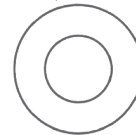


WASHERS & BUSHINGS

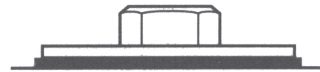
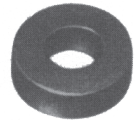
13

Nylon Washers



Pg. 62

Rubber Washers



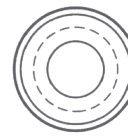
Pg. 63

Bushings



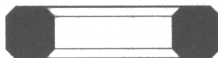
Pg. 64

**Nylon Machine
Screw Insulators**



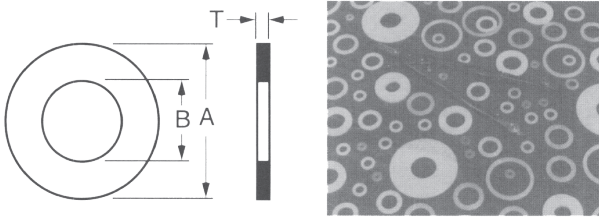
Pg. 66

**Miscellaneous Rubber
Washers & Bushings**



Pg. 68

ILLUSTRATIONS BELOW NOT TO SCALE

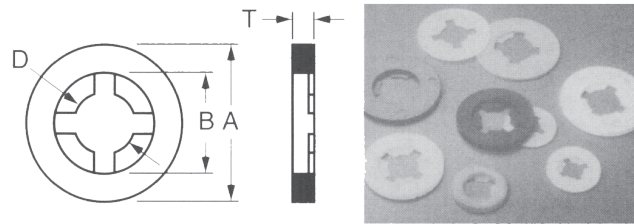


Standard Molded Nylon Flat Washers— By "A" Dimension

Part #	A ±.015	B ±.015	T ±.010
13-4000	¼	.090	.032
13-4001	¼	.090	.062
13-4002	¼	.090	.093
13-4003	¼	.090	.125
13-4004	¼	.115	.032
13-4005	¼	.115	.062
13-4006	¼	.115	.093
13-4007	¼	.115	.125
13-4008	5/16	.140	.032
13-4009	5/16	.140	.062
13-4010	5/16	.140	.093
13-4011	5/16	.140	.125
13-4012	3/8	.171	.032
13-4013	3/8	.171	.062
13-4014	3/8	.171	.093
13-4015	3/8	.171	.125
13-4016	3/8	.194	.032
13-4017	3/8	.194	.062
13-4018	3/8	.194	.093
13-4019	3/8	.194	.125
13-4020	½	.257	.032
13-4021	½	.257	.062
13-4022	½	.257	.093
13-4023	½	.257	.125
13-4024	½	.317	.032
13-4025	½	.317	.062
13-4026	½	.317	.093
13-4027	½	.317	.125
13-4028	5/8	.375	.032
13-4029	5/8	.380	.062
13-4030	5/8	.380	.093
13-4031	5/8	.380	.125
13-4032	¾	.443	.032
13-4033	¾	.443	.062

13-4034	¾	.443	.093
13-4035	¾	.443	.125
13-4036	¾	.505	.032
13-4037	¾	.505	.062
13-4038	¾	.505	.093
13-4039	¾	.505	.125

We will also tool custom flat washers for a nominal engineering charge. Size range up to 3" OD. Minimum thickness 1/32".



Standard Molded Nylon Retaining Washers— By "A" Dimension

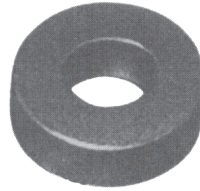
Part #	A ±.015	B ±.015	D	T ±.010
13-5000	13/64	.115	.078	.031
13-5001	13/64	.115	.078	.062
13-5002	17/64	.156	.102	.031
13-5003	17/64	.156	.102	.062
13-5004	21/64	.198	.128	.031
13-5005	21/64	.198	.128	.062
13-5006	25/64	.235	.152	.031
13-5007	25/64	.235	.152	.062
13-5008	29/64	.277	.177	.031
13-5009	29/64	.277	.177	.062
13-5010	19/32	.375	.234	.031
13-5011	19/32	.375	.234	.062
13-5012	47/64	.470	.292	.031
13-5013	47/64	.470	.292	.062
13-5014	57/64	.564	.350	.031
13-5015	57/64	.564	.350	.062
13-5016	1 1/64	.570	.410	.031
13-5017	1 1/64	.570	.410	.062
13-5018	1 1/8	.690	.468	.031
13-5019	1 1/8	.690	.468	.062

Similar to our standard flat washers, but with a specially configured ID designed to grip the outside of the screw shank. The washer slides on the screw easily, but is retained on the screw. For use in applications requiring pre-assembly of the screw and washer, to reduce final assembly cost.

