

## **General Applications**

Apple O-Rings are available in a choice of six basic materials, each in a range of optional Durometer (Shore A) Hardnesses. Other materials available upon request.

**Buna-N/Nitrile:** Buna N/Nitrile rubber is a copolymer of butadiene and acrylonitrile. You will find compounds that are ideally suited for oil and fuel resistant applications of all types

Ethylene-Propylene: In the Ethylene-Propylene family, you will find compounds that are used extensively for outdoor, weather resistant uses, water appliances. The first choice for low torque drive belts.

**Silicone:** In the Silicone family, you will find compounds that are excellent as static seals in extreme temperature conditions.

Neoprene: In the Neoprene family, you will find compounds which are the superior sealing materials for the refrigeration industry featuring resistance to ammonia and Freon.

Fluorocarbon: In the Fluorocarbon family, you will find compounds that make up the preferred seals for aircraft engines, automotive fuel handling systems, and hard vacuum service.

**Fluorosilicone:** In the Fluorosilicone family, you will find compounds that make up seals that are unparalleled for aerospace fuel systems and auto fuel emission control systems.

All materials are compounded under stringent quality control for uniformity of physical properties, and to meet or exceed Government, Military, Space Program, Automotive, F.D.A., Industrial and Commercial specifications.

#### To Determine Material:

- 1. Determine end use: static (stationary) or dynamic (moving).
- List the substance that the seal will be exposed to and check O-Ring material resistances in Chemical Compatibility Table(s) listed in the Apple Seal Design Guide.

- List ALL factors of seal application and check material performance.
  - A. Pressure: determines material hardness and selection.
  - B. Heat/Cold: check material temperature range(s).
  - C. Friction: determines material hardness and selection.
  - D. Permeability: important for pneumatic and vacuum applications.
- 4. Economy: see General Properties chart located in the Apple Seal Design Guide for most economical choice when several materials will do.

The most commonly used durometer	The most commonly used durometer is 70. Although other durometers are offered, availability may be limited due to processing or shrinkage factors.							
Materials	Apple Material Designation	Durometers (Shore A)	<b>Temperature</b> Range Dry Heat Only	Description				
Buna-N/Nitrile (NBR)	BN	40 thru 90	-40 to +257° F -40 to +125° C	Presently the seal industry's most widely used elastometer. Nitrile combines excellent resistance to petroleum-based oils and fuels, silicone greases, hydraulic fluids, water and alcohols, with a good balance of such desirable working properties as low compression set, high tensile strength, and high abrasion resistance.				
Ethylene-Propylene (EPM/EPDM)	EP	40 thru 90	-40 to +275° F -40 to +135° C	Featuring good resistance to such polar solvents as ketones (MEK & Acetone). EPM/EPDM is also highly recommended for effective resistance to steam (to 400° F), hot water, silicone oils and greases, dilute acids and alkalies, alcohols and automotive brake fluids. Properly compounded, Ethylene Propylene can provide extended temperature range of -76°F to +350°F.				
Silicone (MQ; PMQ; VMQ; PVMQ)	SL	25 thru 80	-85 to +400° F -65 to +230° C	Especially resistant to high, dry heat, in primarily static applications.  Silicones are fungus resistant, odorless, tasteless, non-toxic elastomers, possessing high resistance to the aging effects of both sunlight and ozone attack.				
Neoprene® (Chloroprene) (CR)	CR	40 thru 90	-40 to +250° F -40 to +121° C	An early developed, oil-resistant substitute for Natural Rubber, Neoprene features moderate resistance to petroleum oils; good resistance to ozone, sunlight and oxygen aging; relatively low compression set; good resilience; reasonable cost; and high resistance to attack by Freon® and Ammonia.				
Fluorocarbon (Viton®) (Fluorel®) (FKM)	VT	55 thru 95	-13 to +446° F -25 to +230° C	Combining high temperature toughness with wide chemical agent compatibility, Fluorocarbon compounds feature excellent resistance to petroleum products and solvents, with good high temperature compression set characteristics.				
Fluorosilicone (FVMQ)	FS	40 thru 80	-75 to +400° F -60 to +200° C	Combining the good high and low temperature stability of Silicones with the fuel, oil, and solvent resistance of fluorocarbons. FS compounds feature good compression set and resilience properties. FS compounds are suitable for exposure to air, sunlight, ozone, chlorinated and aromatic hydrocarbons.				

<sup>\*</sup>Note: The current revision of the Standard is "C" but it changes periodically.

# **Standard O-Rings**

#### Every Standard AS-568\* Size in Stock:

Listed in inches. Includes all standard I.D.'s from 1/32" to 26," 0.D.'s from 3/32" to 26 1/2" and Cross Sections (widths) from 1/32" to 1/4". Constantly restocked to assure immediate delivery of any size in small or large quantities.

Simplified Reference Easy to Order: All the information you need at a glance. All sizes listed by ascending inside diameter (I.D.) in fractional AND decimal sizes. Standard AS-568\* Uniform Numbering System (Order by a single number).

#### Choice of Six Materials as Standard:

Rubber compounds and options of Durometer hardness to satisfy practically any service condition. Check with our sales staff for other material needs.

