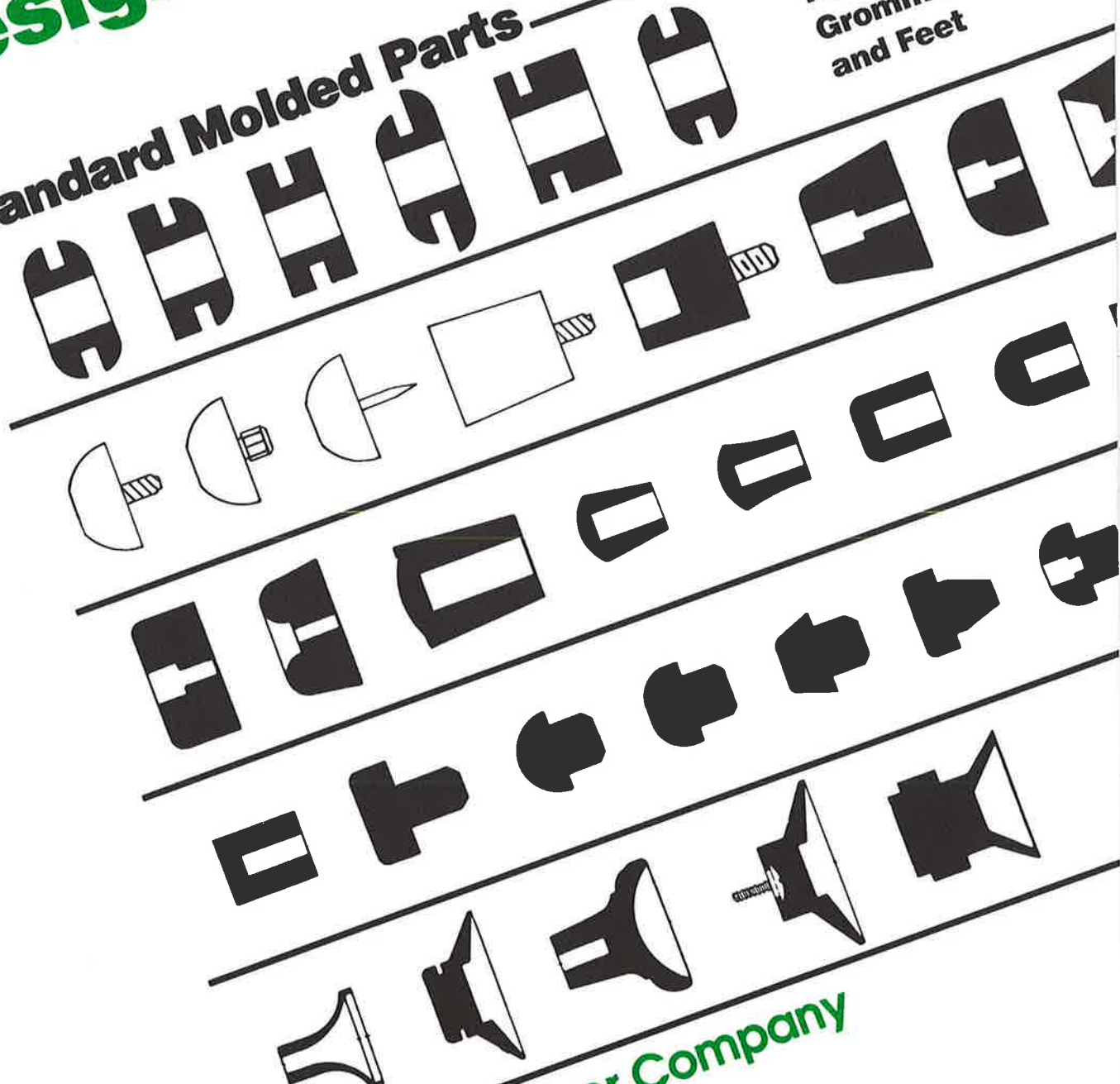


Design Guide

Rubber Bumpers
Grommets
and Feet

Standard Molded Parts



Greene Rubber Company



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PRODUCTION CAPABILITIES

CUSTOM MOLDED ITEMS: For each item in this catalog, a mold currently exists. In addition, we also mold a wide variety of elastomers to customer specification. Our transfer and compression molding techniques create a high degree of workmanship and repeatability. Both prototype development and volume production orders are processed with the same responsiveness. Requests for custom-molded items should include:

An accurate dimensional representation of the item; an anticipated range of quantity usage; an elastomer call-out; a durometer hardness call-out; tolerances desired; some indication of intended function; and any notations which identify hidden areas of sensitivity: (eg: flash restrictions, gate or sprue restrictions, hardness requirements tighter than ± 5 duro; color, finish, non-staining, FDA, Sulfur content restrictions, U/L Lab requirements, etc.)

Where parts include rubber-to-metal bonding, also include details regarding the metal part; type of metal; tolerances it is made to; and rubber location. Our technical department is happy to assist in developing answers to these questions as they arise.

EXTRUSIONS: A list of existing extrusion dies is published in a separate catalog. Many of these are available from inventory, which can be cut-to-length or altered to meet special requirements. In addition, we are able to extrude custom profiles from most common elastomers.

DIE-CUT & FABRICATED ITEMS: For most two-dimensional parts, die-cutting affords the most economical production method available. We cut most every type of flexible rubber and plastic foam, sponge rubber, solid sheet, diaphragm sheet, cork and rubber compositions, materials for sound attenuation and vibration control, and many thin films for electrical insulation or EMI shielding.

Our equipment includes high-speed, computer-controlled presses which maintain a high degree of repeatability. Our tooling, produced in-house, includes simple or complex steel rule dies, all-steel machined dies, or sophisticated male & female die-sets.

In many circumstances, a secondary fabricating technique is used to complete a final part: Press-cured sheet may be buffed to exacting tolerances before it is die-cut to shape; molded tubes may be lathe-cut to width, or slit lengthwise; extruded items may be slit, punched, or notched. Each part is evaluated to determine which combination of techniques will produce the most economical results possible.

All processes are controlled under quality assurance procedures outlined by Mil-Std-45208, including Military specification controlled materials. Scheduling is done to comply with "just-in-time" delivery shipments of parts whose quality will support "ship-to-stock" integrity.

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1106	9	2153	6	2453	46	2808	28
1107	12	2154	8	2465	46	2809	28
1108	12	2155	8	2470	46	2811	28
1109	11	2156	7	2517	46	2812	28
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1117	12	2160	8	2580	28	2829-075	49
1118	12	2161	8	2583	33	2829-115	49
1160	32	2162	7	2601	36	2900	46
1161	34	2163	8	2602	41	2901	44
1162	32	2164	7	2603	42	2902	32
1162	34	2165	7	2606	34	2903	9
1164	32	217	7	2607	33	2906	31
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2038	8	2182	7	2629	7	2933	11
2039	9	2183	9	2631	6	2934	11
2040	9	2184	27	2633	33	2935	31
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2051	41	2186	8	2635	11	2937	6
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2053	41	2188	9	2640	33	2939	28
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2061	27	219	8	2642	7	2941	27
2062	27	2190	6	2643	38	2943	42
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2089	28	2213	10	2662	8	3067	34
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2090	28	222	9	2664	9	3069	31
2091	28	224	11	2666	46	307	35
2092	27	225	11	2667	10	3070	31
2093	27	2250	11	2668	31	3071	34
2094	28	2251	9	2669	7	3072	32
2094	28	2252	10	2670	46	3073	35
2095	27	2253	6	2671	36	3074	33
2096	28	2254	8	2672	8	3075	35
2098	28	2255	9	2674	11	308	35
2099	28	2256	7	2675	35	3161	31
210	6	2257	9	2677	37	3163	32
2101	6	2258	11	2678	8	3164	32
2102	6	2259	9	2679	35	3165	34
2103	7	226	10	2680	27	3166	32
2104	6	2260	9	2681	46	3167	33
2105	6	2261	9	2682	31	3168	34
2106	6	2262	7	2684	9	3169	31
2107	7	2263	11	2686	46	317	35
2108	7	2271	11	2688	36	3170	31
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3262	10	4281	34	555-169	54	6135	37
3263	34	4282	36	555-170	54	6136	37
3264	32	4283	33	555-171	54	6137	37
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3266	31	4285	34	555-173	54	614	40
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330	11	4287	36	555-175	54	6170	37
40000	10	4288	32	555-176	54	6171	38
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40030	46	507	39	555-178	54	6173	39
40040	44	5071	39	555-179	54	6174	37
40050	12	523	9	555-180	54	6177	38
40070	12	555-101	51	555-181	54	6178	37
40080	12	555-101-516	51	555-182	54	6179	38
40100	42	555-102	51	555-183	54	618	41
40130	12	555-102-516	51	601	38	6180	39
40140	42	555-103	51	6011	38	6181	41
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4061	32	555-105	51	6013	38	6183	41
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4066	32	555-107	51	6026	37	6201	41
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4068	31	555-107-516	51	6031	39	6203	41
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4075	35	555-109	51	6035	37	6207	42
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408	35	555-114	52	6043	38	6222	42
4081	31	555-115	52	6044	39	6223	42
4082	35	555-115-14	52	6045	37	6224	42
4083	32	555-116	52	6046	38	623	41
4084	35	555-116-14	52	6047	38	6234	37
4085	33	555-117	52	6048	37	624	41
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4164	36	555-124	53	6066	38	6293	42
4165	35	555-124-1032	53	6067	38	630	42
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4180	35	555-131	54	608	38	671	39
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4183	36	555-135	53	6082	39	676	42
4184	32	555-135S	53	6083	39	680	42
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4189	31	555-143	51	6088	40	706	44
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4192	32	555-146	51	6091	38	7071	44
4193	33	555-147	51	6092	37	7072	44
4194	33	555-148	51	6093	39	7073	44
4195	35	555-149	51	6095	39	7074	44
4247	35	555-150	51	6096	40	708	44
4262	34	555-151	51	6097	38	7081	44
4263	33	555-152	51	610	39	709	44
4264	36	555-153	51	6101	40	7091	44
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79656	14	87440	48	MB-104	21	SJ-5303	24
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79750	14	930-2	11	MB-13	21	SJ-5508	23
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79875	14	930-3	11	MB-50	21	SJ-5514	23
82054	29	930-4	11	MB-51	21	SJ-5518	23
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82425	29	931-12-20	12	PB-53	21	STOPPER 190	47
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82427	29	931-12-26	12	PB-75	21	STOPPER M21	47
82428	29	931-14-20	12	SC1001	45	TB-37	21
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82430	29	931-16-22	12	SC1002-B	45	TB-62	21
82447	29	931-16-30	12	SC1310	45	TB-75	21
82448	29	931-24-28	13	SC1310-B-1	45	TB-87	21
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82946	30	931-3-10	8	SC1374	45		
82960	30	931-3-5	7	SC2445	45		
82961	30	931-3-9	8	SC251	45		
82962	30	931-4-12	9	SC252	45		
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ASTM D-2000 CLASSIFICATION SYSTEM FOR ELASTOMERIC MATERIALS

EXAMPLE: 2BA610 A14 C12 L14

While not a part of the specification itself, the following chart presents the assigned material prefix letters and the polymer such prefix would normally call out. This is the conversion equivalent applicable under:

D-2000 and J-200	D-735 and J-14
AA—Natural, SBR, Butyl, Isoprene	R
AK—Polysulphide	SA
BA—Ethylene-Propylene, Heat Resistant SBR and Butyl	—
BC—Chloroprene-Neoprene	SC
BE—Chloroprene-Neoprene (lower oil swell and comp. set)	—
BF—Nitrile—E14-E34 Requirements	—
BG—Nitrile—E51-E61 Requirements	SB
BK—Organic Dihalide (Thiokol)	SA
CA—Ethylene-Propylene	—
CE—Chlorosulfanated Polyethylene (Hypalon)	—
CH—Nitrile	—
DF—Polyacrylic (Butyl-Acrylate Type)	—
DH—Polyacrylic	TB
FC—Silicone	TA
FE—Silicone	—
FK—Fluorinated Silicone	—
GE—Silicone	—
HK—Fluorinated Elastomers (Viton)	—

1ST DESIGNATE (2)

Grade number — used to designate supplemental requirements beyond the basic call out. Your supplier can develop this.

2ND DESIGNATE (B)

Indicative of heat resistant requirements at which polymer shall be tested. (See Table 1.)

**TABLE 1
BASIC REQUIREMENTS FOR ESTABLISHING TYPE BY TEMPERATURE**

Type	Test Temperature		Type	Test Temperature	
	°C	°F		°C	°F
A	70	158	F	200	392
B	100	212	G	225	437
C	125	257	H	250	482
D	150	302	J	275	527
E	175	347			

3RD DESIGNATE (A)

Indicative of degree of oil resistance as measured by volume swell under test procedures. (See Table 2.)

TABLE 2 — BASIC REQUIREMENTS FOR ESTABLISHING CLASS BY VOLUME SWELL

Class	Volume Swell, Max. %	Class	Volume Swell, Max. %
A	No requirement	F	60
B	140	G	40
C	120	H	30
D	100	J	20
E	80	K	10

4TH DESIGNATE (6)

Indicative of hardness required, as 60 ± 5 Shore "A"

5TH AND 6TH DESIGNATE (1 & 0)

Indicative of tensile strength required, as 1,000 PSI written in hundreds of PSI

7TH DESIGNATE

The suffix letters (A, C, L) indicate supplemental requirements for particular applications that set up more rigid test procedures — beyond the basic call out. (See Table 3.)

TABLE 3 — MEANING OF SUFFIX LETTERS

Suffix Letter	Test Required	Suffix Letter	Test Required
A	Heat Resistance	J	Abrasion Resistance
B	Compression Set	K	Adhesion
C	Ozone or Weather Resistance	L	Water Resistance
D	Compression Deflection Resistance	M	Flammability Resist.
E	Fluid Resistance	N	Impact Resistance
F	Low Temperature Resistance	P	Staining Resistance
G	Tear Resistance	R	Resilience
H	Flex Resistance	Z	Any special requirement to be specified in detail

8TH DESIGNATE

The suffix numbers (14, 12, 14) indicate the ASTM test method applicable by the first digit. (See Table 4.)

9TH DESIGNATE

The suffix numbers, (in this case 14-12-14) the second digit denotes the temperature at which the test shall be conducted. (See Table 5.)

TABLE 5

FOR SUFFIX LETTERS A-B-C-E-G-K-L	FOR SUFFIX LETTER: F
1 = 73 Deg. F.	4 = Zero Deg. F.
2 = 100 Deg. F.	5 = Minus 13 Deg. F.
3 = 158 Deg. F.	6 = Minus 31 Deg. F.
4 = 212 Deg. F.	7 = Minus 40 Deg. F.
5 = 257 Deg. F.	8 = Minus 58 Deg. F.
6 = 302 Deg. F.	9 = Minus 67 Deg. F.
	10 = Minus 85 Deg. F.
	11 = Minus 103 Deg. F.

STANDARD TOLERANCES FOR MOLDED PARTS

TABLE 3
STANDARD DIMENSIONAL TOLERANCE TABLE – MOLDED SOLID RUBBER PRODUCTS
DRAWING DESIGNATION "A3" COMMERCIAL

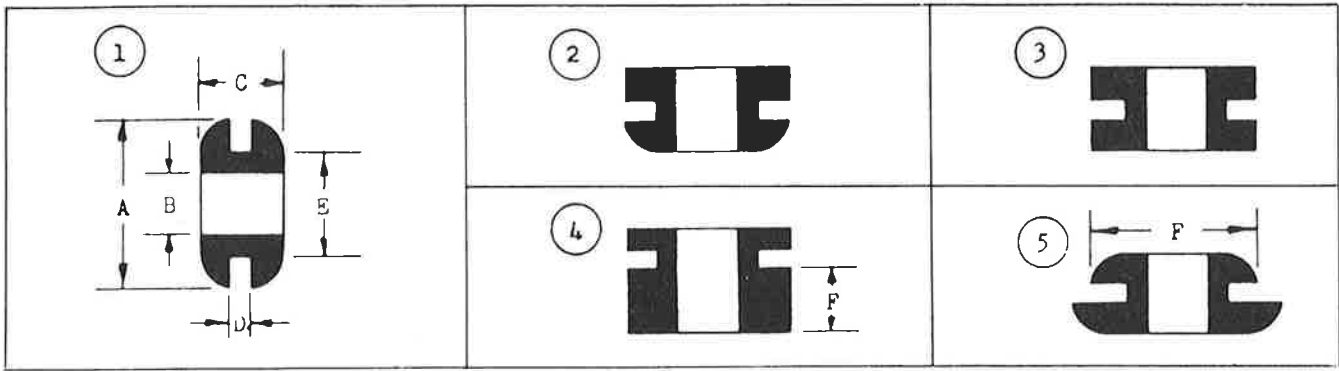
Size (Inches)	Fixed	Closure	Size (Millimeters)	Fixed	Closure
Above Incl.			Above Incl.		
0- .40	± .008	± .013	0- 10	± .20	± .32
.40- .63	.010	.016	10- 16	.25	.40
.63-1.00	.013	.020	16- 25	.32	.50
1.00-1.60	.016	.025	25- 40	.40	.63
1.60-2.50	.020	.032	40- 63	.50	.80
2.50-4.00	.025	.040	63-100	.63	1.00
4.00-6.30	.032	.050	100-160	.80	1.25
6.30 & over—To find fixed dimensional tolerances multiply by 0.5%.			160 & over—To find fixed dimensional tolerances multiply by 0.5%.		

Drawing Designation "A3" tolerances indicate a "commercial" product and will normally be used for most products.

NOTE:

- (1) Fixed dimension tolerances apply individually to each fixed dimension by its own size.
- (2) Closure dimension tolerances are determined by the largest closure dimension and this single tolerance is used for all other closure dimensions.