ILLUSTRATIONS BELOW NOT TO SCALE

RUBBER (EPDM) WASHERS

The outside diameter dimensions listed as standard are based on "pan head" dimensions delineated in USAS B 19.6.4. The outside diameters listed as optional are based on standard SAE steel washers common to the trade. Standard thickness is 3/32". Optional thicknesses are available.



Rubber EPDM washers are packed 1,000 pieces per poly-bag.

Rubber (EPDM) Washers

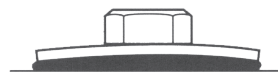
Part #	Screw Size	Outside Diameter	Inside Diameter
13-8000	#6 Standard	¼	.120
13-8001	#6 Optional	⅜	.120
13-8002	#8 Standard	⅝ ₁₆	.150
13-8003	#8 Optional	7 ₁₆	.150
13-8004	#10 Standard	⅜	.170
13-8005	#10 Optional	½	.170
13-8006	#12 Standard	7 ₁₆	.195
13-8007	#12 Optional	9 ₁₆	.195
13-8008	#14 Standard	½	.230
13-8009	#14 Optional	5 ₈	.230
13-8010	5/16" Standard	9 ₁₆	.290
13-8011	5/16" Optional	11 ₁₆	.290
13-8012	3/8" Standard	5 ₈	.355
13-8013	3/8" Optional	13 ₁₆	.355
13-8014	1/2" Optional	1 1 ₁₆	.490
13-8015	5/8" Optional	1 5 ₁₆	.615
13-8016	3/4" Optional	1 ½	.740
13-8017	1" Optional	2	.990

Longwood rubber-to-metal washers are used to solve problems of sealing, cushioning, or abrasion.

Features include:

- Quality elastomeric compounding to meet specifications for elasticity, memory, temperature extremes, and chemical, ozone, and sunlight resistance.
- Conical design directs flow of facing materials to form a seal conforming to both fastener and sealing surface.
- Full-face design cushions fragile surfaces and minimizes vibration.
- Inside diameter sizes for #4 screw through 1 ½" diameter bolts and corresponding metric range.
- Outside diameter sizes from ¼" to 3" and corresponding metric range.
- Choice of infinite number of backing materials.
- Choice of various colors and finishes.
- Choice of various facing materials.

"Seals against any surface"



Insufficient tightening
Likely to cause leakage under seal and around fastener.



Correct installation
Tight against surface. Seal flows inward to seal minor fastener diameter and surface voids.



Excessive torque
Causes reverse dishing. Leakage under seal is possible.

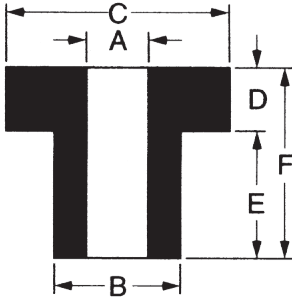
Rubber-to-Metal Washers

Part #	Outside Diameter	Inside Diameter
13-9000	¼	#4 thru #8
13-9001	⅜	#4 thru #12
13-9002	½	#8 thru #14
13-9003	9 ₁₆	#8 thru #14
13-9004	5 ₈	#8 thru 5/16
13-9005	¾	#10 thru 3/8
13-9006	7 ₈	#10 thru 3/8
13-9007	1	#14 thru 1/2
13-9008	1 1 ₈	#8 thru 1/2
13-9009	1 3 ₁₆	#10 thru 3/4
13-9010	1 ¼	#10 thru 3/4
13-9011	1 ½	#14 thru 3/4

Available:

- 20 gauge galvanized/neoprene
- 20 gauge stainless/neoprene
- High-tensile aluminum/neoprene