Fastest Delivery on 0-Rings: Most likely the size and compound you require is in our stock of over 300,000,000 0-rings. Immediate shipments with no intermediate delays. (Remember – with Apple you can buy direct.)

O-Ring size is defined by inside diameter and width (cross-section) and is listed in both fractional and decimal dimensions with tolerances.

**How to Order:** The temperatures listed are general operating ranges for the entire family of each compound.

These will vary with specific compounds and/or length of exposure to temperature extremes. For example, silicone may still be serviceable with limited exposure to 700°F.

We highly recommend that in all cases, samples of a specific size and compound should be tested in the application before use in production.

Apple Catalog Numbers are identical to the AS-568\* Numbering System, indicating precise I.D. and Width dimensions of O-Rings in one ordering number.

\*Note: The current revision of the Standard is "C" but it changes periodically.

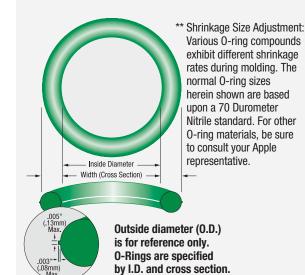
#### How to Determine O-Ring Size\*\*

For sequence in ordering:

- 1. Size (catalog number)
- 2. Durometer and Material
- 3. Quantity

#### Example:

110 - 70SLR - 10,000 (size) (durometer, material and color) (quantity)



# **Seal Types & Gland Design**

#### Table A

### O-Ring Gland Design For Dynamic Seals

	Squeeze				Groo	ve Width. ±			
O-Ring Cross Section	Gland Depth	Inches	%	Diametrical Clearance Max.	No Backup Rings	One Backup Ring	Two Backup Rings	Groove Radius	Eccen- tricity Max.
.040	.031/.033	.004/.012	11-28	.004	.063	-	-	.005008	.002
.050	.039/.041	.006/.014	13-26	.004	.073	-	-	.005008	.002
.060	.047/.049	.008/.016	14-25	.004	.084	-	-	.005008	.002
.070	.055/.057	.010/.018	15-25	.004	.095	.150	.208	.005015	.002
.103	.087/.090	.010/.019	10-18	.005	.145	.187	.249	.005020	.003
.139	.119/.123	.012/.024	9-17	.006	.185	.222	.301	.005030	.004
.210	.183/.188	.017/.032	8.5-15	.006	.285	.338	.428	.005050	.006
.275	.234/.240	.029/.047	10.5-17	.007	.375	.440	.579	.005060	.008

## O-Ring Gland Design For Static Seals

	011	Squeeze					Groo	ve Width.	±.005					
O-Ring Cross	Giand	Gland Depth  Radial →○← Axial ↑		Radial →○←		Radial →○← Axial ↑		Ŏ T	Dia- metrical Clearance	No Backup	One Backup	Two Backup	Groove	Eccen- tricity
Section	Radial	Axial	Inches	%	Inches	%	Max.	Rings	Ring	Rings	Radius	Max		
.040	.027030	.027030	.007016	19-37	.007016	19-37	.003	.060	-	-	.005008	.002		
.050	.035039	.034038	.008018	17-34	.009019	19-36	.004	.075	-	-	.005008	.002		
.060	.042047	.042046	.010021	18-33	.011021	19-33	.004	.090	_	_	.005008	.002		
.070	.050055	.049054	.012023	18-32	.013024	19-33	.004	.105	.150	.208	.005015	.002		
.103	.080086	.075081	.014026	14-25	.019031	19-29	.005	.146	.182	.244	.005020	.003		
.139	.110116	.100108	.019033	14-23	.027043	20-30	.006	.195	.217	.296	.005030	.004		
.210	.170176	.155165	.029045	14-21	.040060	20-28	.006	.280	.333	.423	.005050	.006		
.275	.225235	.205215	.034056	13-20	.054076	20-27	.007	.350	.435	.574	.005060	.008		