GROMMETS BY "B" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2417	1	5/8	15,9	SOLID		3/16	4,8	1/16	1,6	7/16	11,1		
2127	1	9/32	7,1	1/16	1,6	3/16	4,8	1/16	1,6	3/16	4,8		
2111	1	.300	7,6	.090	2,3	.192	4,9	.070	1,8	.240	6,1		
2697	5	.312	8,0	.093	2,4	.145	3,7	.041	1,1	.234	6,0	.265	6,8
2174	1	1/2	12,7	3/32	2,4	3/16	4,8	1/16	1,6	3/8	9,5		
2253	1	5/8	15,9	3/32	2,4	1/4	6,4	3/64	1,2	7/16	11,1		
2110	1	3/8	9,5	.100	2,5	3/16	4,8	.060	1,5	1/4	6,4		
2121	1	11/32	8,7	.105	2,7	3/16	4,8	1/16	1,6	1/4	6,4		
2104	1	11/32	8,9	7/64	2,8	3/16	4,8	1/16	1,6	13/64	5,1		
2937	1	11/16	17,4	7/64	2,8	9/32	7,2	3/64	1,2	1/2	12,7		
2109	1	.340	8,6	.120	3,0	.220	5,6	.060	1,5	.250	6,4		
2101	1	1/4	6,4	1/8	3,2	1/8	3,2	1/32	0,8	3/16	4,8		
2102	2	11/32	8,7	1/8	3,2	3/16	4,8	1/16	1,6	3/16	4,8		
2105	1	11/32	8,7	1/8	3,2	3/16	4,8	1/16	1,6	3/16	4,8		
2113	1	5/16	7,9	1/8	3,2	3/16	4,8	1/16	1,6	3/16	4,8		
210	1	11/32	8,7	1/8	3,2	3/16	4,8	1/16	1,6	1/4	6,4		
211	2	11/32	8,7	1/8	3,2	3/16	4,8	1/16	1,6	1/4	6,4		
2106	1	5/16	7,9	1/8	3,2	5/32	4,0	.040	1,6	1/4	6,4		
2190	5	9/16	14,3	1/8	3,2	3/16	4,8	1/16	1,6	1/4	6,4	3/8	9,5
2157	1	7/16	11,1	1/8	3,2	7/32	5,6	1/16	1,6	5/16	7,9		
2116	1	17/32	13,5	1/8	3,2	1/4	6,4	1/16	1,6	3/8	9,5		
AN931-2-9†	1	3/4	19,0	1/8	3,2	3/16	4,8	1/16	1,6	9/16	14,2		
AN931-2-16†	1	1-1/4	31,8	1/8	3,2	1/4	6,4	1/16	1,6	1	25,4		
663	4	3/8	9,5	9/64	3,6	11/32	8,3	5/64	2,0	15/64	6,0	13/64	5,2
661	4	3/8	9,5	9/64	3,6	3/8	9,5	1/16	1,6	1/4	6,4	7/32	5,6
2151	1	15/32	11,9	9/64	3,6	9/32	7,1	3/32	2,4	5/16	7,9		
2153	1	15/32	11,9	9/64	3,6	1/4	6,4	1/16	1,6	5/16	7,9		
2631	2	9/16	14,3	9/64	3,6	31/64	12,4	1/8	3,2	25/64	9,9	29/64	11,5

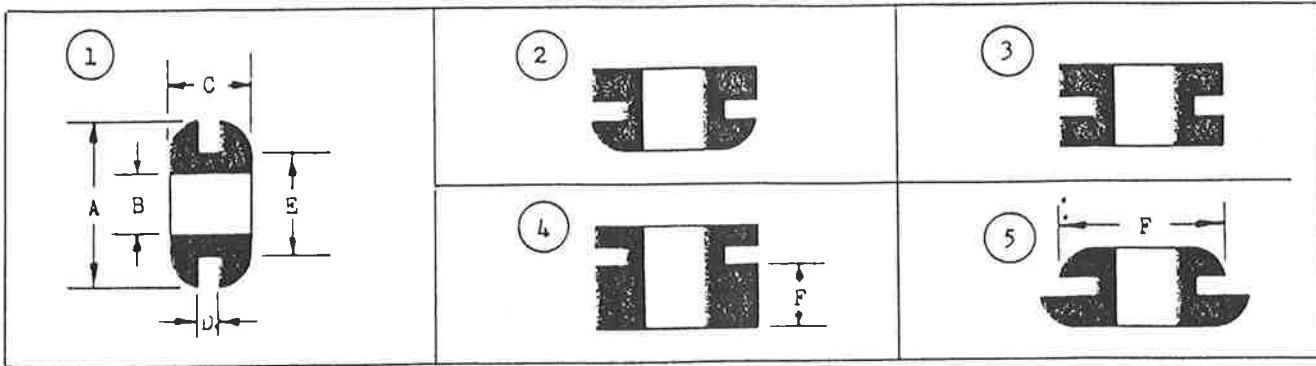
† Military Part Number Other D dimensions available.

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2262	1	5/8	15,9	9/64	3,6	1/4	6,4	3/64	1,2	7/16	11,1		
2107	3	5/16	7,9	.150	3,8	.128	3,3	1/16	1,6	1/4	6,4		
2108	1	.320	8,1	.156	4,0	.158	4,0	.031	7,6	.240	6,1		
2112	1	.300	7,6	.156	4,0	.192	4,9	.070	1,8	.240	6,1		
414	1	13/32	10,3	5/32	4,0	3/8	9,5	3/32	2,4	17/64	6,7		
2103	3	5/16	7,9	5/32	4,0	3/16	4,8	3/32	2,4	1/4	6,4		
2164	1	3/8	9,5	5/32	4,0	3/16	4,8	1/16	1,7	1/4	6,4		
2182	2	1/2	12,7	5/32	4,0	1/4	6,4	1/32	0,8	9/32	7,1		
2165	1	.440	11,2	.170	4,3	.184	4,7	.055	1,4	.250	6,4		
2642	1	5/8	15,9	5/32	4,0	13/64	5,2	3/64	1,2	7/16	11,1		
2256	3	5/8	15,9	11/64	4,4	5/16	7,9	1/16	1,6	15/32	11,9		
2356	3	5/8	15,9	11/64	4,4	9/32	7,1	1/32	0,8	15/32	11,9		
2533*	3	.386	9,8	.187	4,8	.200	5,1	.054	1,4	.250	6,4		
2919	1	.412	10,6	.187	4,8	.275	7,0	.060	1,5	.312	8,0		
2175	3	3/8	9,5	3/16	4,8	11/64	4,4	3/64	1,2	1/4	6,4		
2178	1	3/8	9,5	3/16	4,8	3/16	4,5	1/32	0,8	1/4	6,4		
2179	3	3/8	9,5	3/16	4,8	3/16	4,8	1/16	1,6	1/4	6,4		
2162	3	7/16	11,1	3/16	4,8	9/32	7,1	3/32	2,4	19/64	7,5		
2629	1	.406	10,4	.187	4,8	.270	6,9	.102	2,6	.296	7,6		
2669	1	7/16	11,1	3/16	4,8	7/32	5,6	1/16	1,6	9/32	7,1		
215	1	7/16	11,1	3/16	4,8	7/32	5,6	1/16	1,6	5/16	7,9		
216	2	7/16	11,1	3/16	4,8	7/32	5,6	1/16	1,6	5/16	7,9		
415	1	7/16	11,1	3/16	4,8	1/4	6,4	3/32	2,4	5/16	7,9		
416	2	7/16	11,1	3/16	4,8	1/4	6,4	3/32	2,4	5/16	7,9		
AN931-3-5+	1	7/16	11,1	3/16	4,8	3/16	4,8	1/16	1,6	5/16	7,9		
2152	1	7/16	11,1	3/16	4,8	7/32	5,6	.040	1,0	5/16	7,9		
2156	1	7/16	11,1	3/16	4,8	3/16	4,8	1/32	0,8	5/16	7,9		
2158	1	13/32	10,3	3/16	4,8	13/64	5,2	1/16	1,6	5/16	7,9		
2159	3	7/16	11,1	3/16	4,8	9/32	7,1	3/32	2,4	5/16	7,9		
2173	1	1/2	12,7	3/16	4,8	7/32	5,6	1/16	1,6	5/16	7,9		
2180	3	1/2	12,7	3/16	4,8	15/64	6,0	7/64	2,8	5/16	7,9		
2181	3	1/2	12,7	3/16	4,8	7/32	5,6	1/8	3,2	5/16	7,9		
2293	5	5/8	15,9	3/16	4,8	1/4	6,4	1/16	1,6	5/16	7,9	7/16	11,1
217	1	1/2	12,7	3/16	4,8	7/32	5,6	1/16	1,6	3/8	9,5		
2171	1	1/2	12,7	3/16	4,8	3/16	4,8	1/32	0,8	3/8	9,5		
2351	1	5/8	15,9	3/16	4,8	11/32	8,7	1/16	1,6	3/8	9,5		
2034	4	9/16	14,3	3/16	4,8	27/64	10,7	3/64	1,2	7/16	11,1	9/32	7,1
2201	1	9/16	14,3	3/16	4,8	3/8	9,5	1/8	3,2	7/16	11,1		

*Indicates I.D. is Chamfered

†Military Part Number. Other D dimensions available.

GROMMETS BY "B" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2038	3	11/16	17,5	3/16	4,8	3/8	9,5	1/8	3,2	1/2	12,7		
2672	5	11/16	17,5	3/16	4,8	23/32	18,3	1/16	1,6	1/2	12,7	7/16	11,1
AN931-3-9†	1	3/4	19,1	3/16	4,8	3/16	4,8	1/16	1,6	9/16	14,3		
2662	5	3/4	19,1	3/16	4,8	5/8	15,9	11/64	4,4	3/8	9,5	33/64	13,1
AN931-3-10†	1	7/8	22,2	3/16	4,8	3/16	4,8	1/16	1,6	5/8	15,9		
2119	1	27/32	21,4	3/16	4,8	5/16	7,9	1/16	1,6	21/32	16,7		
2122	S	1-1/4	31,8	3/16	4,8	5/16	7,9	1/16	1,6	1	25,4		
2155	1	7/16	11,1	.200	5,1	1/4	6,4	.050	1,3	5/16	7,9		
2163	1	.400	10,2	.200	5,1	.180	4,6	.060	1,5	.300	7,6		
2185	3	1/2	12,7	13/64	5,2	21/64	8,3	3/64	1,2	5/16	7,9		
2161	1	7/16	11,1	13/64	5,2	5/32	4,0	1/32	0,8	21/64	8,3		
2115	3	47/64	18,7	13/64	5,2	13/64	5,2	7/64	2,8	33/64	13,1		
2538*	3	7/16	11,1	.204	5,2	1/4	6,4	1/16	1,6	.350	8,9		
2126	4	.443	11,3	.212	5,3	.295	7,5	1/16	1,6	5/16	7,9	.173	4,4
2204	3	9/16	14,3	.213	5,4	5/16	7,9	1/16	1,6	.442	11,3		
2118	1	7/16	11,1	7/32	5,6	9/32	7,1	1/8	3,2	5/16	7,9		
2154	1	15/32	11,9	7/32	5,6	1/8	3,2	1/32	0,8	5/16	7,9		
2160	1	7/16	11,1	7/32	5,6	3/16	4,8	1/16	1,6	5/16	7,9		
2189	4	1/2	12,7	7/32	5,6	5/16	7,9	3/64	1,2	5/16	7,9	11/64	4,4
2638	4	1/2	12,7	.220	5,6	.343	8,8	.032	0,8	.312	8,0		
219	1	17/32	13,5	7/32	5,6	13/32	10,3	3/32	2,4	11/32	8,7		
2177	3	17/32	13,5	7/32	5,6	3/8	9,5	1/8	3,2	11/32	8,7		
2191	1	17/32	13,5	7/32	5,6	25/64	9,9	5/64	2,0	11/32	8,7		
2192	3	17/32	13,5	7/32	5,6	3/8	9,5	1/16	1,6	11/32	8,7		
2186	3	1/2	12,7	7/32	5,6	1/4	6,4	3/64	1,2	.380	9,7		
2254	1	5/8	15,9	7/32	5,6	11/64	4,4	3/64	1,2	7/16	11,1		
2641	4	9/16	14,3	7/32	5,6	3/8	9,5	3/64	1,2	3/8	9,5	1/4	6,4
2678	4	3/4	19,1	7/32	5,6	5/8	15,9	1/16	1,6	1/2	12,7	1/2	12,7

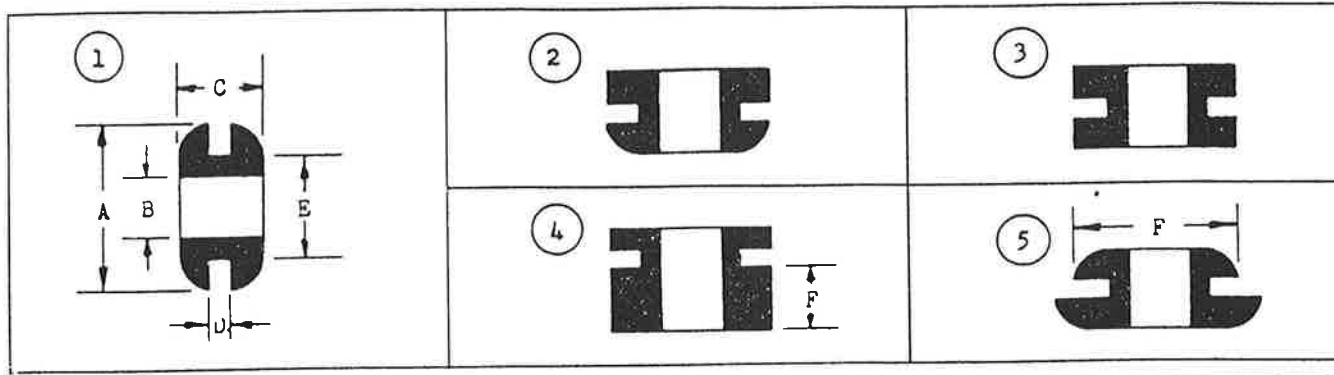
†Military Part Number. Other D dimensions available.

*Indicates I.D. is Chamfered.

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2537*	3	7/16	11,1	.225	5,7	1/4	6,4	1/16	1,6	.350	8,9		
2172	1	1/2	12,7	1/4	6,4	5/32	4,0	1/32	0,8	5/16	7,9		
2183	3	1/2	12,7	1/4	6,4	1/4	6,4	1/16	1,6	5/16	7,9		
2176	1	1/2	12,7	1/4	6,4	3/16	4,8	1/16	1,6	11/32	8,7		
203	4	9/16	14,3	1/4	6,4	9/32	7,1	1/16	1,6	3/8	9,5	5/32	4,0
220	1	9/16	14,3	1/4	6,4	1/4	6,1	1/16	1,6	3/8	9,5		
222	2	9/16	14,3	1/4	6,4	1/4	6,1	1/16	1,6	3/8	9,5		
320	2	9/16	14,3	1/4	6,4	5/16	7,9	1/8	3,2	3/8	9,5		
2036	4	1/2	12,7	1/4	6,4	21/32	16,7	.050	1,3	3/8	9,5	1/2	12,7
2188	1	1/2	12,7	1/4	6,4	11/64	4,4	.047	1,2	3/8	9,5		
2684	5	9/16	14,3	1/4	6,4	1/4	6,4	1/16	1,6	5/16	7,9	3/8	9,5
2202	2	9/16	14,3	1/4	6,4	3/8	9,5	5/32	4,0	3/8	9,5		
2251	1	5/8	15,9	1/4	6,4	11/32	8,7	1/16	1,6	3/8	9,5		
2260	1	5/8	15,9	1/4	6,4	9/32	7,1	1/16	1,6	3/8	9,5		
2664	3	5/8	15,9	1/4	6,4	3/8	9,5	1/8	3,2	7/16	11,1		
2622	1	1/2	12,7	1/4	6,4	7/32	5,6	1/16	1,6	3/8	9,5		
3251	1	5/8	15,9	1/4	6,4	3/8	9,5	1/8	3,2	3/8	9,5		
523	1	19/32	15,1	1/4	6,4	11/64	4,4	3/64	1,2	13/32	10,3		
2039	4	21/32	16,7	1/4	6,4	3/8	9,5	1/16	1,6	13/32	10,3	7/32	5,6
2292	5	5/8	15,9	1/4	6,4	29/64	11,5	1/8	3,2	7/16	11,1	9/16	14,3
AN931-4-7†	1	5/8	15,9	1/4	6,4	3/16	4,8	1/16	1,6	7/16	11,1		
2040	5	7/8	22,2	1/4	6,4	3/8	9,5	3/32	2,4	1/2	12,7	3/4	19,1
2257	1	5/8	15,9	1/4	6,4	17/32	13,5	9/32	7,1	1/2	12,7		
2261	1	3/4	19,1	1/4	6,4	11/64	4,4	1/16	1,6	9/16	14,3		
AN931-4-12†	1	1	25,4	1/4	6,4	1/4	6,4	1/16	1,6	3/4	19,1		
AN931-4-16†	1	1-1/4	31,8	1/4	6,4	1/4	6,4	1/16	1,6	1	25,4		
1116	3	1-1/2	38,1	1/4	6,4	7/16	11,1	1/16	1,6	1-3/16	30,2		
1106	3	1-1/2	38,1	1/4	6,4	7/16	11,1	1/16	1,6	1-1/4	31,8		
2903	1	.812	20,8	.250	6,4	.500	12,8	.255	6,5	.562	14,4		
2627	1	.625	16,0	.255	6,5	.280	7,2	.093	2,4	.425	10,9		
2411	4	9/16	14,3	17/64	6,7	19/64	7,5	3/64	1,2	3/8	9,5	9/64	3,6
233	3	5/8	15,9	17/64	6,7	3/8	9,5	1/8	3,2	15/32	11,9		
1100	5	3/4	19,1	17/64	6,7	1/4	6,4	.035	0,9	15/32	11,9	5/8	15,9
2259	3	5/8	15,9	17/64	6,7	5/16	7,9	1/16	1,6	15/32	11,9		
2255	1	5/8	15,9	17/64	6,7	5/16	7,9	1/16	1,6	7/16	11,1		
2290	5	11/16	17,5	17/64	6,7	1/4	6,4	1/16	1,6	7/16	11,1	9/16	14,3
221	1	9/16	14,3	9/32	7,1	1/4	6,4	1/16	1,6	3/8	9,5		
321	1	9/16	14,3	9/32	7,1	5/16	7,9	1/16	1,6	3/8	9,5		

† Military Part Number. Other D dimensions available.

GROMMETS BY "B" DIMENSION



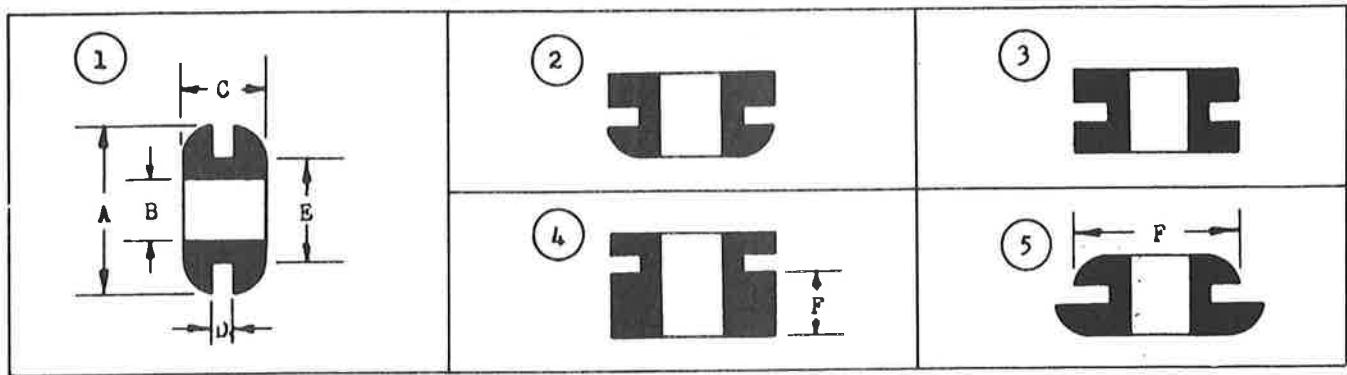
PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2212	1	9/16	14,3	9/32	7,1	1/4	6,4	1/32	0,8	3/8	9,5		
2187	3	1/2	12,7	9/32	7,1	1/4	6,4	3/64	1,2	.380	9,7		
2211	1	9/16	14,3	9/32	7,1	1/4	6,4	1/16	1,6	13/32	10,3		
2203	1	37/64	14,7	.285	7,2	5/16	7,9	.055	1,4	25/64	9,9		
2213	1	37/64	14,7	.285	7,2	5/16	7,9	.055	1,4	.437	11,1		
2214	1	37/64	14,7	.286	7,2	5/16	7,9	.055	1,4	15/32	11,		
324	1	19/32	15,1	5/16	7,9	3/8	9,5	1/8	3,2	7/16	11,1		
2660	3	5/8	15,9	5/16	7,9	3/16	4,7	1/16	1,6	9/16	14,3		
2252	1	5/8	15,9	5/16	7,9	1/4	6,4	1/16	1,6	7/16	11,1		
40000	1	5/8	15,8	5/16	7,9	1/4	6,3	1/16	1,5	7/16	11,1		
2352	1	5/8	15,9	5/16	7,9	7/32	5,6	1/32	0,8	7/16	11,1		
3241	1	19/32	15,1	5/16	7,9	11/32	8,7	3/32	2,4	7/16	11,1		
1223	5	7/8	22,2	5/16	7,9	7/16	11,1	3/32	2,4	1/2	12,7	5/8	15,9
2033	4	11/16	17,5	5/16	7,9	27/64	10,7	5/64	2,0	1/2	12,7	1/4	6,4
2667	1	3/4	19,1	5/16	7,9	11/32	8,7	3/32	2,4	15/32	11,9		
2690	1	3/4	19,1	5/16	7,9	.330	8,4	.091	2,3	31/64	12,3		
3261	1	3/4	19,1	5/16	7,9	9/16	14,3	3/16	4,8	17/32	13,5		
3262	1	3/4	19,1	5/16	7,9	7/16	11,1	1/16	1,6	17/32	13,5		
AN931-5-9†	1	13/16	20,6	5/16	7,9	5/16	7,9	1/16	1,6	9/16	14,3		
2274	1	7/8	22,2	5/16	7,9	5/16	7,9	1/16	1,6	5/8	15,9		
2272	1	7/8	22,2	5/16	7,9	11/32	8,7	3/32	2,4	11/16	17,5		
2125	1	1	25,4	5/16	7,9	11/32	8,7	3/32	2,4	3/4	19,1		
AN931-5-12†	1	1	25,4	5/16	7,9	5/16	7,9	1/16	1,6	3/4	19,1		
1113	1	1-1/16	27,0	5/16	7,9	1/2	12,7	5/32	4,0	3/4	19,1		
AN931-5-13†	1	1-1/16	27,0	5/16	7,9	5/16	7,9	1/16	1,6	13/16	20,6		
1112	3	1-1/16	27,0	5/16	7,9	5/16	7,9	1/16	1,6	13/16	20,6		
2128	5	.595	15,1	.322	8,2	23/32	18,2	.265	6,7	7/16	11,1	Note 1	
226	1	23/32	18,3	21/64	8,3	5/16	7,9	1/16	1,6	9/16	14,3		

† Military Part Number. Other D dimensions available.