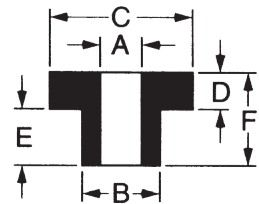
ILLUSTRATIONS BELOW NOT TO SCALE



RUBBER

Rubber Step Bushings

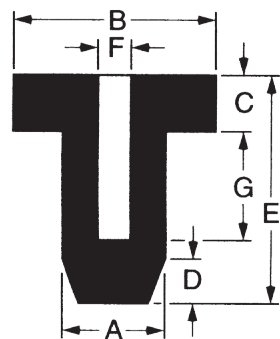
Part #	A Inside Diameter	B Stem Diameter	C Flange Diameter	D Flange Height	E Stem Height	F Total Height
13-100	1/8	1/4	3/8	7/64	17/64	3/8
13-101	9/64	1/2	3/4	1/8	1/4	3/8
13-102	11/64	9/32	1/2	3/32	7/64	13/64
13-103	7/32	7/16	1	1/8	3/16	5/16
13-104	7/32	1/2	3/4	1/8	1/4	3/8
13-105	1/4	3/8	3/4	1/8	3/8	1/2
13-106	1/4	13/32	5/8	3/32	5/16	13/32
13-107	1/4	7/16	5/8	3/64	13/64	1/4
13-108	5/16	1/2	3/4	1/8	9/32	13/32
13-109	5/16	5/8	1	1/4	3/8	5/8



VINYL

Vinyl Step Bushings

Part #	A Inside Diameter	B Stem Diameter	C Flange Diameter	D Flange Height	E Stem Height	F Total Height
13-200	5/16	1/2	3/4	1/8	3/16	3/8
13-201	7/32	11/16	11/16	1/8	15/32	5/8
13-202	5/16	5/8	1	1/4	5/16	5/8
13-203	1	1 3/16	1 3/8	1/8	3/16	13/32
13-204	5/32	5/16	7/16	5/32	5/32	5/16



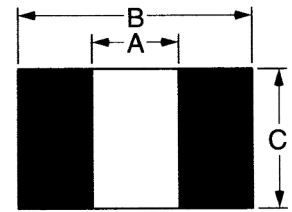
RUBBER

Rubber Stoppers/Bumpers/Bushings

Part #	A Stem Diameter	B Cap Diameter	C Cap Height	D Chamfer Height	E Total Height	F Recess Diameter	G Recess Height
13-300	11/32	5/8	3/16	1/4	1	1/8	13/16
13-301	3/8	3/4	7/32	5/16	1 1/8	5/32	7/8
13-302	1/2	7/8	1/4	5/16	1 1/4	3/16	1
13-303	21/32	1 1/16	15/64	29/64	1 1/4	1/4	1 1/16

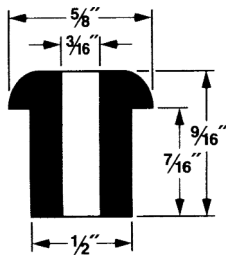
ILLUSTRATIONS BELOW NOT TO SCALE

Rubber Bushings			
Part #	A	B	C
13-400	$\frac{5}{64}$	$1\frac{3}{32}$	$\frac{3}{16}$
13-401	$\frac{9}{64}$	$\frac{3}{8}$	$\frac{1}{4}$
13-402	$\frac{5}{16}$	$1\frac{1}{2}$	$\frac{23}{64}$