AS-568' No.	No	ominal Referer	псе	Actual D	imensions	AS-568' No.	Nominal Reference		Actual Dimensions		
-001 -001 1/2 -002 -003 -004	1.D. 1/32 1/16 3/64 1/16 5/64	0.D. 3/32 1/8 9/64 3/16 13/64	Width  1/32 1/32 3/64 1/16 1/16	I.D. Tol. .029 ± .004 .070 ± .004 .042 ± .004 .056 ± .004 .070 ± .005	W. Tol. .040 ± .003 .040 ± .003 .050 ± .003 .060 ± .003 .070 ± .003	-146 -147 -148 -149 -150	1.D. 2 5/8 2 11/16 2 3/4 2 13/16 2 7/8	0.D. 2 13/16 2 7/8 2 15/16 3 3 1/16	Width  3/32 3/32 3/32 3/32 3/32 3/32	I.D. Tol. 2.612 ± .020 2.675 ± .022 2.737 ± .022 2.800 ± .022 2.862 ± .022	W. Tol. .103 ± .003 .103 ± .003 .103 ± .003 .103 ± .003 .103 ± .003
-005	3/32	7/32	1/16	.101 ± .005	.070 ± .003	-151	3	3 3/16	3/32	2.987 ± .024	.103 ± .003
-006	1/8	1/4	1/16	.114 ± .005	.070 ± .003	-152	3 1/4	3 7/16	3/32	3.237 ± .024	.103 ± .003
-007	5/32	9/32	1/16	.145 ± .005	.070 ± .003	-153	3 1/2	3 11/16	3/32	3.487 ± .024	.103 ± .003
-008	3/16	5/16	1/16	.176 ± .005	.070 ± .003	-154	3 3/4	3 15/16	3/32	3.737 ± .028	.103 ± .003
-009	7/32	11/32	1/16	.208 ± .005	.070 ± .003	-155	4	4 3/16	3/32	3.987 ± .028	.103 ± .003
-010	1/4	3/8	1/16	.239 ± .005	.070 ± .003	-156	4 1/4	4 7/16	3/32	4.237 ± .030	.103 ± .003
-011	5/16	7/16	1/16	.301 ± .005	.070 ± .003	-157	4 1/2	4 11/16	3/32	4.487 ± .030	.103 ± .003
-012	3/8	1/2	1/16	.364 ± .005	.070 ± .003	-158	4 3/4	4 15/16	3/32	4.737 ± .030	.103 ± .003
-013	7/16	9/16	1/16	.426 ± .005	.070 ± .003	-159	5	5 3/16	3/32	4.987 ± .035	.103 ± .003
-014	1/2	5/8	1/16	.489 ± .005	.070 ± .003	-160	5 1/4	5 7/16	3/32	5.237 ± .035	.103 ± .003
-015	9/16	11/16	1/16	.551 ± .007	.070 ± .003	-161	5 1/2	5 11/16	3/32	5.487 ± .035	.103 ± .003
-016	5/8	3/4	1/16	.614 ± .009	.070 ± .003	-162	5 3/4	5 15/16	3/32	5.737 ± .035	.103 ± .003
-017	11/16	13/16	1/16	.676 ± .009	.070 ± .003	-163	6	6 3/16	3/32	5.987 ± .035	.103 ± .003
-018	3/4	7/8	1/16	.739 ± .009	.070 ± .003	-164	6 1/4	6 7/16	3/32	6.237 ± .040	.103 ± .003
-019	13/16	15/16	1/16	.801 ± .009	.070 ± .003	-165	6 1/2	6 11/16	3/32	6.487 ± .040	.103 ± .003
-020	7/8	1	1/16	.864 ± .009	.070 ± .003	-166	6 3/4	6 15/16	3/32	6.737 ± .040	.103 ± .003
-021	15/16	1 1/16	1/16	.926 ± .009	.070 ± .003	-167	7	7 3/16	3/32	6.987 ± .040	.103 ± .003
-022	1	1 1/8	1/16	.989 ± .010	.070 ± .003	-168	7 1/4	7 7/16	3/32	7.237 ± .045	.103 ± .003
-023	1 1/16	1 3/16	1/16	1.051 ± .010	.070 ± .003	-169	7 1/2	7 11/16	3/32	7.487 ± .045	.103 ± .003
-024	1 1/8	1 1/4	1/16	1.114 ± .010	.070 ± .003	-170	7 3/4	7 15/16	3/32	7.737 ± .045	.103 ± .003
-025	1 3/16	1 5/16	1/16	1.176 ± .011	.070 ± .003	-171	8	8 3/16	3/32	7.987 ± .045	.103 ± .003
-026	1 1/4	1 3/8	1/16	1.239 ± .011	.070 ± .003	-172	8 1/4	8 7/16	3/32	8.237 ± .050	.103 ± .003
-027	1 5/16	1 7/16	1/16	1.301 ± .011	.070 ± .003	-173	8 1/2	8 11/16	3/32	8.487 ± .050	.103 ± .003
-028	1 3/8	1 1/2	1/16	1.364 ± .013	.070 ± .003	-174	8 3/4	8 15/16	3/32	8.737 ± .050	.103 ± .003
-029	1 1/2	1 5/8	1/16	1.489 ± .013	.070 ± .003	-175	9	9 3/16	3/32	8.987 ± .050	.103 ± .003