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2934	4	7/8	22,2	21,64	8,4	15/32	12,0	1/16	1,5	5/8	15,8	1/4	6,3
2117	3	5/8	15,9	.350	8,9	19/64	7,5	3/16	4,8	33/64	13,1		
2674	4	3/4	19,1	23/64	9,1	41/64	16,3	1/8	3,2	31/64	12,3	3/8	9,5
2635	5	.590	15,1	.362	9,3	.156	4,0	.031	0,8	.480	12,3	.510	13,1
224	2	5/8	15,9	3/8	9,5	1/4	6,4	1/16	1,6	1/2	12,7		
225	1	5/8	15,9	3/8	9,5	1/4	6,4	1/16	1,6	1/2	12,7		
325	2	5/8	15,9	3/8	9,5	5/16	7,9	1/8	3,2	1/2	12,7		
AN930-1	1	11/16	17,5	3/8	9,5	9/32	7,1	1/16	1,6	1/2	12,7		
2035	4	11/16	17,5	3/8	9,5	19/64	7,5	.050	1,3	1/2	12,7	3/16	4,8
2250	1	5/8	15,9	3/8	9,5	1/4	6,4	.050	1,3	1/2	12,7		
1109		3/4	19,1	3/8	9,5	1/2	12,7	1/8	3,2	17/32	13,5		
2258	1	5/8	15,9	3/8	9,5	1/32	8,7	1/16	1,6	17/32	13,5		
232	1	13/16	20,6	3/8	9,5	3/16	4,7	1/16	1,6	9/16	14,3		
AN930-2	1	3/4	19,1	3/8	9,5	3/8	9,5	1/16	1,6	9/16	14,3		
AN930-3	1	3/4	19,1	3/8	9,5	3/4	19,1	3/8	9,5	9/16	14,3		
2123	3	3/4	19,1	3/8	9,5	9/16	14,3	3/8	9,5	19/32	15,1		
AN931-6-10†	1	7/8	22,2	3/8	9,5	5/16	7,9	1/16	1,6	5/8	15,9		
2271	1	7/8	22,2	3/8	9,5	5/16	7,9	1/16	1,6	5/8	15,9		
2273	3	15/16	23,8	3/8	9,5	17/32	13,5	5/32	4,0	5/8	15,9		
2275	1	7/8	22,2	3/8	9,5	5/16	7,9	.070	1,8	5/8	15,9		
AN931-6-16†	1	1-1/4	31,8	3/8	9,5	1/4	6,4	1/16	1,6	1	25,4		
1101	1	3/4	19,1	7/16	11,1	1/4	6,4	1/16	1,6	9/16	14,3		
2037	4	3/4	19,1	7/16	11,1	1/4	6,4	1/16	1,6	9/16	14,3	5/32	4,0
2263	1	3/4	19,1	7/16	11,1	1/4	6,4	.080	2,0	9/16	14,3		
2114	1	3/4	19,1	7/16	11,1	3/8	9,5	.050	1,3	19/32	15,1		
AN931-7-11†	1	15/16	23,8	7/16	11,1	5/16	7,9	1/16	1,6	11/16	17,5		
230	1	13/16	20,6	1/2	12,7	9/32	7,1	1/16	1,6	5/8	15,9		
231	2	13/16	20,6	1/2	12,7	9/32	7,1	1/16	1,6	5/8	15,9		
330	2	13/16	20,6	1/2	12,7	11/32	8,7	1/8	3,2	5/8	15,9		
AN930-4	1	1	25,4	1/2	12,7	9/32	7,1	3/32	2,4	3/4	19,1		
930-41	1	1	25,4	1/2	12,7	1/4	6,4	1/16	1,6	3/4	19,1		
930-42	1	1	25,4	1/2	12,7	5/16	7,9	1/8	3,2	3/4	19,1		
2648	3	1	25,4	1/2	12,7	7/16	11,1	3/16	4,8	3/4	19,1		
2933	1	1	25,4	1/2	12,7	5/8	15,8	3/8	9,5	3/4	19,0		
AN931-8-13†	1	1-1/16	27,0	1/2	12,7	5/16	7,9	1/16	1,6	13/16	20,6		
1102	1	1-1/16	27,0	1/2	12,7	5/16	7,9	1/16	1,6	13/16	20,6		
1110	1	1-1/16	27,0	1/2	12,7	11/32	8,7	1/8	3,2	13/16	20,6		
2654	3	1-1/16	27,0	1/2	12,7	13/16	20,6	1/2	12,7	13/16	20,6		

† Military Part Number. Other D dimensions available.

GROMMETS BY "B" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1118	1	1-1/8	28,6	1/2	12,7	.302	7,7	1/16	1,6	7/8	22,2		
1108	1	1-1/4	31,8	1/2	12,7	1/4	6,4	1/16	1,6	1	25,4		
AN931-8-20†	1	1-1/2	38,1	1/2	12,7	1/4	6,4	1/16	1,6	1-1/4	31,3		
AN931-9-13†	1	1-1/16	27,0	9/16	14,3	5/16	7,9	1/16	1,6	13/16	20,5		
AN931-10-14†	1	1-1/8	28,6	5/8	15,9	5/16	7,9	1/16	1,6	7/8	22,2		
1103	1	1-1/8	28,6	5/8	15,9	5/16	7,9	1/16	1,6	7/8	22,2		
40130	1	1-1/8	28,5	5/8	15,8	5/16	7,9	1/16	1,5	7/8	22,2		
AN931-10-20†	1	1-1/2	38,1	5/8	15,9	1/4	6,4	1/16	1,6	1-1/4	31,3		
2301	1	1-1/16	27,0	11/16	17,5	1/4	6,4	1/16	1,6	13/16	20,5		
AN931-11-16†	1	1-5/16	33,3	11/16	17,5	3/8	9,5	1/16	1,6	1	25,4		
2651	1	1-3/4	44,4	11/16	17,5	1/2	12,7	1/8	3,2	1-3/8	35,4		
1117	1	1-1/8	28,6	3/4	19,1	9/32	7,1	1/16	1,6	7/8	22,2		
1107	1	1-1/8	28,6	3/4	19,1	5/16	7,9	3/32	2,4	15/16	23,3		
AN931-12-17†	1	1-3/8	34,9	3/4	19,1	3/8	9,5	1/16	1,6	1-1/16	27,0		
AN931-12-20†	1	1-5/8	41,3	3/4	19,1	1/4	6,4	1/16	1,6	1-1/4	31,3		
AN931-12-23†	1	1-13/16	46,0	3/4	19,1	3/8	9,5	1/16	1,6	1-7/16	36,5		
AN931-12-26†	1	2	50,8	3/4	19,1	3/8	9,5	1/16	1,6	1-5/8	41,3		
1105	1	1-1/8	20,6	13/16	20,7	1/4	6,4	3/64	1,2	15/16	23,6		
1224	2	1-3/16	30,2	13/16	20,6	25/32	19,8	1/2	12,7	15/16	23,3		
AN930-21	1	1-9/16	39,7	7/8	22,2	3/4	19,1	3/16	4,8	1-1/4	31,8		
AN931-14-20†	1	1-5/8	41,3	7/8	22,2	7/16	11,1	1/16	1,6	1-1/4	31,8		
40050	1	1-5/8	41,2	7/8	22,2	7/16	11,1	1/16	1,5	1-1/4	31,7		
40080	1	1-5/8	41,2	7/8	22,2	1/2	12,7	1/8	3,1	1-1/4	31,7		
AN931-14-26†	1	2	50,8	7/8	22,2	7/16	11,1	1/16	1,6	1-5/8	41,3		
AN931-16-22†	1	1-3/4	44,5	1	25,4	7/16	11,1	1/16	1,6	1-3/8	34,9		
AN931-16-30†	1	2-1/4	57,2	1	25,4	7/16	11,1	1/16	1,6	1-7/8	47,6		
40070	1	1-7/8	47,6	1-1/8	28,5	3/8	9,5	1/16	1,5	1-1/2	38,1		
40020	1	2-3/4	69,8	1-1/8	28,5	1/2	12,7	1/8	3,1	2-3/8	60,3		

COMMERCIAL VINYL GROMMETS

These grommets are made from a 65 duro flexible vinyl compound which has excellent resistance to ozone, sunlight, and petroleum oils, as well as mild acid or alkali solutions. (Black only color in these sizes listed).

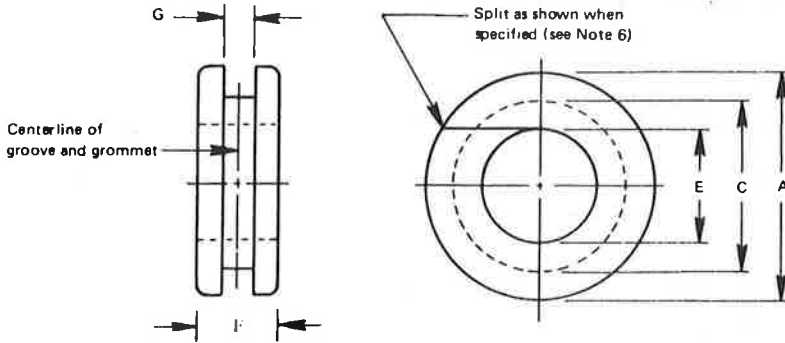
PART NUMBER	A		B		C		D		E		F	
	O.D.		I.D.		Thickness		Groove Width		Groove Diameter		Minor Flange	
79187	1/4	6,4	5/64	2,0	1/8	3,2	1/32	0,8	3/16	4,8		
79250	11/32	8,7	1/8	3,2	3/16	4,8	1/16	1,6	1/4	6,4		
79312	7/16	11,1	3/16	4,8	7/32	5,6	1/16	1,6	5/16	7,9		
793754	1/2	12,7	7/32	5,6	17/64	6,7	3/32	2,4	3/8	9,5		
79375	9/16	14,3	1/4	6,4	1/4	6,4	1/16	1,6	3/8	9,5		
794374	5/8	15,9	1/4	6,4	3/8	9,5	3/32	2,4	7/16	11,1		
79437	5/8	15,9	5/16	7,9	1/4	6,4	1/16	1,6	7/16	11,1		
798125	1-1/4	31,8	5/16	7,9	1/4	6,4	1/32	0,8	13/16	20,6	1	25.4
79500	5/8	15,9	3/8	9,5	1/4	6,4	1/16	1,6	1/2	12,7		
796258	7/8	22,2	3/8	9,5	3/16	4,8	1/16	1,6	5/8	15,9		
79625	13/16	20,6	1/2	12,7	9/32	9,9	1/16	1,6	5/8	15,9		
79656	27/32	21,4	25/64	9,9	3/8	9,5	1/8	3,2	21/32	16,7		
79750	7/8	22,2	9/16	14,3	7/32	5,5	1/16	1,6	3/4	19,1		
79687	15/16	23,5	9/16	14,3	5/16	7,0	1/16	1,6	11/16	17,5		
79875	1-1/8	28,5	5/8	15,9	9/32	7,1	1/16	1,6	7/8	22,2		
791000	1-5/16	33,3	11/16	17,5	3/8	9,5	1/16	1,6	1	25,4		
791375	1-3/4	44,5	1	25,4	1/2	12,7	1/8	3,2	1-3/8	34,9		

GROMMETS

MS35489

(SUPERSEDES: MS35490 and AN931)

ARMY-NAVY APPROVED



Hole dia. E	Groove dia. C	Outside dia. A	Groove width G							
			0.062		0.125		0.188		0.250	
			Dash No.	F	Dash No.	F	Dash No.	F	Dash No.	F
0.125	0.250	0.344	1	0.188						
0.125	0.562	0.750	2	0.188	31	0.250	60	0.312	89	0.375
0.125	1.000	1.250	3	0.250	32	0.312	61	0.375	90	0.438
0.188	0.312	0.438	4	0.188	33	0.250	62	0.312	91	0.375
0.188	0.562	0.750	134	0.188	137	0.250	138	0.312	139	0.375
0.188	0.625	0.875	5	0.188	34	0.250	63	0.312	92	0.375
0.250	0.438	0.625	6	0.188	35	0.250	64	0.312	93	0.375
0.250	0.750	1.000	7	0.250	36	0.312	65	0.375	94	0.438
0.250	1.000	1.250	8	0.250	37	0.312	66	0.375	95	0.438
0.312	0.562	0.812	9	0.312	38	0.375	67	0.438	96	0.500
0.312	0.750	1.000	10	0.312	39	0.375	68	0.438	97	0.500
0.312	0.812	1.062	118	0.312	122	0.375	136	0.438	130	0.500
0.375	0.625	0.875	11	0.312	40	0.375	69	0.438	98	0.500
0.375	1.000	1.250	12	0.250	41	0.312	70	0.375	99	0.438
0.438	0.688	0.938	13	0.312	42	0.375	71	0.438	100	0.500
0.500	0.812	1.062	14	0.312	43	0.375	72	0.438	101	0.500
0.500	1.250	1.500	15	0.250	44	0.312	73	0.375	102	0.438
0.562	0.812	1.062	16	0.312	45	0.375	74	0.438	103	0.500
0.625	0.875	1.125	17	0.312	46	0.375	75	0.438	104	0.500
0.625	1.250	1.500	18	0.250	47	0.312	76	0.375	105	0.438
0.688	1.000	1.312	19	0.375	48	0.438	77	0.500	106	0.562
0.750	1.062	1.375	20	0.375	49	0.438	78	0.500	107	0.562
0.750	1.250	1.625	135	0.250	123	0.312	127	0.375	131	0.438
0.750	1.438	1.812	21	0.375	50	0.438	79	0.500	108	0.562
0.750	1.625	2.000	120	0.375	124	0.438	128	0.500	132	0.562
0.875	1.250	1.625	22	0.438	51	0.500	80	0.562	109	0.625
0.875	1.625	2.000	121	0.438	125	0.500	129	0.562	133	0.625
1.000	1.375	1.750	23	0.438	52	0.500	81	0.562	110	0.625
1.000	1.875	2.250	24	0.438	53	0.500	82	0.562	111	0.625
1.250	2.375	2.750	25	0.438	54	0.500	83	0.562	112	0.625
1.250	2.500	2.875	26	0.438	55	0.500	84	0.562	113	0.625
1.500	1.750	2.125	27	0.438	56	0.500	85	0.562	114	0.625
1.500	2.750	3.250	28	0.438	57	0.500	86	0.562	115	0.625
1.750	3.250	3.750	29	0.500	58	0.562	87	0.625	116	0.688
2.000	3.500	4.000	30	0.500	59	0.562	88	0.625	117	0.688

Materials: "Standard" is per Mil-G-3036, black 50 durometer Nitrile Rubber. Part Number consists of the MS number and the appropriate dash number eg: MS35489-14

"High-temperature" is per Mil-G-3036, red 50 durometer Silicone Rubber. Part Number consists of the MS number, the appropriate dash number, and a suffix "X" to indicate silicone rubber. eg: MS35489-14X

Splitting: Split grommets are also available for either material. To indicate this, add the suffix "S" eg: MS35489-14S or MS35489-14XS

Other Specifications: See crossreference chart for sizes listed under AN931 and MS 35490.

(Please note that MS35490 indicates a slit perpendicular to the id, whereas MS35489 requires the slit be made at a tangent to the id.)

CROSS-REFERENCE LISTING FOR SIZES ONLY

(MS35489 / AN931 / MS35490)*

MS35489	AN931	MS35490*	MS35489	AN931	MS35490*	MS35489	AN931	MS35490*
-1	(G/R#210)	-1	-38	-A5-9	-32	-81	-B16-22	-69
-2	-2-9	-2	-39	-A5-12	-33	-82	-B16-30	---
-3	-2-16	-3	-40	-A6-10	-34	-85	-B24-28	-70
-4	-3-5	-4	-41	-A6-16	-35	-91	-C3-5	-73
-5	-3-10	---	-42	-A7-11	-36	-93	-C4-7	-75
-6	-4-7	-6	-43	-A8-13	-37	-94	-C4-12	-76
-7	-4-12	-7	-44	-A8-20	-38	-96	-C5-9	-78
-8	-4-16	-8	-45	-A9-13	-39	-98	-C6-10	-80
-9	-5-9	-9	-46	-A10-14	-40	-99	-C6-16	-81
-10	-5-12	-10	-47	-A10-20	-41	-101	-C8-13	-83
-11	-6-10	-11	-48	-A11-16	-42	-102	-C8-20	-84
-12	-6-16	-12	-49	-A12-17	-43	-103	-C9-13	-85
-13	-7-11	-13	-50	-A12-23	-44	-104	-C10-14	-86
-14	-8-13	-14	-51	-A14-20	-45	-106	-C11-16	-88
-15	-8-20	-15	-52	-A16-22	-46	-107	-C12-17	-89
-16	-9-13	-16	-54	-A20-38	---	-108	-C12-23	-90
-17	-10-14	-17	-55	-A20-40	---	-110	-C16-22	-92
-18	-10-20	-18	-56	-A24-28	-47	-118	-5-13	---
-19	-11-16	-19	-62	-B3-5	-50	-119	-12-20	---
-20	-12-17	-20	-63	-B3-10	---	-120	-12-26	---
-21	-12-23	-21	-64	-B4-7	-52	-121	-14-26	---
-22	-14-20	-22	-65	-B4-12	-53	-122	-A5-13	---
-23	-16-22	-23	-67	-B5-9	-55	-123	-A12-20	---
-24	-16-30	---	-68	-B5-12	-56	-124	-A12-26	---
-27	-24-28	-24	-69	-B6-10	-57	-125	-A14-26	---
-28	-24-44	---	-71	-B7-11	-59	-134	-3-9	---
-31	-A2-9	-25	-72	-B8-13	-60	-135	-12-20	---
-32	-A2-16	-26	-73	-B8-20	-61	-137	-A3-9	-28
-33	-A3-5	-27	-74	-B9-13	-62			---
-34	-A3-10	---	-75	-B10-14	-63	-149	AN930-41	---
-35	-A4-7	-29	-77	-B11-16	-65	-150	AN930-4	---
-36	-A4-12	-30	-78	-B12-17	-66			
-37	-A4-16	-31	-80	-B14-20	-68			

*MS35490 requires that the grommet always have a slit running perpendicular from the Od thru to the Id.