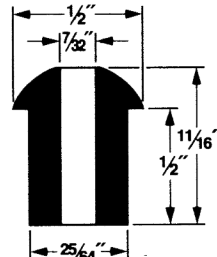


RUBBER

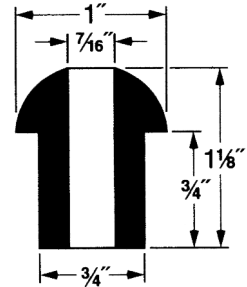
13-403



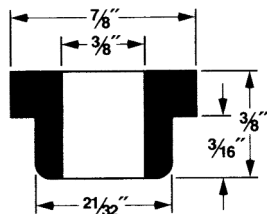
13-404



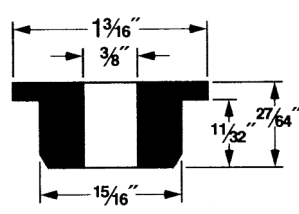
13-405



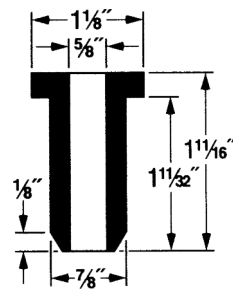
13-406



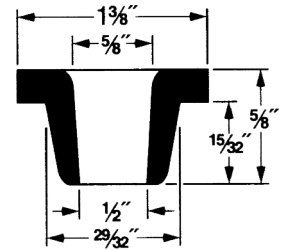
13-407



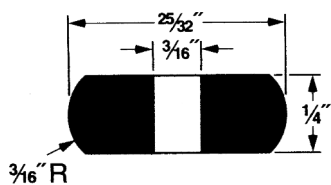
13-408



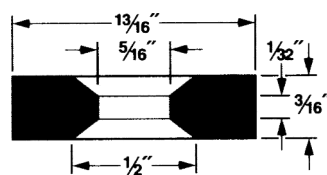
13-409



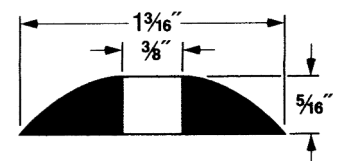
13-410



13-411



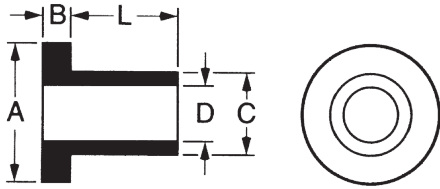
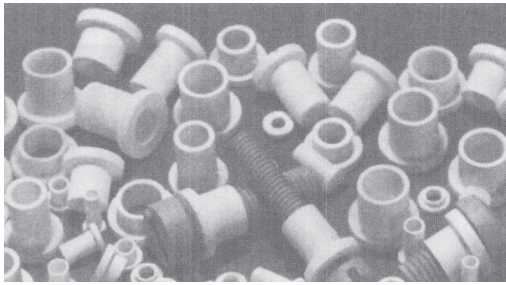
13-412



NYLON MACHINE SCREW INSULATORS



ILLUSTRATIONS BELOW NOT TO SCALE



PLASTIC

Longwood nylon screw insulators are used to isolate metal screws electrically as well to reduce corrosion. They can be used as light-load bearings in many applications. Specify the screw size and length when ordering. Specials can be made to order for a small tooling charge.

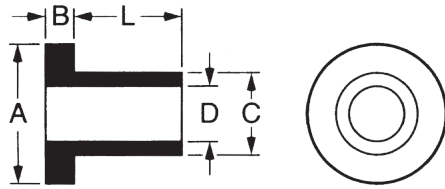
Nylon Machine Screw Insulators						
Part #	Description	L	A	B	C	D
13-1000	SC2	1/8	.181	3/64	.120	.090
13-1001	SC2	3/16	.181	3/64	.120	.090
13-1002	SC2	1/4	.181	3/64	.120	.090
13-1003	SC2	3/8	.181	3/64	.120	.090
13-1004	SC4	1/32	.235	3/64	.145	.115
13-1005	SC4	3/64	.235	3/64	.145	.115
13-1006	SC4	1/16	.235	3/64	.145	.115
13-1007	SC4	3/32	.235	3/64	.145	.115
13-1008	SC4	1/8	.235	3/64	.145	.115
13-1009	SC4	5/32	.235	3/64	.145	.115
13-1010	SC4	3/16	.235	3/64	.145	.115
13-1011	SC4	1/4	.235	3/64	.145	.115
13-1012	SC4	3/8	.235	3/64	.145	.115
13-1013	SC4	1/2	.235	3/64	.145	.115
13-1014	SC6	3/64	.290	3/64	.170	.140
13-1015	SC6	1/16	.290	3/64	.170	.140
13-1016	SC6	3/32	.290	3/64	.170	.140
13-1017	SC6	1/8	.290	3/64	.170	.140
13-1018	SC6	5/32	.290	3/64	.170	.140
13-1019	SC6	3/16	.290	3/64	.170	.140
13-1020	SC6	1/4	.290	3/64	.170	.140
13-1021	SC6	3/8	.290	3/64	.170	.140
13-1022	SC6	1/2	.290	3/64	.170	.140
13-1023	SC8	1/8	.344	1/16	.205	.173
13-1024	SC8	9/64	.344	1/16	.205	.173
13-1025	SC8	1/4	.344	1/16	.205	.173
13-1026	SC8	3/8	.344	1/16	.205	.173
13-1027	SC8	1/2	.344	1/16	.205	.173
13-1028	SC8	5/8	.344	1/16	.205	.173
13-1029	SC8	3/4	.344	1/16	.205	.173
13-1030	SC10	9/64	.399	1/16	.260	.200
13-1031	SC10	3/16	.399	1/16	.260	.200
13-1032	SC10	1/4	.399	1/16	.260	.200
13-1033	SC10	3/8	.399	1/16	.260	.200
13-1034	SC10	1/2	.399	1/16	.260	.200
13-1035	SC10	9/16	.399	1/16	.260	.200
13-1036	SC10	5/8	.399	1/16	.260	.200
13-1037	SC10	3/4	.399	1/16	.260	.200
13-1038	SC250	1/8	.513	1/16	.312	.260
13-1039	SC250	9/64	.513	1/16	.312	.260