-030	1 5/8	1 3/4	1/16	1.614 ± .013	.070 ± .003	-176	9 1/4	9 7/16	3/32	9.237 ± .055	.103 ± .003
-031	1 3/4	1 7/8	1/16	1.739 ± .015	.070 ± .003	-177	9 1/2	9 11/16	3/32	9.487 ± .055	.103 ± .003
-032	1 7/8	2	1/16	1.864 ± .015	.070 ± .003	-178	9 3/4	9 15/16	3/32	9.737 ± .055	.103 ± .003
-033	2	2 1/8	1/16	1.989 ± .018	.070 ± .003	-201	3/16	7/16	1/8	.171 ± .005	.139 ± .004
-034	2 1/8	2 1/4	1/16	2.114 ± .018	.070 ± .003	-202	1/4	1/2	1/8	.234 ± .005	.139 ± .004
-035	2 1/4	2 3/8	1/16	2.239 ± .018	.070 ± .003	-203	5/16	9/16	1/8	.296 ± .005	.139 ± .004
-036	2 3/8	2 1/2	1/16	2.364 ± .018	.070 ± .003	-204	3/8	5/8	1/8	.359 ± .005	.139 ± .004
-037	2 1/2	2 5/8	1/16	2.489 ± .018	.070 ± .003	-205	7/16	11/16	1/8	.421 ± .005	.139 ± .004
-038	2 5/8	2 3/4	1/16	2.614 ± .020	.070 ± .003	-206	1/2	3/4	1/8	.484 ± .005	.139 ± .004
-039	2 3/4	2 7/8	1/16	2.739 ± .020	.070 ± .003	-207	9/16	13/16	1/8	.546 ± .007	.139 ± .004
-040	2 7/8	3	1/16	2.864 ± .020	.070 ± .003	-208	5/8	7/8	1/8	.609 ± .009	.139 ± .004
-041	3	3 1/8	1/16	2.989 ± .024	.070 ± .003	-209	11/16	15/16	1/8	.671 ± .009	.139 ± .004
-042	3 1/4	3 3/8	1/16	3.239 ± .024	.070 ± .003	-210	3/4	1	1/8	.734 ± .010	.139 ± .004
-043	3 1/2	3 5/8	1/16	3.489 ± .024	.070 ± .003	-211	13/16	1 1/16	1/8	.796 ± .010	.139 ± .004
-044	3 3/4	3 7/8	1/16	3.739 ± .027	.070 ± .003	-212	7/8	1 1/8	1/8	.859 ± .010	.139 ± .004
-045	4	4 1/8	1/16	3.989 ± .027	.070 ± .003	-213	15/16	1 3/16	1/8	.921 ± .010	.139 ± .004
-046	4 1/4	4 3/8	1/16	4.239 ± .030	.070 ± .003	-214	1	1 1/4	1/8	.984 ± .010	.139 ± .004
-047	4 1/2	4 5/8	1/16	4.489 ± .030	.070 ± .003	-215	1 1/16	1 5/16	1/8	1.046 ± .010	.139 ± .004
-048	4 3/4	4 7/8	1/16	4.739 ± .030	.070 ± .003	-216	1 1/8	1 3/8	1/8	1.109 ± .012	.139 ± .004
-049	5	5 1/8	1/16	4.989 ± .037	.070 ± .003	-217	1 3/16	1 7/16	1/8	1.171 ± .012	.139 ± .004
-050	5 1/4	5 3/8	1/16	5.239 ± .037	.070 ± .003	-218	1 1/4	1 1/2	1/8	1.234 ± .012	.139 ± .004
-102	1/16	1/4	3/32	.049 ± .005	.103 ± .003	-219	1 5/16	1 9/16	1/8	1.296 ± .012	.139 ± .004
-103	3/32	9/32	3/32	.081 ± .005	.103 ± .003	-220	1 3/8	1 5/8	1/8	1.359 ± .012	.139 ± .004
-104	1/8	5/16	3/32	.112 ± .005	.103 ± .003	-221	1 7/16	1 11/16	1/8	1.421 ± .012	.139 ± .004
-105	5/32	11/32	3/32	.143 ± .005	.103 ± .003	-222	1 1/2	1 3/4	1/8	1.484 ± .015	.139 ± .004
-106	3/16	3/8	3/32	.174 ± .005	.103 ± .003	-223	1 5/8	1 7/8	1/8	1.609 ± .015	.139 ± .004
-107	7/32	13/32	3/32	.206 ± .005	.103 ± .003	-224	1 3/4	2	1/8	1.734 ± .015	.139 ± .004
-108	1/4	7/16	3/32	.237 ± .005	.103 ± .003	-225	1 7/8	2 1/8	1/8	1.859 ± .018	.139 ± .004
-109	5/16	1/2	3/32	.299 ± .005	.103 ± .003	-226	2	2 1/4	1/8	1.984 ± .018	.139 ± .004
-110	3/8	9/16	3/32	.362 ± .005	.103 ± .003	-227	2 1/8	2 3/8	1/8	2.109 ± .018	.139 ± .004
-111	7/16	5/8	3/32	.424 ± .005	.103 ± .003	-228	2 1/4	2 1/2	1/8	2.234 ± .020	.139 ± .004
-112	1/2	11/16	3/32	.487 ± .005	.103 ± .003	-229	2 3/8	2 5/8	1/8	2.359 ± .020	.139 ± .004
-113	9/16	3/4	3/32	.549 ± .007	.103 ± .003	-230	2 1/2	2 3/4	1/8	2.484 ± .020	.139 ± .004