GROMMET STRIPS

QUALIFIED AS MS 21266

Plastic grommet strips are made in flexible straight lengths to line and grip odd-shaped holes. Eliminates the need for varied diameter grommets, inventory, special tooling and special purchasing. Airframe manufacturers report weight saved in actual production 50 lbs. and up per airframe. Easily and quickly installed in any hole over 3/4" in diameter. Costly errors of oversize or undersize holes in production eliminated completely.

MATERIAL: Available in Nylon and Teflon.

COLORS: Natural — also available in red, black and blue.

NYLON

G51H — for Nylon
per MIL M-20693A Type 1

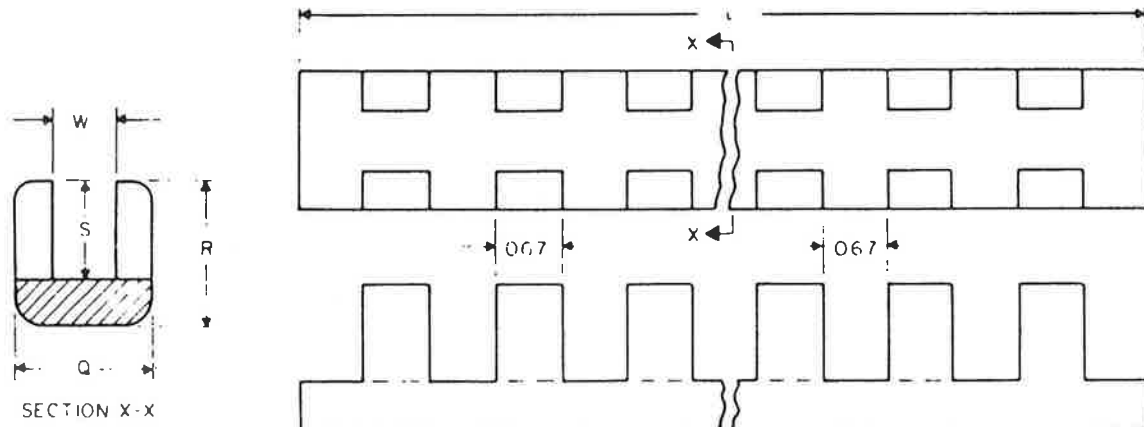
MS-21266 — for Nylon
per MIL M-20693A Type 1

G51P — for Nylon
per MIL M-20693A Type IV
Other materials available
on request.

TEFLON

G51T —, Teflon AMS 3651
19" Standard Length

G51T—M, Teflon AMS-3651
12¾" length per MS-21266



QUALIFIED AS MS-21266

Part Number	Suffix	W	Q	R	S	For Material Thickness
G51H6 } G51P6 } G51F6 } G51PA6 }	A	.056	.150	.155	.100	.015 - .052
	B	.090	.175	.155	.100	.052 - .085
	C	.131	.220	.155	.100	.085 - .128
	D	.195	.325	.230	.160	.128 - .192
	E	.260	.385	.240	.170	.192 - .255
	F	.320	.445	.255	.180	.255 - .318
	G	.390	.515	.255	.180	.318 - .380
	H	.515	.640	.255	.180	.380 - .510

TOL. ± .055

G51H — for Nylon per MIL-M-20693A Type I.

For applications to 275° F.

G51P — for Nylon per MIL-M-20693A Type IV.

For greater Flexibility.

G51T — for Teflon per AMS 3651.

For applications to 500° F.

G51PE — for Polyethylene per Fed. Spec. L.P. 390

ENGINEERING INFORMATION

Caterpillar Grommets are in strip form intended to be cut to size.

"L" standard strip length: NYLON 12¾" for up to 4" hole.
TEFLON 19" for up to 6" hole.

Several lengths may be used to fit larger holes.

These grommets can be supplied pre-cut to your specifications.

NYLON — Natural Color (also available in black, red, and blue).

TEFLON — Natural, also available in colors and Etched for Bonding.

SpringFast® caterpillar grommets

Polymer coated stainless steel grommets attach faster and hold faster! . . .

Features:

- Easy installation — snaps on in seconds!
- Lower installed cost
- Polymer-coated stainless steel construction — non-flammable in end use
- Provides positive electrical insulation
- Exceeds UL 94V-0

<u>National Stock No.</u>	<u>DTI Part No.</u>
5325-01-324-4907	T1-100-ER
5325-01-324-4906	T2-100-ER
5325-NC-D86-8868	T5-100-ER
5325-01-338-3952	T6-100-ER

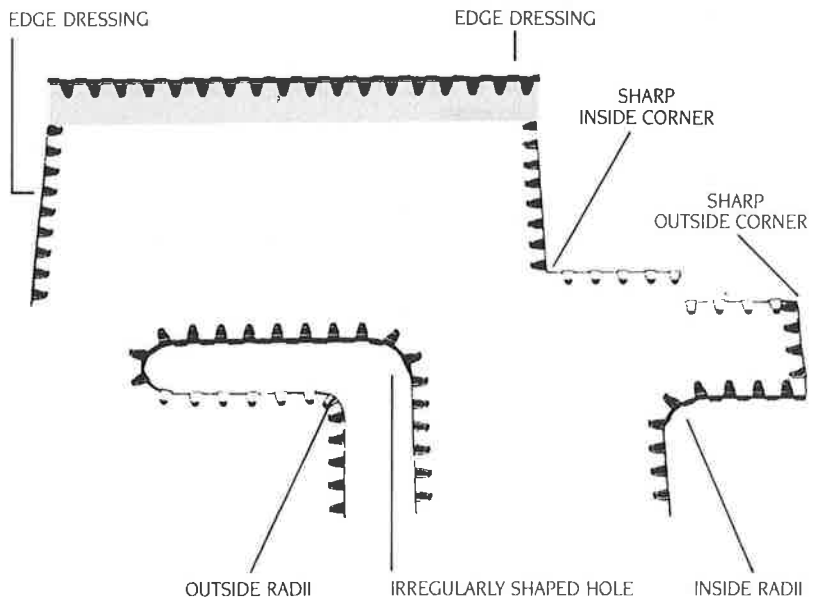
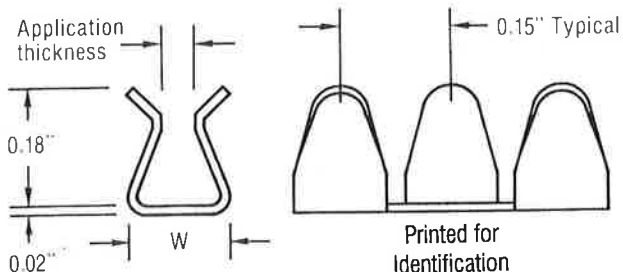
Qualifications



E113553(M) E97567.01

- Military Specification:** MIL-G-22529/1 (USAF) (Cage Code 0 HES 0) (Pending)
- Flammability:** UL 746C revised (exceeds UL 94V-0) Exceeds BELLCORE requirements per TR-EOP-000063
- Outgassing:** Approved for Space Flight
- Total Mass Loss:** 0.03%
- Vapor Condensed Molecule:** 0.00%

MIL-STD-810E: Random Vibration, Shock, Humidity, Salt Fog, Low Temperature (-62°C)



Spring-fast® Caterpillar Grommet . . . Simply snap-on Spring-Fast in seconds!

Installation Time: 25-30 seconds

Product Sizes

Size	Application Thickness	Thickness	Width	Gauge
T1	0.020" - 0.036"	0.5 - 0.9 mm	0.14	25,24,23,22,21,20
T2	0.036" - 0.063"	0.9 - 1.6 mm	0.14	20,19,18,17,16
T3	0.059" - 0.074"	1.5 - 1.9 mm	0.14	16,15,14
T4	0.070" - 0.093"	1.8 - 2.4 mm	0.19	15,14,13
T5	0.090" - 0.111"	2.3 - 2.8 mm	0.19	13,12
T6	0.105" - 0.134"	2.7 - 3.4 mm	0.19	12,11,10
T7	0.178" - 0.198"	4.5 - 5.0 mm	0.25	7,6
T8	0.240" - 0.260"	6.1 - 6.6 mm	0.32	3

Spring-Fast® Caterpillar Grommets are offered:

1. Polymer coated or uncoated
2. On reels measuring 25 ft. (7.6m), 100 ft. (30.5m)
3. In customer-specified factory cut lengths

NO ADHESIVES REQUIRED!

SPLIT GROMMETS

Available in both Nylon and Teflon.

Precision molded to be inserted into holes easily and quickly, producing hole sizes of 3/16" to 3" diameter. They afford excellent insulation as well as scuff protection with a smooth inner surface to wire bundles, cable or tubing. Available in sizes to fit firmly in normal bulk-head material thicknesses.

**QUALIFIED TO
FOLLOWING:
NAS 557
MS 21265**

CODE:

Part Number Designates Grommet Size as Indicated In Table I. Dash Number Must Be Suffixed by Style Designation as Indicated in Table II.

EXAMPLE:

NMC 557-3A — Split plastic Grommet having .188 installed I.D. for installation in a .234 hole in .025 to .051 sheet.

MATERIAL:

Per MIL-M-20693 A Type I.
—also available in TEFLON.

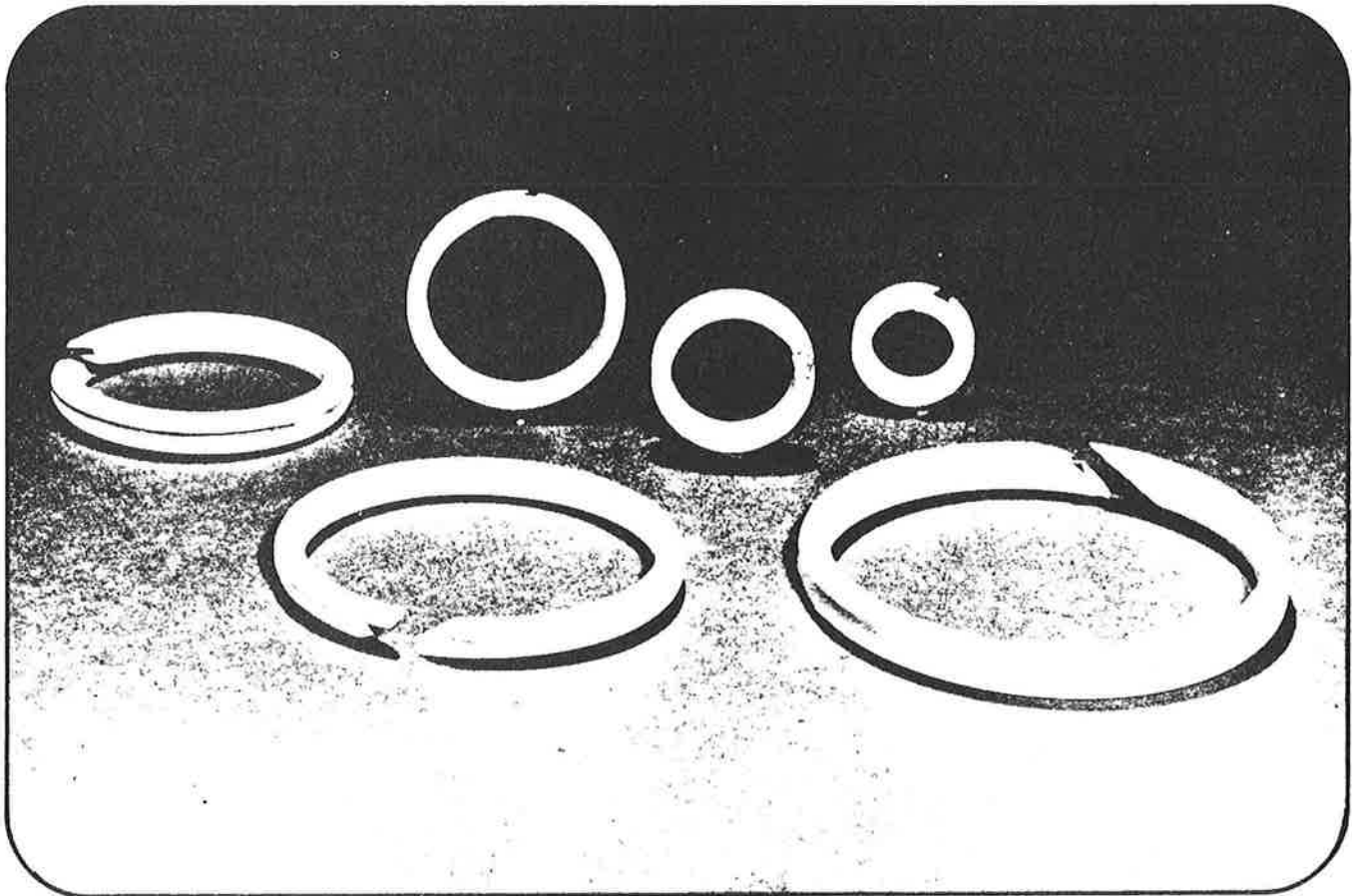
COLOR:

NATURAL — also available, RED, BLACK or BLUE

TOLERANCE:

Unless otherwise specified, decimals $\pm .010$, Angular $\pm 3^\circ$.

Teflon is a registered Trademark for DuPont's family of fluorocarbon resins.



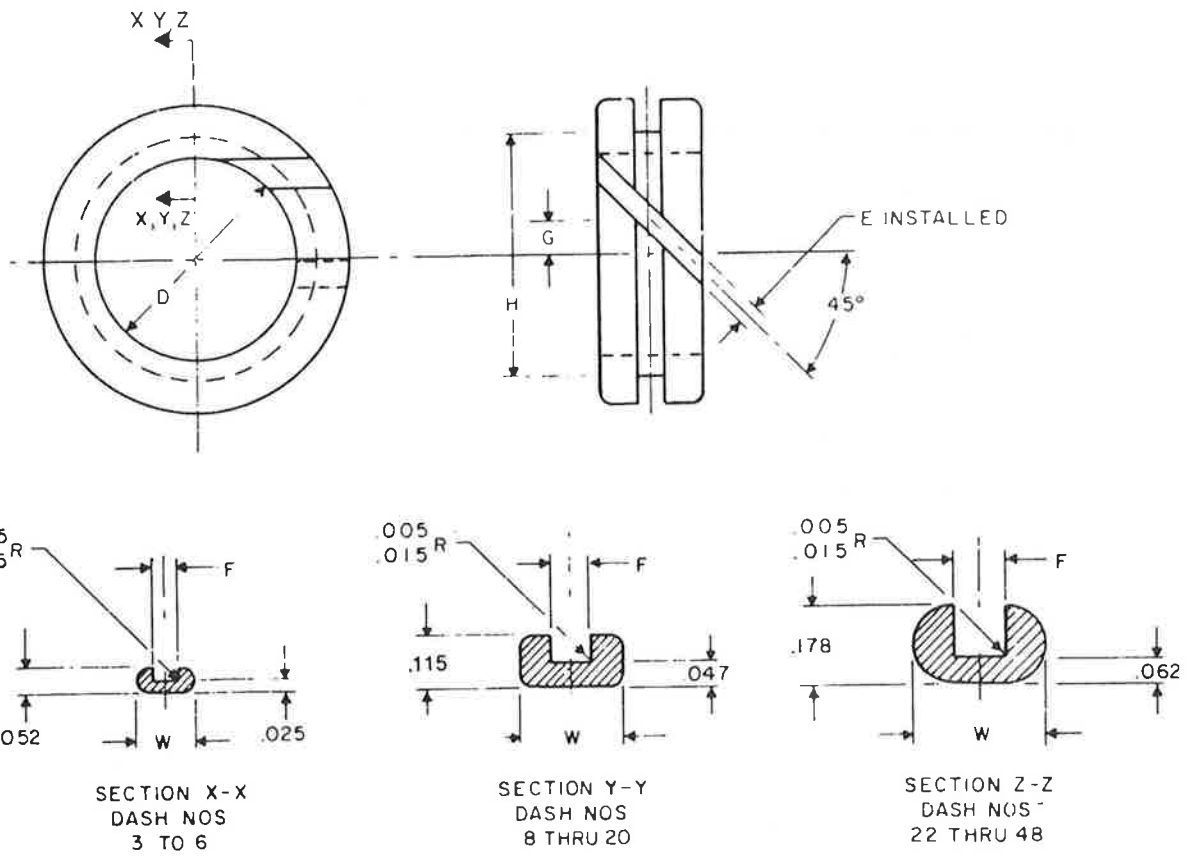


Table I

Part Number	D Installed Dia.	Structural Hole Dia. (Ref.)	E Max. Installed	G	H Dia.	Section	Nominal Weight #/1000	W		
								X-X	Y-Y	Z-Z
NMC557-3	188	234	030	015	.241		16			
NMC557-4	250	296	030	046	.303	X-X	21			
NMC557-6	.375	422	030	.093	.429		31			
NMC557-8	500	594	047	150	.601		1.76			
NMC557-10	.625	719	047	182	.726		2.13			
NMC557-12	.750	844	047	.213	.851		2.49			
NMC557-14	875	969	047	244	.976	Y-Y	2.86			
NMC557-16	1.000	1.094	047	.275	1.101		3.23			
NMC557-18	1.125	1.219	047	401	1.226		3.60			
NMC557-20	1.250	1.344	047	.488	1.351		3.96			
NMC557-22	1.375	1.500	.062	.531	1.507		4.58			
NMC557-24	1.500	1.625	.062	576	1.632		4.96			
NMC557-28	1.750	1.875	.062	732	1.882		5.72			
NMC557-32	2.000	2.125	.062	.820	2.132		6.48			
NMC557-36	2.250	2.375	.062	.908	2.382	Z-Z	7.24			
NMC557-40	2.500	2.625	.062	.997	2.632		8.00			
NMC557-44	2.750	2.875	.062	1.085	2.882		8.76			
NMC557-46	2.875	3.000	.062	1.130	3.007		9.14			
NMC557-48	3.000	3.125	.062	1.173	3.132		9.52			