Longwood...

your source for rubber and plastic parts

1-800-829-7231

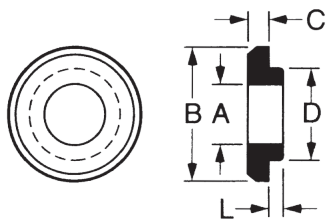
ILLUSTRATIONS BELOW NOT TO SCALE



PLASTIC

Nylon Machine Screw Insulators (continued)

Part #	Description	L	A	B	C	D
13-1040	SC250	$\frac{3}{16}$	.513	$\frac{1}{16}$	.312	.260
13-1041	SC250	$\frac{1}{4}$	.513	$\frac{1}{16}$	.312	.260
13-1042	SC250	$\frac{3}{8}$	.513	$\frac{1}{16}$	.312	.260
13-1043	SC250	$\frac{1}{2}$	.513	$\frac{1}{16}$	.312	.260
13-1044	SC250	$\frac{5}{8}$	.513	$\frac{1}{16}$	.312	.260
13-1045	SC250	$\frac{3}{4}$	.513	$\frac{1}{16}$	.312	.260
13-1046	SC312	$\frac{1}{8}$	.620	$\frac{1}{16}$	.360	.320
13-1047	SC312	$\frac{1}{4}$	.620	$\frac{1}{16}$	.360	.320
13-1048	SC312	$\frac{3}{8}$	.620	$\frac{1}{16}$	.360	.320
13-1049	SC312	$\frac{1}{2}$	.620	$\frac{1}{16}$	.360	.320
13-1050	SC312	$\frac{5}{8}$	.620	$\frac{1}{16}$	.360	.320



PLASTIC

Nylon Shoulder Washers

Part #	Description	L	A	B	C	D
13-2000	SW2	.040	.093	.250	.040	.156
13-2001	SW4	.040	.281	.281	.040	.187
13-2002	SW6	.040	.146	.328	.040	.218
13-2003	SW8	.050	.174	.375	.050	.250
13-2004	SW10	.050	.201	.437	.050	.281
13-2005	SW $\frac{1}{4}$	.060	.260	.562	.060	.375
13-2006	SC $\frac{3}{8}$	.060	.385	.750	.060	.500

