		16.82					
X-314	.750	1.125	3/4		.725	.010	18.42	0.25				
X-315	.812	1.187	13/16		.787		19.99					
X-316	.875	1.250	7/8		.850		21.59					
X-317	.937	1.312	15/16		.912		23.17					
X-318	1.000	1.375	1		.975		24.77					
X-319	1.062	1.437	1 1/16		1.037		26.34					
X-320	1.125	1.500	1 1/8		1.100	.012	27.94	0.31				
X-321	1.187	1.562	1 3/16		1.162		29.52					
X-322	1.250	1.625	1 1/4		1.225		31.12					
X-323	1.312	1.687	1 5/16		1.287		32.69					
X-324	1.375	1.750	1 3/8		1.350		34.29					
X-325	1.500	1.875	1 1/2		1.475	.015	37.47	0.38				
X-326	1.625	2.000	1 5/8		1.600		40.64					
X-327	1.750	2.125	1 3/4		1.725		43.82					
X-328	1.875	2.250	1 7/8		1.850		46.99					
X-329	2.000	2.375	2		1.975	.018	50.17	0.46				
X-330	2.125	2.500	2 1/8		2.100		53.34					
X-331	2.250	2.625	2 1/4		2.225		56.52					
X-332	2.375	2.750	2 3/8		2.350		59.69					
X-333	2.500	2.875	2 1/2		2.475	.020	62.87	0.51				
X-334	2.625	3.000	2 5/8		2.600		66.04					
X-335	2.750	3.125	2 3/4		2.725		69.22					
X-336	2.875	3.250	2 7/8		2.850		72.39					
X-337	3.000	3.375	3		2.975	.024	75.57	0.61				
X-338	3.125	3.500	3 1/8		3.100		78.74					
X-339	3.250	3.625	3 1/4		3.225		81.92					
X-340	3.375	3.750	3 3/8		3.350		85.09					
X-341	3.500	3.875	3 1/2		3.475		88.27					
X-342	3.625	4.000	3 5/8		3.600	.028	91.44	0.71				
X-343	3.750	4.125	3 3/4		3.725		94.62					
X-344	3.875	4.250	3 7/8		3.850		97.79					
X-345	4.000	4.375	4		3.975		100.97					
X-346	4.125	4.500	4 1/8		4.100		104.14					
X-347	4.250	4.625	1 1/4		4.225	.030	107.32	0.76				
X-348	4.375	4.750	4 3/8		4.350		110.49					

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-389	20.000	20.375	20	3/16	19.955	.095	506.81	2.41	.210	.005	5.33	0.13
X-390	21.000	21.375	21		20.955		532.21					
X-391	22.000	22.375	22		21.955	.100	557.61	2.54				
X-392	23.000	23.375	23		22.940	.105	582.68	2.67				
X-393	24.000	24.375	24		23.940	.110	608.08	2.79				
X-394	25.000	25.375	25		24.940	.115	633.48	2.92				
X-395	26.000	26.375	26		25.940	.120	658.88	3.05				
X-425	4.500	5.000	4 1/2	1/4	4.475	.033	113.67	0.84	.275	.006	6.99	0.15
X-426	4.625	5.125	4 5/8		4.600		116.84					
X-427	4.750	5.250	4 3/4		4.725		120.02					
X-428	4.875	5.375	4 7/8		4.850		123.19					
X-429	5.000	5.500	5		4.975	.037	126.37	0.94				
X-430	5.125	5.625	5 1/8		5.100		129.54					
X-431	5.250	5.750	5 1/4		5.225		132.72					
X-432	5.375	5.875	5 3/8		5.350		135.89					
X-433	5.500	6.000	5 1/2		5.475		139.07					
X-434	5.625	6.125	5 5/8		5.600		142.24					
X-435	5.750	6.250	5 3/4		5.725		145.42					
X-436	5.875	6.375	5 7/8		5.850		148.59					
X-437	6.000	6.500	6		5.975		151.77					
X-438	6.250	6.750	6 1/4		6.225	.040	158.12	1.02				
X-439	6.500	7.000	6 1/2		6.475		164.47					
X-440	6.750	7.250	6 3/4		6.725		170.82					
X-441	7.000	7.500	7		6.975		177.17					
X-442	7.250	7.750	7 1/4		7.225	.045	183.52	1.14				
X-443	7.500	8.000	7 1/2		7.475		189.87					
X-444	7.750	8.250	7 3/4		7.725		196.22					
X-445	8.000	8.500	8		7.975		202.57					
X-446	8.500	9.000	8 1/2		8.475	.055	215.27	1.40				
X-447	9.000	9.500	9		8.975		227.97					
X-448	9.500	10.000	9 1/2		9.475		240.67					
X-449	10.000	10.500	10		9.975		253.37					
X-450	10.500	11.000	10 1/2		10.475	.060	266.07	1.52				
X-451	11.000	11.500	11		10.975		278.77					
X-452	11.500	12.000	11 1/2	11.475	.065	291.47						
X-453	12.000	12.500	12	11.975		304.17						
X-454	12.500	13.000	12 1/2	12.475		316.87						
X-455	13.000	13.500	13	12.975		329.57						
X-456	13.500	14.000	13 1/2	13.475	.070	342.27	1.78					
X-457	14.000	14.500	14	13.975		354.97						

STANDARD X-RING SIZES

Part No.	Rod	Bore	Nominal Sizes		Actual Sizes							
			ID (in)	C/S (in)	ID (in)	+/-	ID (mm)	+/-	CS (in)	+/-	CS (mm)	+/-
X-458	14.500	15.000	14 1/2	1/4	14.475	.070	367.67	1.78	.275	.006	6.99	0.15
X-459	15.000	15.500	15		14.975		380.37					
X-460	15.500	16.000	15 1/2		15.475		393.07					
X-461	16.000	16.500	16		15.955	.075	405.26	1.91				
X-462	16.500	17.000	16 1/2		16.455		417.96					
X-463	17.000	17.500	17		16.955	.080	430.66	2.03				
X-464	17.500	18.000	17 1/2		17.455	.085	443.36	2.16				
X-465	18.000	18.500	18		17.955		456.06					
X-466	18.500	19.000	18 1/2		18.455		468.76					
X-467	19.000	19.500	19		18.955	.090	481.46	2.29				
X-468	19.500	20.000	19 1/2		19.455		494.16					
X-469	20.000	20.500	20		19.955	.095	506.86	2.41				
X-470	21.000	21.500	21		20.955		532.26					
X-471	22.000	22.500	22		21.955	.100	557.66	2.54				
X-472	23.000	23.500	23		22.940	.105	582.68	2.67				
X-473	24.000	24.500	24		23.940	.110	608.08	2.79				
X-474	25.000	25.500	25		24.940	.115	633.48	2.92				
X-475	26.000	26.500	26		25.940	.120	658.88	3.05				

Seals & O-rings Specialist