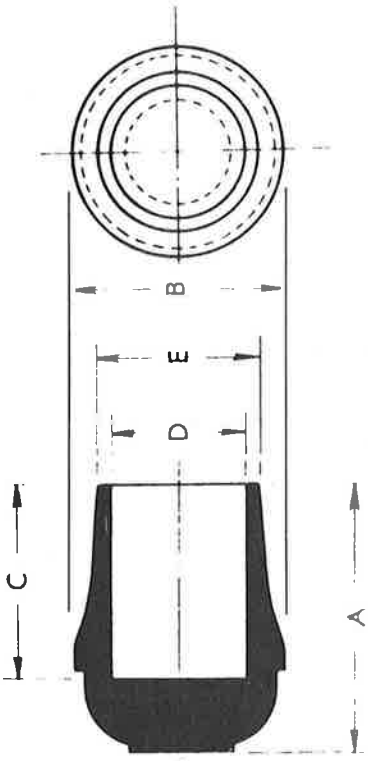
Table II

Style	F	Sheet Thickness (Ref.)	W			
			X-X	Y-Y	Z-Z	
A	.070	.025	.051	.135	.215	.230
	.060					
B	.100	.064	.081	.150	.240	.260
	.090					
C	.144	.091	.125	.177	.240	.300
	.134					

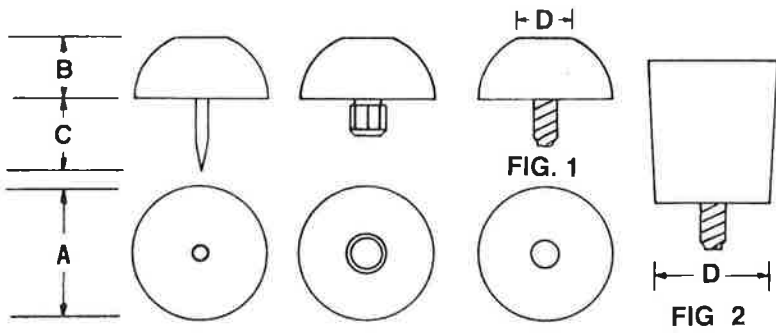
Conforms to NAS 557

CRUTCH TIPS - TYPE CT

PART NO.	A	B	C	D	E
CT-15	1-9/32	25/32	1-1/16	3/8	1/2
CT-16	1-3/8	7/8	1-1/32	1/2	5/8
CT-17	1-5/16	15/16	1	19/32	23/32
CT-18	1-3/8	1-1/8	1	23/32	7/8
CT-19	1-11/32	1-1/4	1-1/16	13/16	31/32
CT-20	1-3/8	1-3/8	1	15/16	1-3/32



TACK & MACHINE SCREW BUMPERS

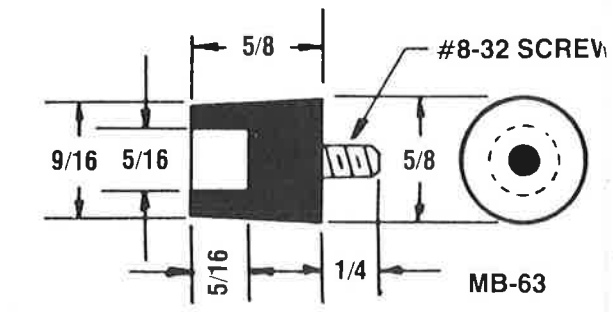


TYPE "TB" TACK BUMPER

PART NO.	A	B	C
TB-37	3/8	7/32	3/8 +
TB-50	1/2	1/4	3/8 +
TB-62	5/8	5/16	3/8 +
TB-75	3/4	3/8	3/8 +
TB-87	7/8	7/16	11/32 +

TYPE "PB" BUMPER WITH KNURLED PIN

PART NO.	A	B	C
PB-47	7/16	1/4	3/16
PB-53	1/2	1/4	3/16
PB-64	5/8	5/16	3/16
PB-75	3/4	3/8	3/16



TYPE "MB" MACHINE SCREW BUMPER

PART NO.	A	B	C	SCREW	D	FIG
MB-47	7/16	1/4	1/4	6/32	—	1
MB-50	1/2	1/4	1/4	6-32	3/16	1
MB-51	1/2	1/4	1/4	8-32	3/16	1
MB-62	5/8	5/16	1/4	8/32	5/16	1
MB-75	3/4	3/8	1/4	8/32	5/16	1
MB-87	7/8	7/16	1/2	10-32	7/16	1
MB-100	1	1/2	1/2	10-32	1/2	1
MB-112	1-1/8	1/2	1/2	10-32	3/8	1
MB-103	1	5/8	1/4	6-32	5/8	2
MB-104	1	5/8	1/4	8-32	5/8	2

SELF-ADHERING BUMPERS AND FEET: "MOLDED SHAPES"

Self-adhering bumpers and feet allow significant savings in assembly time and costs. Frequently they are used on all sorts of office equipment, computer peripherals, appliances, clocks, and speakers. They may also be used as spacers or cushions for cabinet doors, lids, and drawers.

Made from a resilient polyurethane, these molded shapes combine excellent skid and abrasion resistance with an aggressive, permanent adhesive that adheres to a wide variety of substrates.

Adhesion levels will vary with different surfaces, cleanliness, and application. Tests conducted with these substrates illustrate adhesion levels attained:

Stainless Steel:	57 lbs/inch ²	High-density polyethylene:	34 lbs/inch ²
Aluminum:	48 lbs/inch ²	Polystyrene:	51 lbs/inch ²
Glass:	60 lbs/ inch ²	ABS Plastic:	48 lbs/inch ²
Acrylic Plastic:	60 lbs/ inch ²	Polypropylene:	49 lbs/inch ²
	Polycarbonate Plastic:	56 lbs/inch ²	

Temperature Range is from -30°F to +150°F (Intermittent to +225°F)

To obtain maximum adhesion, surfaces should be clean, dry, and well-unified. (Low strength cleaners, such as isopropyl alcohol or heptane, should be used to prepare the surface.) A firm pressure when applied will also increase bond strength. Application temperature should be between 40°F and 125°F. Allow a 24-hour dwell period before exposing the bond to any significant shear or peel forces. After this time the adhesive has achieved about 90% of its ultimate bond strength.








PHYSICAL PROPERTIES

The polyurethane is free of plasticizers which might mar or stain a surface. Prolonged exposure to UV light will cause some discoloration, however the physical properties remain unaffected.













<u>Property</u>	<u>Test Method</u>	<u>RESULTS</u>	
		<u>SJ-5000, SJ-5500, SJ-5700 series</u> <u>Colored Bumpons™</u>	<u>SJ-5300</u> <u>Transparent Bumpons™</u>
Hardness:	(ASTM D-2240)	65 ± 5 Duro	70 - 80 Duro
Resilience:	(ASTM D-2632)	28 - 34%	3 - 6%
Tensile Strength:	(ASTM D-412, Die "A")	600 lbs/inch ²	740 lbs/inch ²
Elongation:	(ASTM D-412, Die "A")	100%	65%
Abrasion Resistance: (Taber H18, 1kg)	(ASTM-C501-66)	1.7 - 1.9 grams/1000 cycles	.13 grams/1000 cycles
Kinetic coefficient of friction: M _k	(ASTM D-1894-63)	0.8 - 1.3	1.0 - 2.2

(Friction is independent of area of contact between solids. It is proportional to the load between solid surfaces. If load is doubled, the force required to cause surface sliding is also doubled. Sliding force = M_k × weight.)

SELF-ADHERING POLYURETHANE BUMPERS: STANDARD MOLDED SHAPES: RECTANGULAR & SQUARE

PART NUMBER	DIMENSIONS	SHAPE		AVAIL. COLORS	PACKAGING FORMAT
SJ-5018	Width: .50 12,7 Height: .23 5,8	"Tapered Square"		white grey brown black	8" x 10" pad kiss-cut 3000 pcs/ctn
SJ-5518	Width: .50 12,7 Height: .23 5,8			white grey brown black	8 pcs on 1 row, separated by perforations. 3000 pcs/ctn
SJ-5007	Width: .40 10,2 Height: .10 2,5	"Tapered Square"		black only	9" x 12" pad kiss-cut 3000 pcs/ctn
SJ-5008	Width: .50 12,7 Height: .12 3,1	"Tapered Square"		white grey brown black	8" x 10" pad kiss-cut 3000 pcs/ctn
SJ-5508	Width: .50 12,7 Height: .12 3,1			white grey brown black	8 pcs on 1 row, separated by perforations. 3000 pcs/ctn
SJ-5023	Width: .81 20,5 Height: .30 7,6	"Tapered Square"		white grey brown black	4" x 9" pad kiss-cut 1000 pcs/ctn
SJ-5523	Width: .81 20,5 Height: .30 7,6			white grey brown black	4 pcs on 1 row, separated by perforations. 1000 pcs/ctn
SJ-5023F	Same as above, except with foam backing for increased adhesion to textured surfaces.			black only	4" x 9" pad kiss-cut 1000 pcs/ctn
SJ-5514	Width: .81 20,6 Height: .52 13,1	"Square Truncated Cone"		white grey brown black	4 pcs. on 1 row separated by perforations. 1000 pcs/ctn
SJ-5705	Width: 1.25 31,75 Height: .24 6,1	"Tapered Square"		black only	Individual parts 1000 pcs/ctn
SJ-5510	Width: .50 12,7 Height: .15 3,8	"50-Ft Strip with radius edges"		white grey brown black	five (50-ft.) rolls per carton

SELF-ADHERING POLYURETHANE BUMPERS: STANDARD-MOLDED SHAPES: CIRCULAR

PART NUMBER	DIMENSIONS	SHAPE		AVAIL. COLORS	PACKAGING FORMAT
SJ-5003	Width: .44 11,1 Height: .20 5,0	"Hemisphere"		white grey brown black	8" x 7" pad kiss-cut 3000 pcs/ctn
SJ-5012	Width: .50 12,7 Height: .14 3,5	"Cylindrical"		white grey brown black	8" x 7" pad kiss-cut 3000 pcs/ctn
SJ-5001	Width: .50 12,7 Height: .14 3,5	"Cylindrical" w/dimple for skid resistance		black only	5" x 8" pad kiss-cut 3000 pcs/ctn
SJ-5744	Width: .75 19,1 Height: .16 4,1	"Cylindrical"		black only	4" x 10" pad kiss-cut 2600 pcs/ctn
SJ-5027	Width: .63 16,0 Height: .31 7,9	"Hemisphere"		white grey brown black	5" x 8" pad kiss-cut 1000 pcs/ctn
SJ-5017	Width: .75 19,0 Height: .38 9,6	"Hemisphere"		white grey brown black	4" x 10" pad kiss-cut 1000 pcs/ctn
SJ-5009	Width: .88 22,3 Height: .40 10,1	"Circular with a Recess"		white grey brown black	3" x 8" pad kiss-cut 1000 pcs/ctn
SJ-5532	Width: 1.88 47,7 Height: .66 16,7	"Circular with a Recess"		white grey brown black	Individual pieces 100 pcs/ctn
CLEAR ONLY POLYURETHANE SHAPES					
SJ-5302	Width: .312 7,9 Height: .085 2,2	"Bell-Shaped"		clear	8" x 18" pad kiss-cut 3000 pcs/ctn
SJ-5306	Width: .375 9,5 Height: .15 3,8	"Hemisphere"		clear	6" x 9" pad kiss-cut 3000 pcs/ctn
SJ-5303	Width: .44 11,1 Height: .20 5,0	"Hemisphere"		clear	8" x 7" pad kiss-cut 3000 pcs/ctn
SJ-5312	Width: .50 12,7 Height: .14 3,5	"Cylindrical"		clear	8" x 7" pad kiss-cut 3000 pcs/ctn

SELF-ADHERING CUSHIONS, FEET, & PROTECTIVE STRIPS

“DIE-CUT” SHAPES

Often the most economical method of making special sizes is to cut them from flexible sheet material. Series #6100 polyurethane is non-staining, highly-resilient bumper material with a permanent pressure-sensitive acrylic adhesive backing. Properly applied, the bond strength increases with age. It is intended for interior applications, and prolonged exposure to UV light will cause discoloration; however, the physical properties remain unaffected.

Temperature Range: -30°F to +150°F (Intermittent to +225°F)

Series #6100-65: For those applications where abrasion resistance outweighs cushioning or shock requirements. All material is 65 durometer hardness. Also available with a rubber based adhesive.

Series #6100-32: For those applications where a balance of deformation and cushioning must be achieved. All material is 32 durometer hardness.

“Cellular Products Series”: For those applications where cushioning is the only concern. This series includes the following materials:

Series #1000:	Foamex high-density polyurethane foam
Series #2200:	Closed-cell Neoprene Sponge Rubber
Series #500:	Low-density polyurethane foam

Small diameter bumpers are manufactured using high-capacity, computer-controlled equipment which creates a high degree of repeatability. Parts may be cut individually, “kiss-cut” on a liner, or supplied as several bumpers on a common pad. Shapes may be round, square, rectangular, or have a custom profile. The round disc is most frequently used since there are no corners to lift or snag, and they are the most economical to produce. In addition, long and narrow strips are also available.

Adhesion levels for these materials will vary with different substrates, cleanliness, and integrity of application. An average value to anticipate is:

Series #6100-65:	50 lbs./inch ²
Series #6100-32:	30 lbs./inch ²
Cellular Series:	30 lbs./inch ²

(Based upon tests made per ASTM D-1000; 24-hr dwell: 1” overlap @ 12”/minute)

Where possible, recessed applications enhance the ability to resist shear forces. To achieve maximum adhesion, the surfaces should be clean, dry, and well-unified. (Low strength cleaners, such as isopropyl alcohol or heptane, should be used to prepare the surface. A firm pressure, when applied, will further increase bond levels. Allow a 24-hour dwell period before exposing the bond to any significant shear or peel forces. After this time the adhesive has achieved about 90% of its ultimate bond strength.

MATERIALS & SPECIFICATIONS

Series #6100-65: Resilient, solid polyurethane, 70 duro, with aggressive acrylic-based adhesive backing is non-staining and contains no plasticizers. This series provides optimum resistance to deformation and abrasion-resistance. It has a high coefficient of friction.

Hardness: 65 duro. Tensile Strength: 600 lbs./inch². Elongation: 100%
Kinetic coefficient of friction: .08 to 1.3

Thicknesses: 1/32" (±.006"); 1/16" (±.011"); 1/8" (±.016")
Colors: Either black or brown. Also available with rubber-based adhesive (#5800-70)

Series #6100-32: A 32 duro polyurethane foam with acrylic-based adhesive backing. Is non-staining and contains no plasticizers. This series provides increased adhesion to textured surfaces.

Hardness: 32-40 duro. Tensile Strength: 120 lbs./inch². Elongation: 100%
Thicknesses: 1/16" (±.010"); 1/8" (±.015"); 1/4" (±.020"); Black color only.

Series #2017 "Thin Gauge": A polyurethane protective film, .014" thick, with an acrylicbased adhesive backing. It offers outstanding resistance to abrasion, puncture, or tearing. By itself, the surface is slippery; however when positioned face-to-face with itself (only in a dry environment), this film provides one of the highest friction surfaces available.

Thickness: .014" (± .002") Hardness: 65 - 75 duro

"Cellular Products" Series

Series #1000 Foamex: A high-density, polyurethane foam with outstanding resilience and resistance to compression set. Contains no plasticizers and is non-staining. (This foam should not be used where abrasion, scraping, or tearing action may exist.) Black Color.

Thickness:	Density	
1/32"	30 lbs/ft ³	(Compressions set: Less than 5%)
1/16", 3/32", 1/8"	20 lbs/ft ³	
3/16", 1/4", 3/8", 1/2"	15 lbs/ft ³	(Thickness Tolerances: ± 10%)

Series #2200 Neoprene Sponge: Closed-cell Neoprene sponge rubber provides an economical option for cushioning pads. For light-duty applications where concern for abrasion, marking, or compression-set are not a factor. Black Color (Thickness tolerance it +15%, -10%)

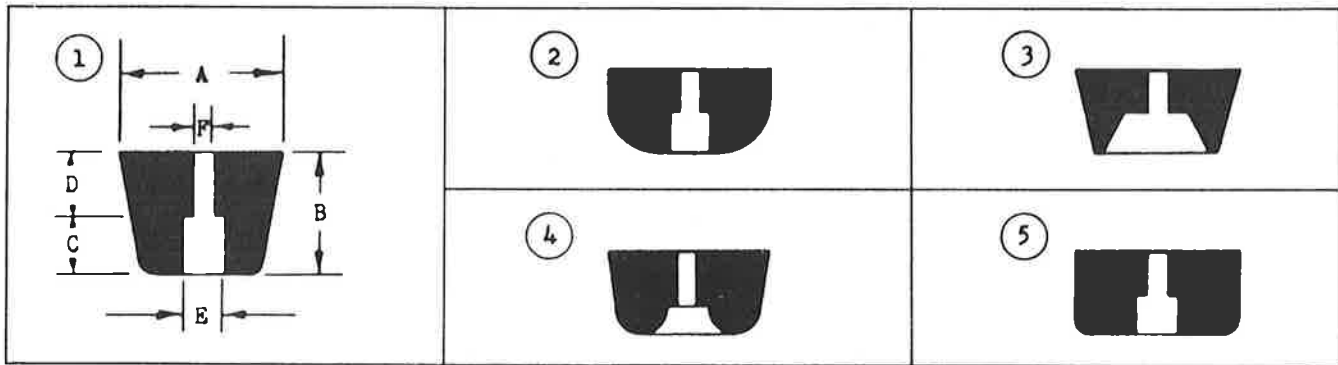
#2219 (Soft) 10 - 16 lbs/ft³ **#2218 (Medium) 12 - 20 lbs/ft³** **#2216 (Firm) 18 - 28 lbs/ft³**
Thicknesses from 1/16" include: 1/8", 3/16", 1/4", 3/8", 1/2", 5/8", 3/4", 1" & over

Series #500 Polyurethane Foam: A low-denisty, open-cell foam for only the lightest cushioning applications. Available in a 2-lb. or a 4-lb density. This polyester-based foam resists deflection, has good tensile strength, but may suffer from compression-set. A polyether version of 2 lb. density is also available where compression-set is the primary factor.

#580:	2-lb/ft ³ density, polyester-based, charcoal gray	(Thickness tolerances are +15%, -10%.) (1/8" thru 4" thicknesses)
#582:	4-lb/ft ³ density, polyester-based, charcoal gray	
#645:	1.8-lb/ft ³ density, polyether-based, light gray	

Adhesive Backing: A products within the "Cellular Series" are available with a permanent acrylic-based, pressure sensitive adhesive backing.