**Longwood can custom-mold, die-cut,
or lathe-cut parts to your specifications!**

Call 1-800-829-7231

— or —

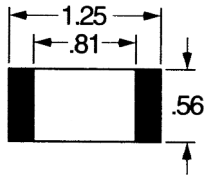
fax your drawing to 1-336-272-5619

MISCELLANEOUS RUBBER WASHERS & BUSHINGS

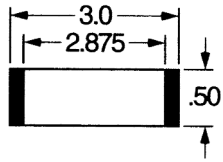


ILLUSTRATIONS BELOW NOT TO SCALE

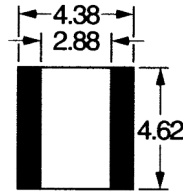
13-2207R



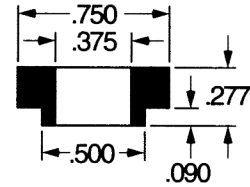
13-5974R



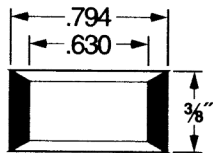
13-6220R



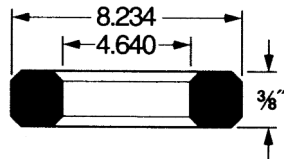
13-6403R



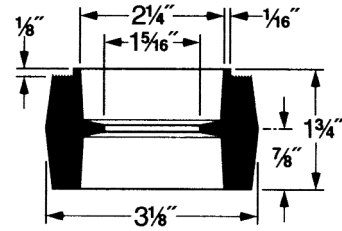
13-5510R



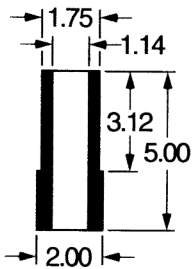