-114	5/8	13/16	3/32	.612 ± .009	.103 ± .003	-231	2 5/8	2 7/8	1/8	2.609 ± .020	.139 ± .004
-115	11/16	7/8	3/32	.674 ± .009	.103 ± .003	-232	2 3/4	3	1/8	2.734 ± .024	.139 ± .004
-116	3/4	15/16	3/32	.737 ± .009	.103 ± .003	-233	2 7/8	3 1/8	1/8	2.859 ± .024	.139 ± .004
-117	13/16	1	3/32	.799 ± .010	.103 ± .003	-234	3	3 1/4	1/8	2.984 ± .024	.139 ± .004
-118	7/8	1 1/16	3/32	.862 ± .010	.103 ± .003	-235	3 1/8	3 3/8	1/8	3.109 ± .024	.139 ± .004
-119	15/16	1 1/8	3/32	.924 ± .010	.103 ± .003	-236	3 1/4	3 1/2	1/8	3.234 ± .024	.139 ± .004
-120	1	1 3/16	3/32	.987 ± .010	.103 ± .003	-237	3 3/8	3 5/8	1/8	3.359 ± .024	.139 ± .004
-121	1 1/16	1 1/4	3/32	1.049 ± .010	.103 ± .003	-238	3 1/2	3 3/4	1/8	3.484 ± .024	.139 ± .004
-122	1 1/8	1 5/16	3/32	1.112 ± .010	.103 ± .003	-239	3 5/8	3 7/8	1/8	3.609 ± .028	.139 ± .004
-123	1 3/16	1 3/8	3/32	1.174 ± .012	.103 ± .003	-240	3 3/4	4	1/8	3.734 ± .028	.139 ± .004
-124	1 1/4	1 7/16	3/32	1.237 ± .012	.103 ± .003	-241	3 7/8	4 1/8	1/8	3.859 ± .028	.139 ± .004
-125	1 5/16	1 1/2	3/32	1.299 ± .012	.103 ± .003	-242	4	4 1/4	1/8	3.984 ± .028	.139 ± .004
-126	1 3/8	1 9/16	3/32	1.362 ± .012	.103 ± .003	-243	4 1/8	4 3/8	1/8	4.109 ± .028	.139 ± .004
-127	1 7/16	1 5/8	3/32	1.424 ± .012	.103 ± .003	-244	4 1/4	4 1/2	1/8	4.234 ± .030	.139 ± .004
-128	1 1/2	1 11/16	3/32	1.487 ± .012	.103 ± .003	-245	4 3/8	4 5/8	1/8	4.359 ± .030	.139 ± .004
-129	1 9/16	1 3/4	3/32	1.549 ± .015	.103 ± .003	-246	4 1/2	4 3/4	1/8	4.484 ± .030	.139 ± .004
-130	1 5/8	1 13/16	3/32	1.612 ± .015	.103 ± .003	-247	4 5/8	4 7/8	1/8	4.609 ± .030	.139 ± .004
-131	1 11/16	1 7/8	3/32	1.674 ± .015	.103 ± .003	-248	4 3/4	5	1/8	4.734 ± .030	.139 ± .004
-132	1 3/4	1 15/16	3/32	1.737 ± .015	.103 ± .003	-249	4 7/8	5 1/8	1/8	4.859 ± .035	.139 ± .004
-133	1 13/16	2	3/32	1.799 ± .015	.103 ± .003	-250	5	5 1/4	1/8	4.984 ± .035	.139 ± .004
-134	1 7/8	2 1/16	3/32	1.862 ± .015	.103 ± .003	-251	5 1/8	5 3/8	1/8	5.109 ± .035	.139 ± .004
-135	1 15/16	2 1/8	3/32	1.925 ± .017	.103 ± .003	-252	5 1/4	5 1/2	1/8	5.234 ± .035	.139 ± .004
-136	2	2 3/16	3/32	1.987 ± .017	.103 ± .003	-253	5 3/8	5 5/8	1/8	5.359 ± .035	.139 ± .004
-137	2 1/16	2 1/4	3/32	2.050 ± .017	.103 ± .003	-254	5 1/2	5 3/4	1/8	5.484 ± .035	.139 ± .004
-138	2 1/8	2 5/16	3/32	2.112 ± .017	.103 ± .003	-255	5 5/8	5 7/8	1/8	5.609 ± .035	.139 ± .004
-139	2 3/16	2 3/8	3/32	2.175 ± .017	.103 ± .003	-256	5 3/4	6	1/8	5.734 ± .035	.139 ± .004
-140	2 1/4	2 7/16	3/32	2.237 ± .017	.103 ± .003	-257	5 7/8	6 1/8	1/8	5.859 ± .035	.139 ± .004
-141 -142 -143 -144 -145	2 5/16 2 3/8 2 7/16 2 1/2 2 9/16	2 1/2 2 9/16 2 5/8 2 11/16 2 3/4	3/32 3/32 3/32 3/32 3/32	2.300 ± .020 2.362 ± .020 2.425 ± .020 2.487 ± .020 2.550 ± .020 it changes periodic	.103 ± .003 .103 ± .003 .103 ± .003 .103 ± .003 .103 ± .003	-258 -259 -260 -261 -262	6 6 1/4 6 1/2 6 3/4 7	6 1/4 6 1/2 6 3/4 7 7 1/4	1/8 1/8 1/8 1/8 1/8	5.984 ± .035 6.234 ± .040 6.484 ± .040 6.734 ± .040 6.984 ± .040	.139 ± .004 .139 ± .004 .139 ± .004 .139 ± .004 .139 ± .004