RECESSED BUMPERS BY "B" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2061*	2	7/16	11,1	5/32	4,0	3/32	2,4	1/16	1,6	1/4	6,4	5/32	4,0
206	2	3/8	9,5	3/16	4,8	3/32	2,4	3/32	2,4	3/16	4,8	5/64	2,0
2073*	5	1/2	12,7	3/16	4,8	3/32	2,4	3/32	2,4	7/32	5,6	1/8	3,2
2075	5	1/2	12,7	7/32	4,8	5/32	3,2	1/16	1,6	.275	7,0	.130	3,3
207*	2	1/2	12,7	1/4	6,4	1/8	3,2	1/8	3,2	1/4	6,4	1/8	3,2
2062	1	3/8	9,5	1/4	6,4	3/16	4,8	1/16	1,6	1/4	6,4	3/32	2,4
2076*	5	1/2	12,7	1/4	6,4	3/16	4,8	1/16	1,6	15/64	6,0	1/8	3,2
2093*	5	5/8	15,9	1/4	6,4	1/8	3,2	1/8	3,2	3/8	9,5	3/16	4,8
2194	3	15/16	23,8	1/4	6,4	3/32	2,4	5/32	4,0	1/2	12,7	5/16	7,9
2195	3	15/16	23,8	1/4	6,4	1/8	3,2	1/8	3,2	1/2	12,7	1/4	6,4
2613	3	15/32	11,9	1/4	6,4	1/8	3,2	1/8	3,2	17/64	6,7	1/8	3,2
2072	5	17/32	13,5	17/64	6,7	5/32	4,0	7/64	2,8	1/4	6,4	1/8	3,2
2087*	4	3/4	19,1	9/32	7,1	5/32	4,0	1/8	3,2	1/4	6,4	1/8	3,2
2092*	5	3/4	19,1	9/32	7,1	1/8	3,2	5/32	4,0	3/8	9,5	3/16	4,8
2184*	1	3/4	19,1	19/64	7,5	3/16	4,8	7/64	2,8	11/32	8,7	1/8	3,2
208	2	5/8	15,9	5/16	7,9	3/16	4,8	1/8	3,2	1/4	6,4	3/32	2,4
2071*	5	1/2	12,7	5/16	7,9	3/16	4,8	1/8	3,2	1/4	6,4	5/32	4,0
2081*	2	5/8	15,9	5/16	7,9	3/16	4,8	1/8	3,2	1/4	6,4	3/16	4,8
2088*	2	5/8	15,9	5/16	7,9	3/16	4,8	1/8	3,2	1/4	6,4	1/8	3,2
2616*	5	3/4	19,1	.312	8,0	.160	4,1	.152	3,9	3/8	9,5	.156	4,0
2945*	5	1/2	12,7	11/32	8,8	3/16	4,7	5/32	4,0	1/4	6,3	1/8	3,1
2196	4	15/16	23,8	11/32	8,7	3/16	4,8	5/32	4,0	3/8	9,5	3/16	4,8
2680	5	.510	12,9	.347	8,8	3/32	2,4	1/4	6,4	.210	5,3	.100	2,5
2941*	5	3/4	19,0	3/8	9,5	5/32	4,0	7/32	5,6	3/8	9,5	1/8	3,1
2085*	2	3/4	19,1	3/8	9,5	3/16	4,8	3/16	4,8	5/16	7,9	5/32	4,0
2095*	4	15/16	23,8	3/8	9,5	3/16	4,8	3/16	4,8	3/8	9,5	5/32	4,0
2806*	2	5/8	15,9	3/8	9,5	3/16	4,8	1/4	6,4	1/4	6,4	1/8	3,2
2813*	5	9/16	14,3	3/8	9,5	7/32	5,6	5/32	4,0	3/8	9,5	3/16	4,8

*Can be supplied with steel washer inserts

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
2198*	4	7/8	22,2	13/32	10,3	3/16	4,8	7/32	5,6	3/8	9,5	3/16	4,8
2083*	5	11/16	17,5	7/16	11,1	3/16	4,8	1/4	6,4	1/4	6,4	1/8	3,2
2084*	1	3/4	19,1	7/16	11,1	1/4	6,4	3/16	4,8	7/16	11,1	3/16	4,8
2086*	5	23/32	18,3	7/16	11,1	7/32	5,6	7/32	5,6	1/4	6,4	1/8	3,2
2953*	5	5/8	15,8	7/16	11,1	1/4	6,3	3/16	4,7	5/16	7,9	.199	5,1
209	2	13/16	20,7	1/2	12,7	1/4	6,4	1/4	6,4	5/16	7,9	5/32	4,0
2074*	5	1/2	12,7	1/2	12,7	3/16	4,8	5/16	7,9	1/4	6,4	5/32	4,0
2928*	5	1/2	12,7	1/2	12,7	.165	4,2	.335	8,6	.272	7,0	.185	4,7
2082*	1	5/8	15,9	1/2	12,7	1/4	6,4	1/4	6,4	5/16	7,9	5/32	4,0
2939	1	.630	16,1	1/2	12,7	.186	4,8	.314	8,1	5/16	7,9	.190	4,9
2089*	1	3/4	19,1	1/2	12,7	1/4	6,4	1/4	6,4	3/8	9,5	3/16	4,8
2091*	5	3/4	19,1	1/2	12,7	1/4	6,4	1/4	6,4	3/8	9,5	9/64	3,6
2094*	1	15/16	23,8	1/2	12,7	1/4	6,4	1/4	6,4	3/8	9,5	1/8	3,2
2197*	4	1	25,4	1/2	12,7	1/4	6,4	1/4	6,4	3/8	9,5	3/16	4,8
2814	1	7/8	22,2	1/2	12,7	13/32	10,3	3/32	2,4	3/8	9,5	3/16	4,8
2658*	5	15/32	11,9	17/32	13,5	11/32	8,7	3/16	4,8	1/4	6,4	.132	3,5
2950*	1	3/4	19,0	9/16	14,2	1/4	6,3	5/16	7,9	3/8	9,5	3/16	4,7
2090*	1	5/8	15,9	5/8	15,9	7/16	11,1	3/16	4,8	5/16	7,9	.147	3,7
2096*	1	15/16	22,8	5/8	15,9	7/16	11,1	3/16	4,8	7/16	11,1	7/32	5,6
2803*	1	5/8	15,9	5/8	15,9	5/16	7,9	5/16	7,9	5/16	7,9	5/32	4,0
2808*	2	1-11/16	42,9	5/8	15,9	3/8	9,5	1/4	6,4	3/4	19,1	1/4	6,4
2809*	5	1-1/2	38,1	5/8	15,9	11/32	8,7	9/32	7,1	3/4	19,1	5/16	7,9
2801*	5	5/8	15,9	3/4	19,1	15/32	11,9	9/32	7,1	11/32	8,7	11/64	4,4
2802*	1	5/8	15,9	3/4	19,1	1/4	6,4	1/2	12,7	5/16	7,9	.165	4,2
2804*	5	5/8	15,9	3/4	19,1	5/16	7,9	7/16	11,1	5/16	7,9	5/32	4,0
2805*	5	5/8	15,9	3/4	19,1	5/16	7,9	7/16	11,1	5/16	7,9	11/64	4,4
2807*	5	5/8	15,9	3/4	19,1	1/4	6,4	1/2	12,7	5/16	7,9	5/32	4,0
2815	4	3/4	19,1	3/4	19,1	17/32	13,5	7/32	5,6	13/32	10,3	5/32	4,0
2816	5	5/8	15,9	3/4	19,1	29/64	11,5	19/64	7,5	21/64	8,3	.175	4,4
2609*	5	3/4	19,1	.770	19,7	.230	5,9	.540	13,8	5/16	8,0	.125	3,2
2811*	5	15/16	23,8	15/16	23,8	9/16	14,3	3/8	9,5	3/8	9,5	3/16	4,8
2097*	2	1	25,4	1	25,4	5/8	15,9	3/8	9,5	5/16	7,9	5/32	4,0
2098*	5	1	25,4	1	25,4	9/16	14,3	7/16	11,1	3/8	9,5	7/32	5,6
2580*	2	1	25,4	1	25,4	5/8	15,9	3/8	9,5	5/16	7,9	5/32	4,0
2812*	5	1	25,4	1-1/4	31,8	5/8	15,9	5/8	16,0	1/4	6,4	1/8	3,2
2099*	2	1	25,4	1-1/2	38,1	5/8	15,9	7/8	22,2	5/16	7,9	5/32	4,0
2199*	1	1	25,4	2-1/4	57,2	1-3/8	34,9	7/8	22,2	5/16	7,9	5/32	4,0

*Can be supplied with steel washer inserts

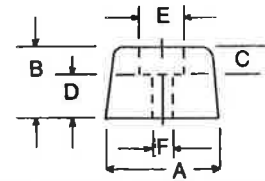
“TPR” RECESSED BUMPERS: (THERMOPLASTIC RUBBER)

Available in either black or white colors, this 75 durometer TPR Rubber is resilient, non-marking, and non-staining.

PART NUMBER	A		B		C		D		E		F	
	O.D.		Height		Recess Depth		Hole Depth		Recess Diameter		Hole Diameter	
82075	.39	9.9	.20	5.0	.07	1.8	.13	3.3	.30	7.6	.13	3.3
82070	.88	22.3	.20	5.0	.09	2.2	.11	2.8	.50	12.7	.16	4.1
82420	.50	12.7	.25	6.3	.13	3.3	.12	3.0	.28	7.1	.12	3.0
82421	.50	12.7	.25	6.3	.13	3.3	.12	3.0	.28	7.1	.15	3.8
82422	.75	19.0	.28	7.1	.12	3.0	.16	4.1	.25	6.3	.13	3.3
82425	.75	19.0	.28	7.1	.12	3.0	.16	4.1	.38	9.6	.17	4.3
82054	.81	20.5	.31	7.9	.12	3.0	.19	4.8	.50	12.7	.16	4.1
82447	1.00	25.4	.31	7.9	.18	4.6	.13	3.3	.60	15.2	.18	4.6
82426	.75	19.0	.41	10.4	.25	6.3	.16	4.1	.31	7.9	.16	4.1
82427	.75	19.0	.41	10.4	.10	2.5	.31	7.9	.33	8.4	.09	2.2
82448	1.03	26.1	.43	10.9	.27	6.8	.16	4.1	.59	15.0	.17	4.3
82423	.63	16.0	.44	11.1	.19	4.8	.25	6.3	.33	8.4	.16	4.1
82428	.63	16.0	.63	16.0	.32	8.1	.31	7.8	.31	7.9	.17	4.3
82429	.63	16.0	.63	16.0	.32	8.1	.31	7.8	.38	9.6	.19	4.8
82430	.63	16.0	.75	19.0	.23	5.8	.52	13.2	.31	7.9	.16	4.1

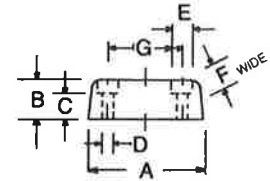
"RIGID" POLYETHYLENE RECESSED BUMPERS

Tough black polyethylene recessed bumpers for those applications where cushioning is not required. These rigid feet provide excellent resistance to impact; they are non-marking, and they allow a slippery release surface.



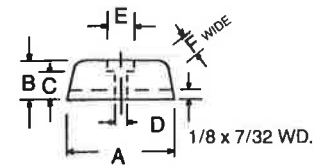
SINGLE HOLE - ROUND BUMPERS

PART NUMBER	A		B		C		D		E		F	
82772	.50	12,7	.25	6,3	.16	4,0	.09	2,3	.25	6,3	.14	3,5
82943	.75	19,0	.38	9,6	.13	3,3	.25	6,3	.38	9,6	.16	4,0
82965	.88	22,3	.50	12,7	.12	3,0	.38	9,6	.38	9,6	.18	4,5
82962	.88	22,3	.63	16,0	.44	11,2	.19	4,8	.38	9,6	.19	4,8
82944	1.02	25,9	.63	16,0	.32	8,1	.31	7,8	.53	13,4	.20	5,1
82946	1.13	28,7	.75	19,0	.43	10,9	.31	7,8	.53	13,4	.20	5,1
82966	.88	12,7	.50	22,3	.12	3,0	.38	9,6	.38	9,6	.16	4,0
82967	1.13	28,7	1.00	25,4	.43	10,9	.56	14,2	.47	12,0	.25	6,3



TWO-HOLE RECTANGULAR BUMPERS

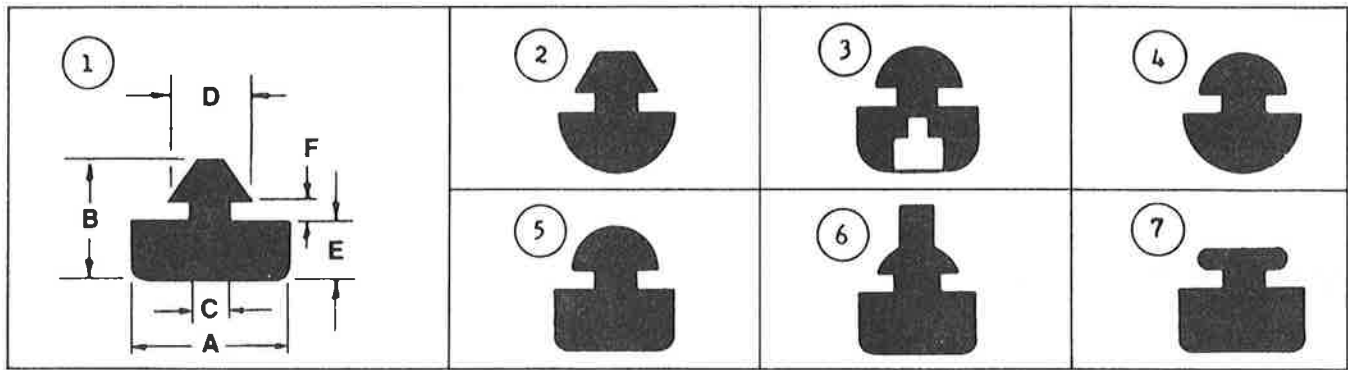
PART NUMBER	A		B		C		D		E		F		G	
82960	1.50	38,1	.50	12,7	.25	6,3	.14	3,5	.25	6,3	.50	12,7	.75	19,0
82961	1.75	44,4	.56	14,2	.36	9,1	.16	4,0	.35	8,9	.63	16,0	.88	22,3



ONE-HOLE RECTANGULAR BUMPERS

PART NUMBER	A		B		C		D		E		F	
82975	1.22	30,1	.54	13,7	.41	10,4	.14	3,5	.31	7,8	.50	12,7

BUTTON BUMPERS BY "E" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4273	5	.234	6,0	.165	4,2	.125	3,2	.218	5,6	.031	0,8	.094	2,4
2618	2	.200	5,1	.165	4,2	.062	0,7	.100	2,6	.048	1,2	.070	1,8
3161	5	5/16	7,9	3/16	4,8	1/8	3,2	3/16	4,8	3/64	1,2	1/32	0,8
3058	1	17/32	13,5	17/64	6,8	15/64	6,0	19/64	7,5	1/16	1,6	3/64	1,2
3066	7	3/8	9,5	3/16	4,8	1/4	6,4	5/16	7,9	1/16	1,6	1/16	1,6
3169	1	3/8	9,5	1/4	6,4	1/4	6,4	5/16	7,9	1/16	1,6	.070	1,8
3171	1	1/2	12,7	17/64	6,7	9/32	7,1	3/8	9,5	1/16	1,6	3/64	1,1
2682	1	1/2	12,7	19/64	7,5	1/4	6,4	1/2	12,7	1/16	1,6	1/16	1,6
2906	1	.475	12,2	.342	8,7	.125	3,2	.145	3,7	.062	1,6	.235	6,0
3188	5	5/16	7,9	7/32	5,6	1/8	3,2	3/16	4,8	1/16	1,6	1/16	1,6
3266	7	3/8	9,5	3/16	4,8	1/4	6,4	5/16	7,9	1/16	1,6	1/32	0,8
2935	7	3/8	9,5	7/32	5,6	1/4	6,3	5/16	7,9	1/16	1,5	1/16	1,5
3269	1	3/8	9,5	17/64	6,7	1/4	6,4	5/16	7,9	1/16	1,6	.090	2,3
4081	1	9/16	14,3	1/4	6,4	9/32	7,1	3/8	9,5	1/16	1,6	1/16	1,6
4182	1	5/8	15,9	9/32	7,1	3/16	4,8	7/32	5,6	1/16	1,6	1/32	0,8
2668	2	1/4	6,4	9/64	3,6	1/8	3,2	3/16	4,8	.077	2,0	1/32	0,8
4267	6	1/4	6,4	.277	7,0	.125	3,2	3/16	4,8	.077	2,0	.032	0,8
3070	7	3/8	9,5	7/32	5,6	1/4	6,4	5/16	7,9	5/64	2,0	1/16	1,6
3174*	1	5/16	7,9	1/4	6,4	3/16	4,8	1/4	6,4	5/64	2,0	1/16	1,6
2621	2	1/4	6,4	3/8	9,5	.125	3,2	.187	4,8	.093	2,4	3/32	2,4
3062	1	3/8	9,5	1/4	6,4	1/4	6,4	5/16	7,9	3/32	2,4	3/64	1,2
3064	2	7/16	11,1	19/64	7,5	15/64	6,0	19/64	7,5	3/32	2,4	3/64	1,2
3069†		5/16	7,9	5/16	7,9	1/8	3,2	3/16	4,8	3/32	2,4	1/32	0,8
3170†		5/16	7,9	.354	9,0	1/8	3,2	3/16	4,8	3/32	2,4	.075	1,9
3265	6	1/4	6,4	15/32	11,9	1/8	3,2	7/32	5,6	3/32	2,4	.040	1,0
4068	5	7/16	11,1	17/64	6,7	3/16	4,8	1/4	6,4	3/32	2,4	5/64	2,0
2944	1	7/16	11,1	17/64	6,8	1/4	6,3	5/16	7,9	3/32	2,4	3/64	1,2
4189	1	5/8	15,9	1/4	6,4	3/8	9,5	29/64	11,5	3/32	2,4	.040	1,0

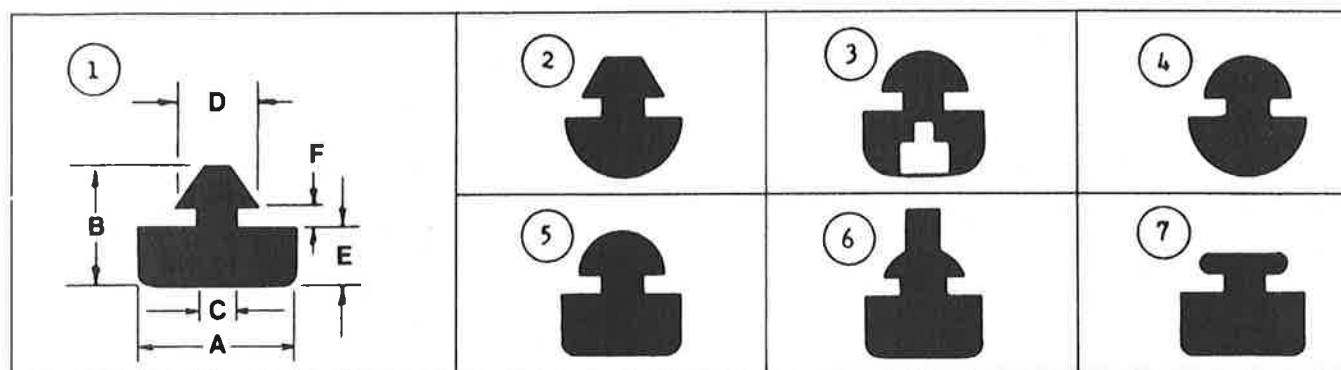
*Indicates inserting hole in base and stem.