13-5061R



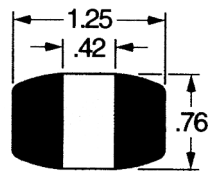
13-1480R



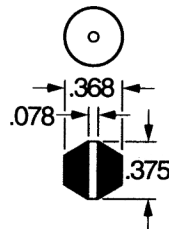
13-5414R



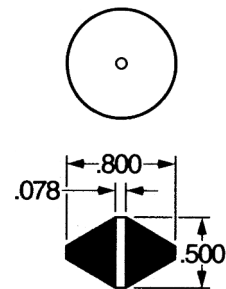
13-382R



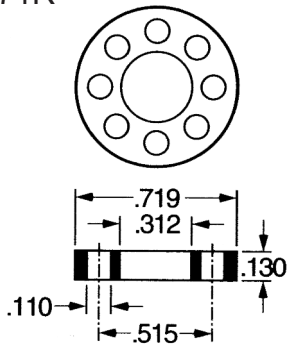
13-2658R



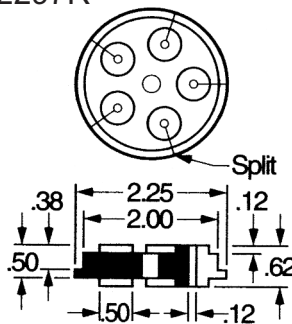
13-779R



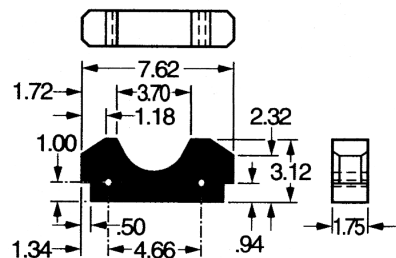
13-2571R



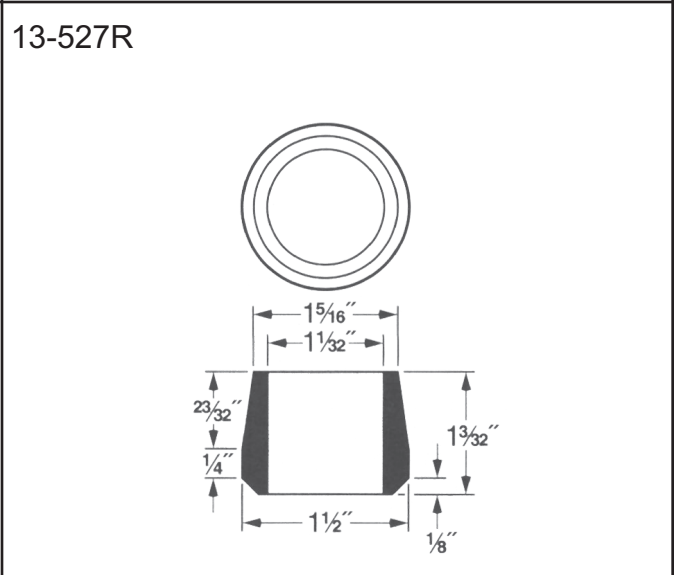
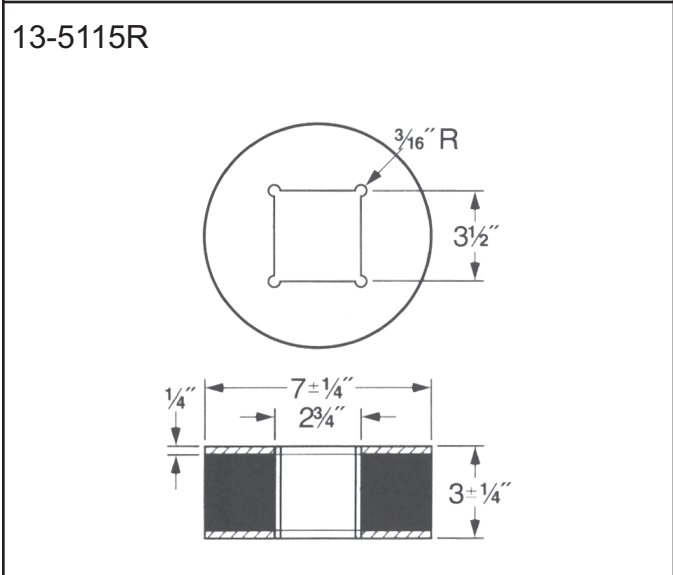
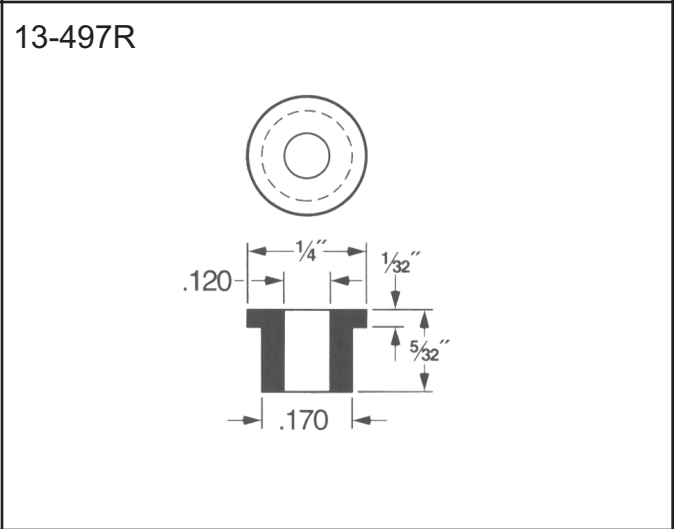
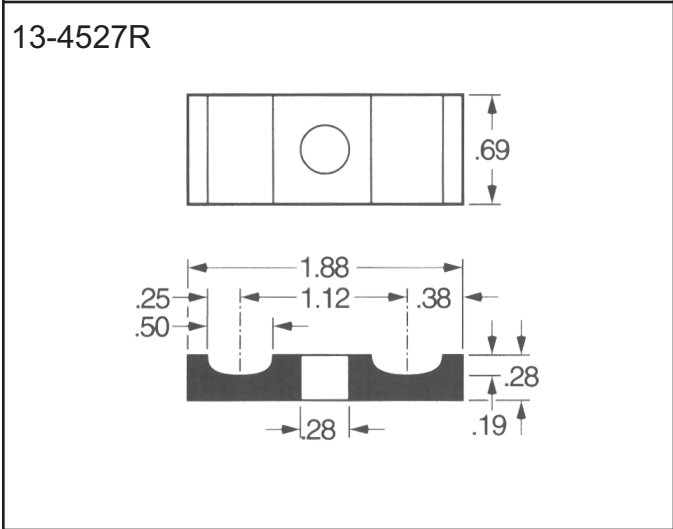
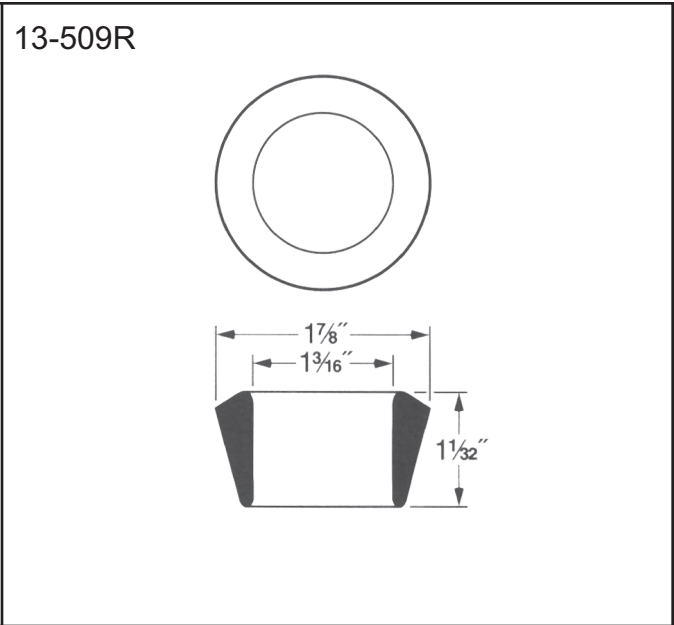
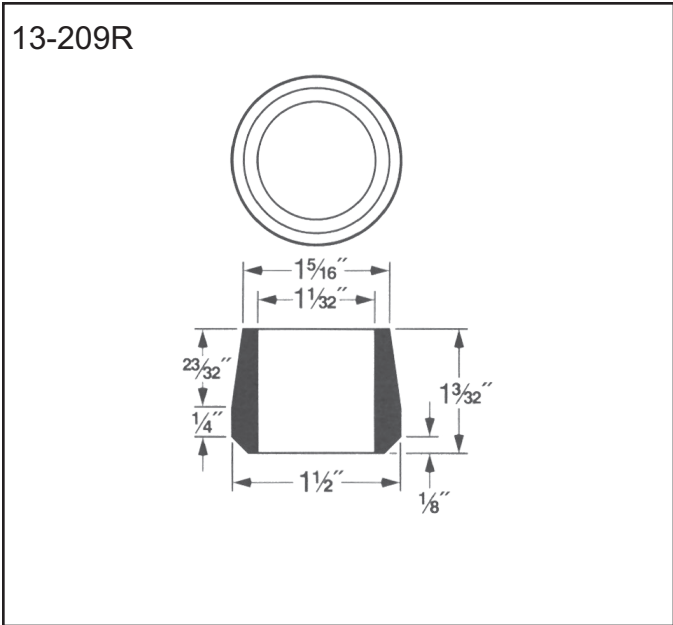
13-2297R