\*Note: The current revision of the Standard is "C" but it changes periodically.

AS-568° No.	No	minal Referer	nce	Actual Dimensions				
AS-5	I.D.	0.D.	Width	I.D. Tol.	W. Tol.			
-263	7 1/4	7 1/2	1/8	7.234 ± .045	.139 ± .004			
-264	7 1/2	7 3/4	1/8	7.484 ± .045	.139 ± .004			
-265 -266	7 3/4 8	8 8 8 1/4	1/8 1/8	7.464 ± .045 7.734 ± .045 7.984 ± .045	.139 ± .004 .139 ± .004 .139 ± .004			
-267	8 1/4	8 1/2	1/8	8.234 ± .050	.139 ± .004			
-268	8 1/2	8 3/4	1/8	8.484 ± .050	.139 ± .004			
-269	8 3/4	9	1/8	8.734 ± .050	.139 ± .004			
-270	9	9 1/4	1/8	8.984 ± .050	.139 ± .004			
-271	9 1/4	9 1/2	1/8	9.234 ± .055	.139 ± .004			
-272 -273	9 1/2 9 3/4	9 3/4 10	1/8	9.484 ± .055 9.734 ± .055	.139 ± .004			
-274	10	10 1/4	1/8	9.984 ± .055	.139 ± .004			
-275	10 1/2	10 3/4	1/8	10.484 ± .055	.139 ± .004			
-276	11	11 1/4	1/8	10.984 ± .065	.139 ± .004			
-277	11 1/2	11 3/4	1/8	11.484 ± .065	.139 ± .004			
-278	12	12 1/4	1/8	11.984 ± .065	.139 ± .004			
-279	13	13 1/4	1/8	12.984 ± .065	.139 ± .004			
-280	14	14 1/4	1/8	13.984 ± .065	.139 ± .004			
-281	15	15 1/4	1/8	14.984 ± .065	.139 ± .004			
-282	16	16 1/4	1/8	15.955 ± .075	.139 ± .004			
-283	17	17 1/4	1/8	16.955 ± .080	.139 ± .004			
-284	18	18 1/4	1/8	17.955 ± .085	.139 ± .004			
-309	7/16	13/16	3/16	.412 ± .005	.210 ± .005			
-310	1/2	7/8	3/16	.475 ± .005	.210 ± .005			
-311 -312	9/16 5/8	15/16 1	3/16 3/16	.537 ± .007	.210 ± .005			
-312 -313 -314	11/16 3/4	1 1/16 1 1/8	3/16 3/16	.662 ± .009 .725 ± .010	.210 ± .005 .210 ± .005			
-315	13/16	1 3/16	3/16	.787 ± .010	.210 ± .005			
-316	7/8	1 1/4	3/16	.850 ± .010	.210 ± .005			
-317	15/16	1 5/16	3/16	.912 ± .010	.210 ± .005			
-318 -319	1 1 1/16 1 1/8	1 3/8 1 7/16 1 1/2	3/16 3/16 3/16	.975 ± .010 1.037 ± .010	.210 ± .005 .210 ± .005			
-320 -321	1 3/16	1 9/16	3/16	1.100 ± .012 1.162 ± .012	.210 ± .005 .210 ± .005			
-322	1 1/4	1 5/8	3/16	1.225 ± .012	.210 ± .005			
-323	1 5/16	1 11/16	3/16	1.287 ± .012	.210 ± .005			
-324	1 3/8	1 3/4	3/16	1.350 ± .012	.210 ± .005			
-325	1 1/2	1 7/8	3/16	1.475 ± .015	.210 ± .005			
-326	1 5/8	2	3/16	1.600 ± .015	.210 ± .005			
-327	1 3/4	2 1/8	3/16	1.725 ± .015				
-328	1 7/8	2 1/4	3/16	1.850 ± .015	.210 ± .005			
-329		2 3/8	3/16	1.975 ± .018	.210 ± .005			
-330	2 1/8	2 1/2	3/16	2.100 ± .018	.210 ± .005			
-331	2 1/4	2 5/8	3/16	2.225 ± .018	.210 ± .005			
-332	2 3/8	2 3/4	3/16	2.350 ± .018	.210 ± .005			
-333	2 1/2	2 7/8		2.475 ± .020	.210 ± .005			
-334 -335	2 5/8 2 3/4	3 3 1/8	3/16 3/16 3/16	2.475 ± .020 2.600 ± .020 2.725 ± .020	.210 ± .005 .210 ± .005 .210 ± .005			
-336	2 7/8	3 1/4	3/16	2.850 ± .020	.210 ± .005			
-337	3	3 3/8	3/16	2.975 ± .024	.210 ± .005			
-338	3 1/8	3 1/2	3/16	3.100 ± .024	.210 ± .005			
-339	3 1/4	3 5/8	3/16	3.225 ± .024	.210 ± .005			
-340	3 3/8	3 3/4	3/16	3.350 ± .024	.210 ± .005			
-341	3 1/2	3 7/8	3/16	3.475 ± .024	.210 ± .005			
-342	3 5/8	4	3/16	3.600 ± .028				
-343	3 3/4	4 1/8	3/16	3.725 ± .028	.210 ± .005			
-344	3 7/8	4 1/4	3/16	3.850 ± .028	.210 ± .005			
-345	4	4 3/8	3/16	3.975 ± .028	.210 ± .005			
-346	4 1/8	4 1/2	3/16	4.100 ± .028	.210 ± .005			
-347	4 1/4	4 5/8	3/16	4.225 ± .030	.210 ± .005			
-348	4 3/8	4 3/4	3/16	4.350 ± .030	.210 ± .005			
-349	4 1/2	4 7/8	3/16	4.475 ± .030	.210 ± .005			
-350	4 5/8	5	3/16	4.600 ± .030	.210 ± .005			
-351	4 3/4	5 1/8	3/16	4.725 ± .030	.210 ± .005			
-352	4 7/8	5 1/4	3/16	4.850 ± .030	.210 ± .005			
-353	5	5 3/8	3/16	4.975 ± .037	.210 ± .005			
-354	5 1/8	5 1/2	3/16	5.100 ± .037	.210 ± .005			
-354	5 1/6	5 1/2	3/16	5.100 ± .037	.210 ± .005			
-355	5 1/4	5 5/8	3/16	5.225 ± .037	.210 ± .005			
-356	5 3/8	5 3/4	3/16	5.350 ± .037	.210 ± .005			
-357	5 1/2	5 7/8	3/16	5.475 ± .037	.210 ± .005			
-358	5 5/8	6	3/16	5.600 ± .037	.210 ± .005			
-359	5 3/4	6 1/8	3/16	5.725 ± .037	.210 ± .005			
-360	5 7/8	6 1/4	3/16	5.850 ± .037	.210 ± .005			
-361	6	6 3/8	3/16	5.975 ± .037	.210 ± .005			
-362	6 1/4	6 5/8	3/16	6.225 ± .040	.210 ± .005			
-363	6 1/2	6 7/8	3/16	6.475 ± .040	.210 ± .005			
-364	6 3/4	7 1/8	3/16	6.725 ± .040	.210 ± .005			
-365	7	7 3/8	3/16	6.975 ± .040	.210 ± .005			
-366	7 1/4	7 5/8	3/16	7.225 ± .045	.210 ± .005			
-367	7 1/2	7 7/8	3/16	7.475 ± .045				
-368	7 3/4	8 1/8	3/16	7.725 ± .045	.210 ± .005			
-369	8	8 3/8	3/16	7.975 ± .045	.210 ± .005			
-370	8 1/4	8 5/8	3/16	8.225 ± .050	.210 ± .005			
-371	8 1/2	8 7/8	3/16	8.475 ± .050	.210 ± .005			
-372	8 3/4	9 1/8	3/16	8.725 ± .050	.210 ± .005			
-373	9	9 3/8	3/16	8.975 ± .050	.210 ± .005			
-373 -374 -375	9 1/4 9 1/2	9 5/8 9 7/8	3/16 3/16 3/16	9.225 ± .055 9.475 ± .055	.210 ± .005 .210 ± .005 .210 ± .005			
-376	9 3/4	10 1/8	3/16	9.725 ± .055	.210 ± .005			
-377	10	10 3/8	3/16	9.975 ± .055	.210 ± .005			
-378	10 1/2	10 7/8	3/16	10.475 ± .060	.210 ± .005			
-379	11	11 3/8	3/16	10.975 ± .060	210 ± .005			
-379 -380 -381	11 1/2 12	11 3/8 11 7/8 12 3/8	3/16 3/16 3/16	10.975 ± .060 11.475 ± .065 11.975 ± .065	.210 ± .005 .210 ± .005 .210 ± .005			
				changes periodic				