†See special shape

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4266*	1	3/8	9,5	3/8	9,5	17/64	6,7	21/64	8,3	3/32	2,4	3/32	2,4
4288	1	3/8	9,5	17/64	6,8	5/32	4,0	1/4	6,4	3/32	2,4	1/16	1,6
4269	1	7/32	5,6	.210	5,3	.120	3,0	.156	4,0	.100	2,5	.060	1,5
2659	2	5/16	7,9	15/32	11,9	3/16	4,8	15/64	6,0	7/64	2,8	1/16	1,6
1163	1	3/4	19,1	9/16	14,3	.480	12,2	37/64	14,7	7/64	2,8	.070	1,8
3056	1	17/32	13,5	5/16	7,9	15/64	6,0	19/64	7,5	7/64	2,8	3/64	1,2
4192*	1	1/2	12,7	19/64	7,5	1/4	6,4	3/8	9,5	7/64	2,8	3/64	1,2
1160	1	3/4	19,1	1/2	12,7	.480	12,2	9/16	14,3	1/8	3,2	.050	1,3
1164	1	3/4	19,1	9/16	14,3	.480	12,2	9/16	14,3	1/8	3,2	.100	2,5
2902	7	.375	9,6	.250	6,4	.250	6,4	.312	8,0	.125	3,2	.032	0,8
2911	1	1.250	32,0	.656	16,8	.312	8,0	.406	10,4	.125	3,2	.281	7,2
3061	1	3/8	9,5	9/32	7,1	3/16	4,8	1/4	6,4	1/8	3,2	3/64	1,2
3065	2	7/16	11,1	11/32	8,7	1/4	6,4	5/16	7,9	1/8	3,2	1/16	1,6
3072	1	1/2	12,7	21/64	8,3	9/32	7,1	3/8	9,5	1/8	3,2	3/64	1,2
3163	1	.437	11,2	.296	7,6	.250	6,4	.312	8,0	.125	3,2	.046	1,1
3164*	S	7/16	11,1	19/64	7,5	1/4	6,4	5/16	7,9	1/8	3,2	1/16	1,6
3166	7	3/8	9,5	5/16	8,0	1/4	6,4	5/16	7,9	1/8	3,2	1/8	3,2
3173*	1	1/2	12,7	7/16	11,1	3/16	4,8	17/64	6,8	1/8	3,2	.050	1,3
3175	7	3/8	9,5	1/4	6,4	1/4	6,4	3/8	9,5	1/8	3,2	1/16	1,6
3176	1	3/8	9,5	13/32	10,3	1/4	6,4	9/32	7,1	1/8	3,2	3/64	1,2
3177	7	3/8	9,5	1/4	6,4	1/4	6,4	5/16	7,9	1/8	3,2	1/32	0,8
3178	1	3/8	9,5	13/32	10,3	1/4	6,4	19/64	7,5	1/8	3,2	1/16	1,6
3179*	1	3/8	9,5	25/64	9,9	11/64	4,4	1/4	6,4	1/8	3,2	7/64	2,8
3264*	S	7/16	11,1	7/64	6,7	1/4	6,4	5/16	7,9	1/8	3,2	.040	1,0
4061	1	3/8	9,5	5/16	7,9	3/16	4,8	1/4	6,4	1/8	3,2	1/16	1,6
4062	1	3/8	9,5	5/16	7,9	1/4	6,4	5/16	7,9	1/8	3,2	1/16	1,6
4063	2	3/8	9,5	1/4	6,4	5/32	4,0	1/4	6,4	1/8	3,2	1/16	1,6
4065*	2	3/8	9,5	7/16	11,1	3/16	4,8	17/64	6,7	1/8	3,2	3/64	1,2
4066†		7/16	11,1	1/2	12,7	1/4	6,4	3/8	9,5	1/8	3,2	1/16	1,6
4067	2	7/16	11,1	21/64	8,3	15/64	6,0	9/32	7,1	1/8	3,2	3/64	1,2
4071	1	1/2	12,7	3/8	9,5	3/16	4,8	1/4	6,4	1/8	3,2	1/16	1,6
4078	1	1/2	12,7	13/32	10,3	1/4	6,4	3/8	9,5	1/8	3,2	1/16	1,6
4083	7	5/8	15,9	9/32	7,1	13/32	10,3	17/32	13,5	1/8	3,2	3/32	2,4
4161	1	3/8	9,5	11/32	8,7	3/16	4,8	1/4	6,4	1/8	3,2	3/32	2,4
2938	5	9/16	14,2	23/64	9,2	9/32	7,2	3/8	9,5	1/8	3,1	5/64	2,0
4168	1	1/2	12,7	5/16	7,9	1/4	6,4	5/16	7,9	1/8	3,2	3/64	1,2
4184	1	5/8	15,9	11/32	8,7	15/64	6,0	5/16	7,9	1/8	3,2	.040	1,0
4187	1	5/8	15,9	5/16	7,9	5/16	7,9	7/16	11,1	1/8	3,2	3/64	1,2

*Indicates inserting hole in base and stem
**Insert hole 3/16 Dia X 11/16 deep
†See special shape

BUTTON BUMPERS BY "E" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4193	1	1/2	12,7	5/16	7,9	3/8	9,5	33/64	13,1	1/8	3,2	1/16	1,6
4194*	1	1/2	12,7	1/2	12,7	1/4	6,4	25/64	9,9	1/8	3,2	1/4	6,4
4263	6	.380	9,7	.720	18,3	.170	4,3	.270	6,9	.125	3,2	.050	1,3
4268**	1	1/2	12,7	.844	21,4	.348	8,8	.438	11,1	1/8	3,2	.531	13,5
2949	5	1/2	12,7	11/32	8,8	1/4	6,3	5/16	7,9	1/8	3,1	1/8	3,1
4271	1	1/2	12,7	13/32	10,3	3/16	4,8	1/4	6,4	1/8	3,2	3/32	2,4
2959	5	17/32	13,6	13/32	10,4	1/4	6,3	11/32	8,8	1/8	3,1	1/8	3,1
4279*	2	1/2	12,7	1/2	12,7	17/64	6,7	11/32	8,7	1/8	3,2	1/16	1,6
2640*	1	7/8	22,2	1/2	12,7	.531	13,6	11/16	17,5	1/8	3,2	.047	1,2
3189*	2	7/16	11,1	11/32	8,7	7/32	5,6	9/32	7,1	9/64	3,6	1/16	1,6
4283	6	9/16	14,3	9/16	14,3	1/4	6,4	3/8	9,5	9/64	3,6	1/16	1,6
2583	1	1/2	12,7	3/8	9,5	1/4	6,4	.350	8,9	.150	3,8	1/16	1,6
2649	2	13/16	20,6	.312	8,0	1/4	6,4	.312	8,0	.150	3,8	.030	0,8
306	3	3/8	9,5	17/64	6,7	3/16	4,8	17/64	6,7	5/32	4,0	.040	1,0
1166	1	3/4	19,1	11/32	8,7	.365	9,3	9/16	14,3	5/32	4,0	5/64	2,0
2607	6	1/2	12,7	1.125	28,8	1/4	6,4	11/32	8,7	.156	4,0	1/8	3,2
2633	6	1/2	12,7	1-1/8	20,6	1/4	6,4	11/32	8,7	5/32	4,0	1/8	3,2
3074*	1	1/2	12,7	7/16	11,1	1/4	6,4	5/16	8,0	5/32	4,6	1/32	0,8
3167	2	5/16	8,0	9/16	14,3	3/16	4,8	1/4	6,4	5/32	4,0	1/32	0,8
4077	6	1/2	12,7	9/16	14,3	1/4	6,4	5/16	7,9	5/32	4,0	3/32	2,4
4085	1	9/16	14,3	5/16	8,0	11/32	8,7	27/64	10,7	5/32	4,0	1/16	1,6
4086†		5/8	15,9	1-1/16	27,0	19/64	7,5	3/8	9,5	5/32	4,0	3/64	1,2
4162	1	3/8	9,5	11/32	8,8	1/4	6,4	5/16	8,0	5/32	4,0	1/16	1,6
4177	6	1/2	12,7	1/2	12,7	1/4	6,4	5/16	7,9	5/32	4,0	1/32	0,8
4188	6	5/8	15,9	1-1/8	28,6	19/64	7,5	3/8	9,5	5/32	4,0	1/8	3,2
4277	6	1/2	12,7	5/8	15,9	11/64	4,4	1/4	6,4	5/32	4,0	1/32	0,8
4286	5	1/2	12,7	11/32	8,8	1/4	6,4	5/16	7,9	5/32	4,0	1/16	1,6
2936	4	1/2	12,7	11/32	8,8	1/4	6,3	5/16	7,9	5/32	4,0	1/16	1,5

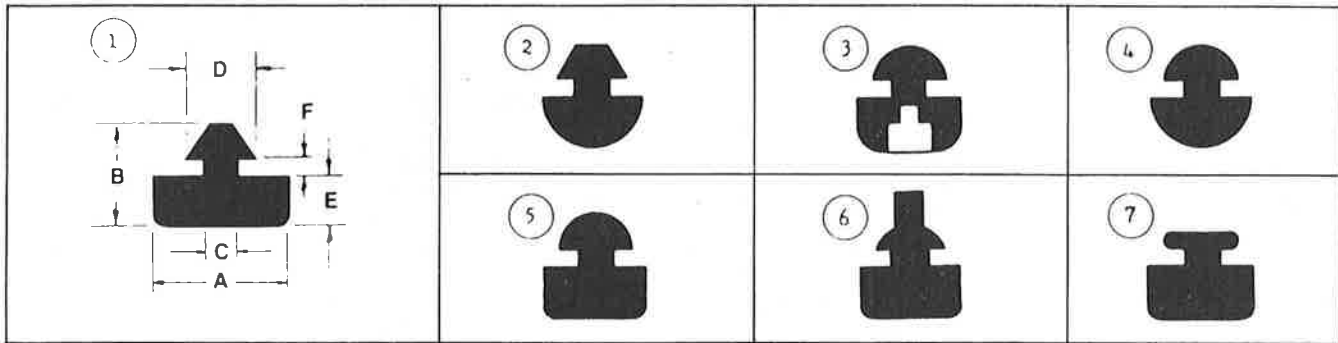
*Indicates inserting hole in base and stem

†See special shape

PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
6112	2	13/16	20,6	11/32	8,8	1/4	6,4	5/16	7,9	5/32	4,0	1/16	1,6
2930*	1	.310	7,9	.420	10,8	.170	4,4	.218	5,6	.156	4,0	.190	4,9
2918*	3	.380	9,7	.430	11,0	.188	4,8	.270	6,9	.190	4,1	.055	1,4
3182*	6	5/16	8,0	13/32	10,3	9/64	3,6	1/4	6,4	11/64	4,4	1/16	1,6
4089*	6	7/8	22,2	25/32	19,8	7/32	5,6	11/32	8,7	11/64	4,4	1/8	3,2
2606	6	.625	16,0	1.111	28,5	.296	7,6	.380	9,7	.185	4,7	.050	1,3
406	3	3/8	9,5	3/8	9,5	3/16	4,8	17/64	6,7	3/16	4,8	1/16	1,6
417	3	3/8	9,5	7/16	11,1	3/16	4,8	17/64	6,7	3/16	4,8	1/8	3,2
1161	1	3/4	19,1	9/16	14,3	.480	1,2	37/64	14,7	3/16	4,8	.050	1,3
1162	1	3/4	19,1	9/16	14,3	.480	1,2	37/64	14,7	3/16	4,8	.070	1,8
3063	1	7/16	11,1	23/64	9,1	1/4	6,4	5/16	7,9	3/16	4,8	3/64	1,2
3067*	2	5/16	7,9	19/32	15,1	3/16	4,7	1/4	6,4	3/16	4,8	1/32	0,8
3071	1	1/2	12,7	25/64	9,9	9/32	7,1	3/8	9,5	3/16	4,8	3/64	1,2
3165	6	1/4	6,4	9/16	14,3	1/8	3,2	7/32	5,6	3/16	4,8	3/64	1,2
3172	7	3/8	9,5	9/32	7,1	1/4	6,4	11/32	8,7	3/16	4,8	3/64	1,2
3181	1	1/2	12,7	27/64	10,7	9/32	7,1	3/8	9,5	3/16	4,8	5/64	2,0
3183*	2	3/8	9,5	1/2	12,7	3/16	4,8	1/4	6,4	3/16	4,8	1/16	1,6
3184*	2	3/8	9,5	15/32	11,9	3/16	4,8	1/4	6,4	3/16	4,8	1/32	0,8
3185	6	3/8	9,5	11/16	17,5	13/64	5,2	17/64	6,7	3/16	4,8	3/64	1,2
3263	5	7/16	11,1	7/16	11,1	1/4	6,4	5/16	7,9	3/16	4,8	1/8	3,2
4072	5	1/2	12,7	3/8	9,5	3/16	4,8	1/4	6,4	3/16	4,8	1/16	1,6
4076	2	1/2	12,7	7/16	11,1	1/4	6,4	5/16	7,9	3/16	4,8	1/16	1,6
4163	1	3/8	9,5	3/8	9,5	17/64	6,7	11/32	8,7	3/16	4,8	1/32	0,8
4171	1	1/2	12,7	7/16	11,1	3/16	4,8	1/4	6,4	3/16	4,8	1/16	1,6
4176	1	1/2	12,7	7/16	11,1	1/4	6,4	5/16	7,9	3/16	4,8	1/32	0,8
4178*	4	5/16	8,0	13/32	10,3	5/32	4,0	1/4	6,4	3/16	4,8	1/8	3,2
4270	1	3/4	19,1	7/16	11,1	11/32	8,7	15/32	11,9	3/16	4,8	1/8	3,2
4276	2	1/2	12,7	15/32	11,9	1/4	6,4	5/16	7,9	3/16	4,8	.100	2,5
4280	6	15/32	12,0	7/8	22,2	1/4	6,4	5/16	7,9	3/16	4,8	1/16	1,6
4281	6	3/8	9,5	11/16	17,5	3/16	4,8	1/4	6,4	3/16	4,8	.050	1,3
6113	1	3/4	19,1	3/4	19,1	1/4	6,4	3/8	9,5	3/16	4,8	1/16	1,6
2647	7	1/4	6,4	19/64	7,5	1/4	6,4	5/16	8,0	3/16	4,8	1/16	1,6
3187	5	3/8	9,5	21/64	8,3	3/16	4,8	1/4	6,4	13/64	5,2	1/32	0,8
4285	6	7/16	11,1	57/64	22,6	15/64	5,6	5/16	8,0	13/64	5,2	.038	0,9
3168	1	3/8	9,5	15/32	11,9	15/64	5,6	19/64	7,5	7/32	5,6	1/16	1,6
4262	1	3/8	9,5	13/32	10,3	1/4	6,4	5/16	7,9	7/32	5,6	1/16	1,6
4275	6	.625	16,0	.875	22,4	.218	5,6	.312	8,0	.218	5,6	.187	4,8
2644*	1	15/32	11,9	1/2	12,7	9/32	7,1	3/8	9,5	7/32	5,6	1/32	0,8

*Indicates inserting hole in base and stem.

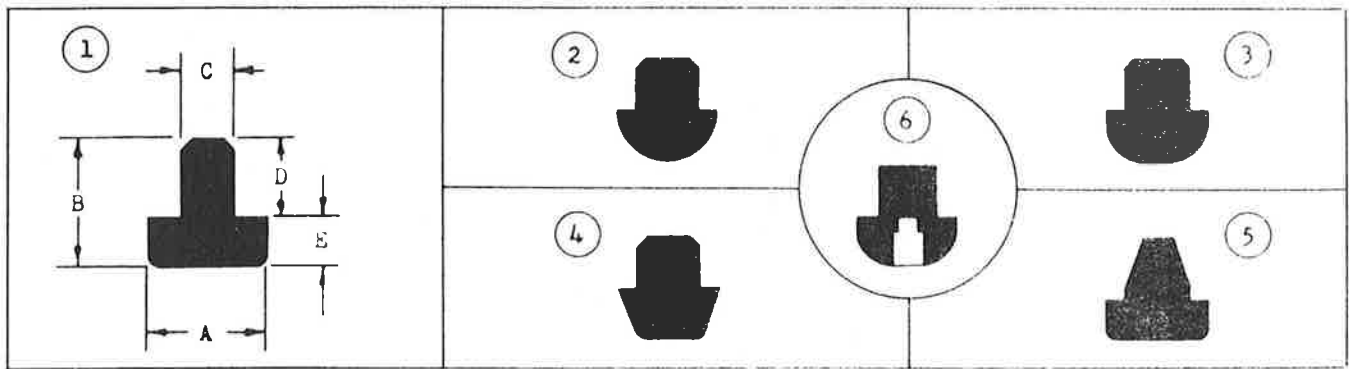
BUTTON BUMPERS BY "E" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E		F	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
3073	2	1/2	12,7	25/64	9,9	1/4	6,4	11/32	8,7	15/64	6,0	1/32	0,8
4179	1	1/2	12,7	37/64	14,7	1/4	6,4	23/64	9,1	15/64	6,0	1/32	0,8
2679	6	7/32	5,6	.447	11,3	.113	2,9	3/16	4,8	1/4	6,4	.060	1,5
307	3	1/2	12,7	7/16	11,1	1/4	6,4	11/32	8,7	1/4	6,4	.040	1,0
2940	5	1/2	12,7	7/16	11,1	1/4	6,3	5/16	7,9	1/4	6,3	1/16	1,5
317	3	1/2	12,7	1/2	12,7	1/4	6,4	11/32	8,7	1/4	6,4	1/8	3,2
407	3	1/2	12,7	7/16	11,1	1/4	6,4	11/32	8,7	1/4	6,4	1/16	1,6
611	1	7/8	22,2	1/2	12,7	5/16	7,9	13/32	10,3	1/4	6,4	5/64	2,0
3068	1	3/8	9,5	7/16	11,1	5/32	4,0	7/32	5,6	1/4	6,4	1/32	0,8
4082	1	5/8	15,9	15/32	11,9	3/16	4,8	1/4	6,4	1/4	6,4	.025	0,6
4084	1	5/8	15,9	15/32	11,9	16/64	6,0	5/16	7,9	1/4	6,4	.040	1,0
4088	1	5/8	15,9	15/32	11,9	5/16	7,9	25/64	9,9	1/4	6,4	3/64	1,2
2931	6	1/2	12,7	13/16	20,8	1/4	6,3	3/8	9,5	1/4	6,3	1/8	3,1
4167	1	1/2	12,7	27/64	10,7	9/32	7,1	13/32	10,3	1/4	6,4	3/64	1,2
2661	1	1/2	12,7	53/64	21,0	1/4	6,4	11/32	8,7	1/4	6,4	5/64	2,0
4180	6	15/32	11,9	27/32	21,4	1/4	6,4	3/8	9,5	1/4	6,4	3/64	1,2
4185*	1	5/8	15,9	7/16	11,1	1/4	6,4	11/32	8,7	1/4	6,4	1/16	1,6
6111	1	7/8	22,2	45/64	17,9	5/16	7,9	13/32	10,3	1/4	6,4	9/32	7,1
2675	6	.180	4,6	.447	11,3	1/8	3,2	.180	4,6	.278	7,1	.045	1,1
4247	4	1	25,4	.537	13,6	1/2	12,7	5/8	15,9	.281	7,1	1/8	3,2
4195	6	1/2	12,7	15/16	23,8	1/4	6,4	23/64	9,1	9/32	7,1	.200	5,1
4165	1	1/2	12,7	7/16	11,1	1/4	6,4	5/16	7,9	19/64	7,5	1/16	1,6
3180	6	.380	9,7	.640	16,3	.140	3,6	.250	6,4	.310	7,9	.030	0,8
308	3	5/8	12,7	9/16	14,3	3/8	9,5	15/32	11,9	5/16	7,9	.040	1,0
408	3	5/8	15,9	9/16	14,3	3/8	9,5	15/32	11,9	5/16	7,9	1/16	1,6
3075	1	7/16	11,1	5/8	15,9	5/16	7,9	13/32	10,3	5/16	7,9	1/32	0,8
4075	1	1/2	12,7	9/16	14,3	13/64	5,2	1/4	6,4	5/16	7,9	1/16	1,6
4181	6	1/2	12,7	61/64	24,2	1/4	6,4	3/8	9,5	5/16	7,9	1/8	3,2

*Indicates inserting hole in base and stem.