13-6496R



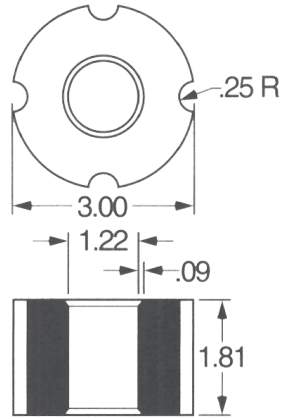
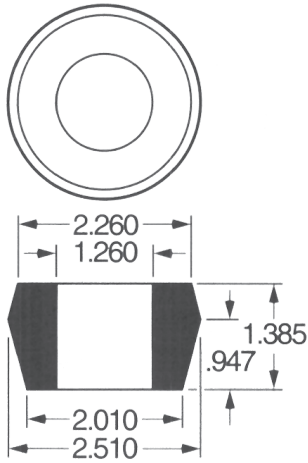
ILLUSTRATIONS BELOW NOT TO SCALE



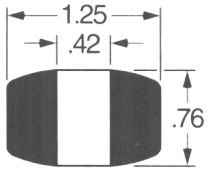
RUBBER BUSHINGS



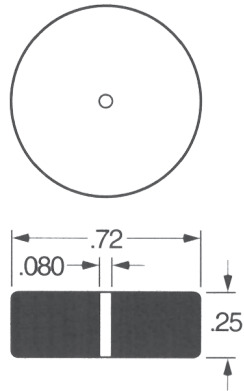
ILLUSTRATIONS BELOW NOT TO SCALE



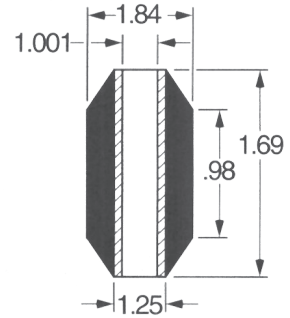
13-382R



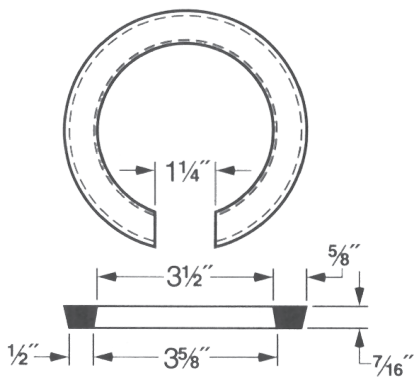
13-490R



13-3068R



13-3365R



13-5537R