AS-568' No.	No	minal Referer	ice	Actual Dimensions				
AS-	I.D.	0.D.	Width	I.D. Tol.	W. Tol.			
-382	13	13 3/8	3/16	12.975 ± .065	.210 ± .005			
-383	14	14 3/8	3/16	13.975 ± .070	.210 ± .005			
-384	15	15 3/8	3/16	14.975 ± .070	.210 ± .005			
-385	16	16 3/8	3/16	15.955 ± .075	.210 ± .005			
-386	17	17 3/8	3/16	16.955 ± .080	.210 ± .005			
-387	18	18 3/8	3/16	17.955 ± .085	.210 ± .005			
-388	19	19 3/8	3/16	18.955 ± .090	.210 ± .005			
-389	20	20 3/8	3/16	19.955 ± .095	.210 ± .005			
-390	21	21 3/8	3/16	20.955 ± .095	.210 ± .005			
-391	22	22 3/8	3/16	21.955 ± .100	.210 ± .005			
-392	23	23 3/8	3/16	22.940 ± .105	.210 ± .005			
-393	24	24 3/8	3/16	23.940 ± .110	.210 ± .005			
-394	25	25 3/8	3/16	24.940 ± .115	.210 ± .005			
-395	26	26 3/8	3/16	25.940 ± .120	.210 ± .005			
-425	4 1/2	5	1/4	4.475 ± .033	.210 ± .006			
-426	4 5/8	5 1/8	1/4	4.600 ± .033	.275 ± .006			
-427	4 3/4	5 1/4	1/4	4.725 ± .033	.275 ± .006			
-428	4 7/8	5 3/8	1/4	4.850 ± .033	.275 ± .006			
-429	5	5 1/2	1/4	4.975 ± .037	.275 ± .006			
-430	5 1/8	5 5/8	1/4	5.100 ± .037	.275 ± .006			
-431	5 1/4	5 3/4	1/4	5.225 ± .037	.275 ± .006			
-432	5 3/8	5 7/8	1/4	5.350 ± .037	.275 ± .006			
-433	5 1/2	6	1/4	5.475 ± .037	.275 ± .006			
-434	5 5/8	6 1/8	1/4	5.600 ± .037	.275 ± .006			
-435	5 3/4	6 1/4	1/4	5.725 ± .037	.275 ± .006			
-436	5 7/8	6 3/8	1/4	5.850 ± .037	.275 ± .006			
-437	6	6 1/2	1/4	5.975 ± .037	.275 ± .006			
-438	6 1/4	6 3/4	1/4	6.225 ± .040	.275 ± .006			
-439	6 1/2	7	1/4	6.475 ± .040	.275 ± .006			
-440	6 3/4	7 1/4	1/4	6.725 ± .040	.275 ± .006			
-441	7	7 1/2	1/4	6.975 ± .040	.275 ± .006			
-442	7 1/4	7 3/4	1/4	7.225 ± .045	.275 ± .006			
-443	7 1/2	8	1/4	7.475 ± .045	.275 ± .006			
-444	7 3/4	8 1/4	1/4	7.725 ± .045	.275 ± .006			
-445	8	8 1/2	1/4	7.975 ± .045	.275 ± .006			
-446	8 1/2	9	1/4	8.475 ± .055	.275 ± .006			
-447	9	9 1/2	1/4	8.975 ± .055	.275 ± .006			
-448	9 1/2	10	1/4	9.475 ± .055	.275 ± .006			
-449	10	10 1/2	1/4	9.975 ± .055	.275 ± .006			
-450	10 1/2	11	1/4	10.475 ± .060	.275 ± .006			
-451 -452 -453 -454 -455	11 11 1/2 12 12 1/2 13	11 1/2 12 12 1/2 13 13 1/2	1/4 1/4 1/4 1/4 1/4	10.975 ± .060 11.475 ± .060 11.975 ± .060 12.475 ± .060 12.975 ± .060	.275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006			
-456	13 1/2	14	1/4	13.475 ± .070	.275 ± .006			
-457	14	14 1/2	1/4	13.975 ± .070	.275 ± .006			
-458	14 1/4	15	1/4	14.475 ± .070	.275 ± .006			
-459	15	15 1/2	1/4	14.975 ± .070	.275 ± .006			
-460	15 1/2	16	1/4	15.475 ± .070	.275 ± .006			
-461	16	16 1/2	1/4	15.955 ± .075	.275 ± .006			
-462	16 1/2	17	1/4	16.455 ± .075	.275 ± .006			
-463	17	17 1/2	1/4	16.955 ± .080	.275 ± .006			
-464	17 1/2	18	1/4	17.455 ± .085	.275 ± .006			
-465	18	18 1/2	1/4	17.955 ± .085	.275 ± .006			
-466 -467 -468 -469 -470	18 1/2 19 19 1/2 20 21	19 19 1/2 20 20 1/2 21 1/2	1/4 1/4 1/4 1/4 1/4	18.455 ± .085 18.955 ± .090 19.455 ± .090 19.955 ± .090 20.955 ± .090	.275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006 .275 ± .006			
-471	22	22 1/2	1/4	21.955 ± .100	.275 ± .006			
-472	23	23 1/2	1/4	22.940 ± .105	.275 ± .006			
-473	24	24 1/2	1/4	23.940 ± .110	.275 ± .006			
-474	25	25 1/2	1/4	24.940 ± .115	.275 ± .006			
-475	26	26 1/2	1/4	25.940 ± .120	.275 ± .006			

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AS-568' No.	Tube Size (0.D.)	Actual D	imensions
AS	Fractional	I.D. Tol.	W. Tol.
-901	3/32	.185 ±.005	.056 ±.003
-902	1/8	.239 ±.005	.064 ±.003
-903	3/16	.301 ±.005	.064 ±.003
-904	1/4	.351 ±.005	.072 ±.003
-905	5/16	.414 ±.005	.072 ±.003
-906	3/8	.468 ±.005	.078 ±.003
-907	7/16	.530 ±.007	.082 ±.003
-908	1/2	.644 ±.009	.087 ±.003
-909	9/16	.706 ±.009	.097 ±.003
-910	5/8	.755 ±.009	.097 ±.003
-911	11/16	.863 ±.009	.116 ±.004
-912	3/4	.924 ±.009	.116 ±.004
-913	13/16	.986 ±.010	.116 ±.004
-914	7/8	1.047 ±.010	.116 ±.004
-916	1	1.171 ±.010	.116 ±.004
-918	1 1/8	1.355 ±.012	.116 ±.004
-920	1 1/4	1.475 ±.014	.118 ±.004
-924	1 1/2	1.720 ±.014	.118 ±.004
-928	1 3/4	2.090 ±.018	.118 ±.004
-932	2	2.337 ±.018	.118 ±.004



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