STEM BUMPERS BY "E" DIMENSION



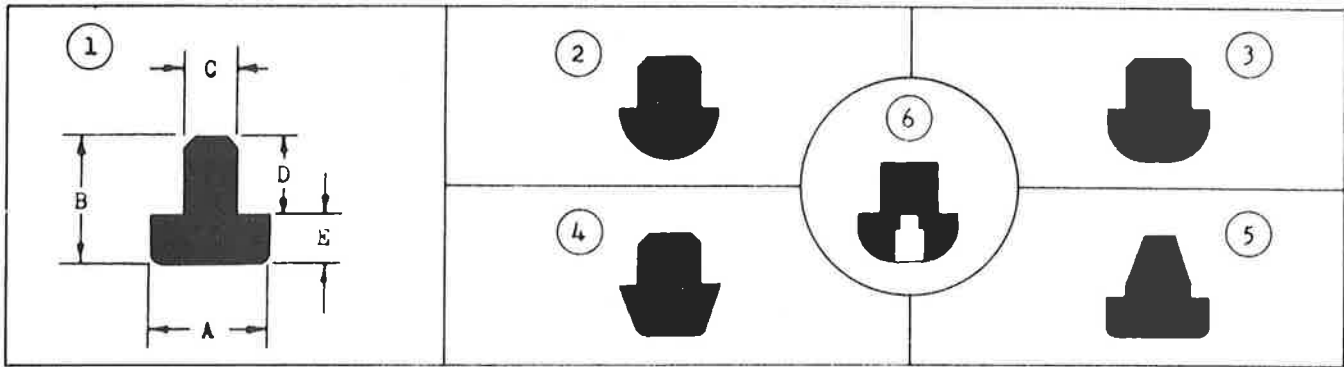
PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
6136	1	3/8	9,5	.275	7,0	3/16	4,8	1/4	6,4	.025	0,6
2677**	6	3/16	4,7	1/4	6,3	.130	3,3	.218	5,6	1/32	0,8
6135	1	1/2	12,7	1/4	6,4	3/16	4,8	7/32	5,6	1/32	0,8
602	1	3/16	4,8	.134	3,4	1/8	3,2	3/32	2,4	.040	1,0
6025	3	7/32	5,6	1/4	6,4	.170	4,3	13/64	5,2	3/64	1,2
6012	1	1/4	6,4	3/16	4,8	11/64	4,4	1/8	3,2	1/16	1,6
6034	2	1/2	12,7	3/8	9,5	.196	5,0	5/16	7,9	1/16	1,6
6053*	1	3/8	9,5	15/64	6,0	15/64	6,0	11/64	4,4	1/16	1,6
6072	1	1/2	12,7	5/16	7,9	3/8	9,5	1/4	6,4	1/16	1,6
6073	5	1/2	12,7	5/16	7,9	15/64	6,0	1/4	6,4	1/16	1,6
6086	1	15/32	11,9	7/16	11,1	3/8	9,5	3/8	9,5	1/16	1,6
6234	2	1/2	12,7	3/8	9,5	.196	5,0	5/16	7,9	1/16	1,6
2645	1	15/64	6,0	9/32	7,1	.140	3,6	7/32	5,6	1/16	1,6
6178*	1	1/2	12,7	.195	5,0	.180	4,6	.130	3,3	.065	1,7
6186	1	15/32	11,9	.600	15,2	3/8	9,5	.530	13,5	.070	1,8
6045	1	3/8	9,5	17/64	6,8	15/64	6,0	3/16	4,8	5/64	2,0
6134	2S	1/2	12,7	25/64	9,9	.196	5,0	1/4	6,4	5/64	2,0
6137	1	1/2	12,7	21/64	8,3	3/16	4,8	1/4	6,4	5/64	2,0
6170	5	1/2	12,7	21/64	8,3	1/4	6,4	1/4	6,4	5/64	2,0
6172	1	1/2	12,7	25/64	9,9	1/4	6,4	5/16	7,9	5/64	2,0
6041	1	3/8	9,5	17/64	6,8	.196	5,0	3/16	4,8	5/64	2,0
6023	S	17/64	6,7	13/32	10,3	.150	3,8	5/16	7,9	3/32	2,4
6048	1	3/8	9,5	9/32	7,1	.200	5,1	3/16	4,8	3/32	2,4
6075	1	1/2	12,7	9/32	7,1	1/4	6,4	3/16	4,8	3/32	2,4
6123	5	17/64	6,7	13/32	10,3	.140	3,6	5/16	7,9	3/32	2,4
6174	1	1/2	12,7	11/32	8,7	3/16	4,8	1/4	6,4	3/32	2,4
6026*	2	.350	8,9	.470	11,9	.190	4,8	.370	9,4	.100	2,5
6092	1	5/8	15,9	27/64	10,7	.483	12,3	5/16	7,9	7/64	2,8

**See Also Molded Irregular Design

PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
653	1	.196	5,0	11/64	4,4	.130	3,3	1/16	1,6	7/64	2,8
2643	1	5/8	15,9	11/32	8,7	17/64	6,8	15/64	6,0	7/64	2,8
601	2	1/4	6,4	7/32	5,6	1/8	3,2	3/32	2,4	1/8	3,2
604	3	3/8	9,5	5/16	7,9	.196	5,0	3/16	4,8	1/8	3,2
607	1	1/2	12,7	7/16	11,1	5/16	7,9	5/16	7,9	1/8	3,2
6011	2	1/4	6,4	5/16	7,9	1/8	3,2	3/16	4,8	1/8	3,2
6013	2	1/4	6,4	5/16	8,0	.126	3,2	3/16	4,8	1/8	3,2
6043	3	3/8	9,5	1/4	6,4	.196	5,0	1/8	3,2	1/8	3,2
6049	1	3/8	9,5	19/64	7,5	.197	5,0	11/64	4,4	1/8	3,2
6052*	2	3/8	9,5	3/8	9,5	3/16	5,0	1/4	6,4	1/8	3,2
6066*	2	7/16	11,1	1/4	6,4	5/16	7,9	1/8	3,2	1/8	3,2
6067	1	7/16	11,1	3/8	9,5	1/4	6,4	1/4	6,4	1/8	3,2
6071	1	1/2	12,7	15/32	12,7	1/4	6,4	.336	8,7	1/8	3,2
6078	5	1/2	12,7	3/8	9,7	15/64	6,0	1/4	6,4	1/8	3,2
6079	1	1/2	12,7	7/16	11,1	19/64	7,5	5/16	7,9	1/8	3,2
6084*	1	7/16	11,1	11/32	8,7	9/32	7,1	7/32	5,6	1/8	3,2
6085	1	27/64	10,7	5/16	7,9	.260	6,6	3/16	4,8	1/8	3,2
6091	5	5/8	15,9	1/2	12,7	.507	12,9	3/8	9,5	1/8	3,2
6097	1	9/16	14,3	27/64	10,7	7/16	11,1	19/64	7,5	1/8	3,2
6171*	1	1/2	12,7	3/8	9,5	1/4	6,4	1/4	6,4	1/8	3,2
6177	5	1/2	12,7	15/32	11,9	.289	7,3	11/32	8,7	1/8	3,2
6179*	1	1/2	12,7	5/16	7,9	.266	6,8	3/16	4,8	1/8	3,2
6076	1	15/32	11,9	29/64	11,5	5/16	7,9	5/16	7,9	9/64	3,6
605	2	3/8	9,5	13/32	10,3	9/32	7,1	1/4	6,4	5/32	4,0
6035*	3	9/16	14,3	9/32	7,1	7/16	11,1	1/8	3,2	5/32	4,0
6046	1	3/8	9,5	11/32	8,7	3/16	4,8	3/16	4,8	5/32	4,0
6047*	1	3/8	9,5	1/2	12,7	.302	7,7	11/32	8,7	5/32	4,0
6051	2	3/8	9,5	7/16	11,1	1/4	6,4	9/32	7,1	5/32	4,0
6077	5	1/2	12,7	1/2	12,7	.289	7,3	11/32	8,7	5/32	4,0
6087	1	7/16	11,1	11/32	8,7	1/4	6,4	3/16	4,8	5/32	4,0
2646	2	.312	8,0	11/32	8,7	.190	4,9	.187	4,8	.156	4,0
6065	2	27/64	10,7	22/64	10,7	1/4	6,4	1/4	6,4	11/64	4,4
506	6	3/8	9,5	3/8	9,5	3/16	4,8	3/16	4,8	3/16	4,8
603	3	1/2	12,7	5/16	7,9	1/4	6,4	1/8	3,2	3/16	4,8
606	2	7/16	11,1	5/16	7,9	3/16	4,8	1/8	3,2	3/16	4,8
608*	3	7/16	11,1	1/2	12,7	5/16	7,9	5/16	7,9	3/16	4,8

*Indicates inserting hole in base and stem.

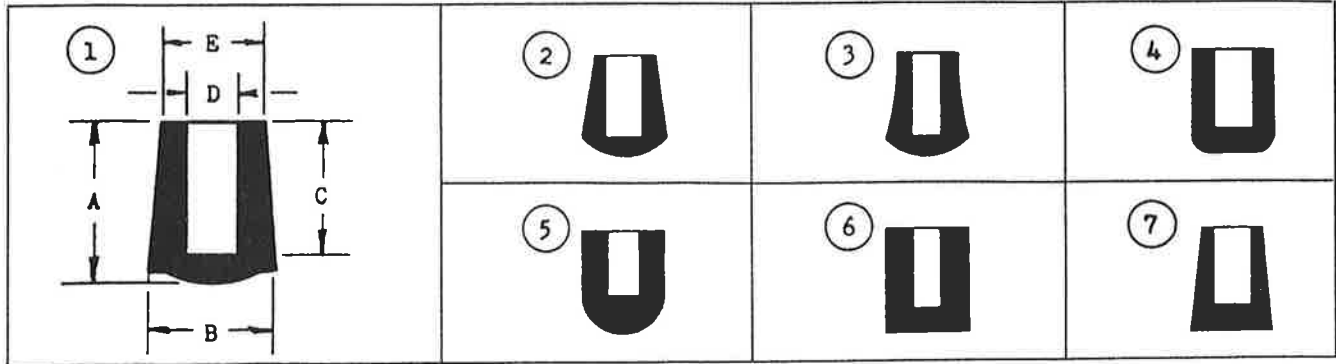
STEM BUMPERS BY "E" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
6031	2	1/2	12,7	5/16	7,9	13/64	5,2	1/8	3,2	3/16	4,8
6061	2	7/16	11,1	5/16	7,9	7/32	5,6	1/8	3,2	3/16	4,8
6062	2	7/16	11,1	7/16	11,1	1/4	6,4	1/4	6,4	3/16	4,8
6063	2	7/16	11,1	5/16	7,9	.238	6,0	1/8	3,2	3/16	4,8
6064*	2	same as 6062 except 1/16" hole in shank									
6081*	1	1/2	12,7	7/16	11,1	3/8	9,5	1/4	6,4	3/16	4,8
6082*	1	1/2	12,7	3/8	9,5	3/8	9,5	3/16	4,8	3/16	4,8
6083*	1	7/16	11,1	5/16	7,9	5/16	7,9	1/8	3,2	3/16	4,8
6173	1	1/2	12,7	9/16	14,3	.370	9,4	3/8	9,5	3/16	4,8
2652	1	7/8	22,2	9/16	14,3	1/2	12,7	3/8	9,5	.187	4,8
609	1	5/8	15,9	19/32	15,1	.443	11,3	3/8	9,5	7/32	5,6
6093*	1	5/8	15,9	19/32	15,1	.443	11,3	3/8	9,5	7/32	5,6
6180	1	5/8	15,9	23/32	18,3	7/16	11,3	1/2	12,7	7/32	5,6
507	6	1/2	12,7	.402	11,1	1/4	6,4	3/16	4,8	.215	6,4
610	3	11/16	17,5	19/32	15,9	17/32	13,5	11/32	9,5	1/4	6,4
671	4	15/32	11,9	11/16	17,5	3/8	9,5	7/16	11,1	1/4	6,4
5071	6	1/2	12,7	.412	11,1	9/32	7,1	3/16	4,8	.215	6,4
6032	2	1/2	12,7	11/16	17,5	7/16	11,1	7/16	11,1	1/4	6,4
6033	2	1/2	12,7	11/16	17,5	13/32	10,3	7/16	11,1	1/4	6,4
6042	3	3/8	9,5	7/16	11,1	.196	5,0	3/16	4,8	1/4	6,4
6044	4	3/8	9,5	9/16	14,3	.196	5,0	5/16	7,9	1/4	6,4
6095*	1	5/8	15,9	5/8	15,9	3/8	9,5	3/8	9,5	1/4	6,4
6102	3	11/16	17,5	5/8	15,9	9/16	14,3	.362	9,5	1/4	6,4
6103	3	11/16	17,5	5/8	15,9	.605	15,4	3/8	9,5	1/4	6,4
2656	4	3/8	9,5	9/16	14,3	3/16	4,8	9/32	7,1	9/32	7,1
613	3	5/8	15,9	23/32	18,3	7/16	11,1	7/16	11,1	9/32	7,1
6131	3	5/8	15,9	23/32	18,3	Note	1	7/16	11,1	9/32	7,1
6132	3	5/8	15,9	23/32	18,3	Note	2	7/16	11,1	9/32	7,1

*Indicates inserting hole in base and stem.
 Note 1 — Tapered .400" to .435"
 Note 2 — Tapered .520" to .535"
 Note 3 — Tapered 27/64 to 29/64

END BUMPERS BY "D" DIMENSION

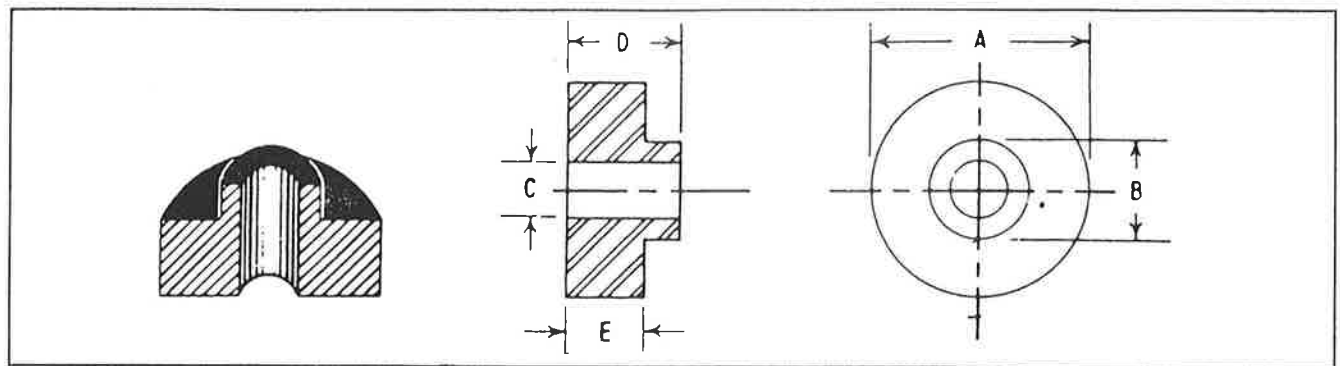


PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
618	5	3/4	19,0	3/8	9,5	5/8	15,9	1/16	1,6	3/8	9,5
627	4	1/4	6,4	1/4	6,4	3/16	4,8	3/32	2,4	1/4	6,4
2657	4	3/8	9,5	.240	6,1	9/32	7,1	3/32	2,4	.240	6,1
6182	5	7/8	22,2	1/2	12,7	1/2	12,7	3/32	2,4	1/2	12,7
619		5/16	7,9	5/16	7,9	1/4	6,4	.105	2,7	.230	5,8
6203	3	1/2	12,7	3/8	9,5	3/8	9,5	.105	2,7	1/4	6,4
6206	3	7/16	11,1	11/32	8,7	21/64	8,3	.105	2,7	13/64	5,2
125	5	7/16	11,1	1/4	6,4	5/16	7,9	1/8	3,2	7/32	5,6
2051	1	7/8	22,2	7/16	11,1	3/4	19,1	1/8	3,2	3/8	9,5
6181	S	5/8	15,9	9/32	7,1	1/2	12,7	1/8*	3,2	3/8	9,5
6183	5	19/64	7,5	1/4	6,4	7/32	5,6	1/8	3,2	1/4	6,4
6201	3	1/2	12,7	3/8	9,5	3/8	9,5	1/8	3,2	1/4	6,4
6205	3	1/2	12,7	3/8	9,5	3/8	9,5	.140	3,6	1/4	6,4
632	4	1/4	6,4	11/32	8,7	5/32	4,0	9/64	3,6	11/32	8,7
624	6	1/4	6,4	3/16	4,8	.210	5,3	.146	3,7	3/16	4,8
2053	1	7/8	22,2	7/16	11,1	3/4	19,1	5/32	4,0	3/8	9,5
2602	5	.635	16,1	.306	7,8	9/16	14,3	5/32	4,0	.306	7,8
2623	5	.687	22,9	.306	7,8	.562	14,4	.156	4,0	.306	7,8
6208	6	1/2	12,7	7/32	5,6	3/8	9,5	5/32	4,0	7/32	5,6
6204	3	1/2	12,7	3/8	9,5	3/8	9,5	.161	4,1	1/4	6,4
6202	3	1/2	12,7	3/8	9,5	3/8	9,5	.175	4,4	1/4	6,4
620	3	1/2	12,7	3/8	9,5	3/8	9,5	3/16	4,8	1/4	6,4
621		3/8	9,5	1/2	12,7	1/4	6,4	3/16	4,8	1/2	12,7
623	6	1-1/4	31,8	3/8	9,5	1	25,4	3/16	4,8	3/8	9,5
631	4	11/16	17,5	3/8	9,5	5/8	15,9	3/16	4,8	3/8	9,5
6822	5	.600	15,2	1/4	6,4	7/16	11,1	3/16	4,8	1/4	6,4
6209	6	21/32	16,7	15/32	11,9	5/8	15,9	.210	5,3	15/32	11,9
205	1	7/8	22,2	7/16	11,1	3/4	19,1	7/32	5,6	3/8	9,5

*5° taper on pin

PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
628	4	3/8	9,5	1/2	12,7	1/4	6,4	7/32	5,6	1/2	12,7
2603	5	.635	16,2	.369	9,4	9/16	14,3	7/32	5,6	.369	9,4
2731	6	3/8	9,5	1/2	12,7	5/16	7,9	7/32	5,6	1/2	12,7
626	3	15/32	11,9	13/32	10,3	3/8	9,5	15/64	6,0	5/16	7,9
6292	2	11/16	17,5	17/32	13,5	1/2	12,7	15/64	6,0	29/64	11,5
6261	2	5/8	15,9	1/2	12,7	7/16	11,1	.246	6,2	3/8	9,5
635	2	13/16	20,6	5/8	15,9	19/32	15,1	1/4	6,4	1/2	12,7
6207	5	3/8	9,5	3/8	9,5	9/32	7,1	1/4	6,4	3/8	9,5
2958	6	17/64	6,8	11/32	8,8	7/32	5,6	1/4	6,3	11/32	8,8
6293	2	11/16	17,5	17/32	13,5	1/2	12,7	17/64	6,7	29/64	11,5
2624	5	.980	25,1	.490	12,6	.880	22,6	.290	7,4	1/2	12,7
2052	1	3/4	19,1	15/32	11,9	17/32	13,5	19/64	7,5	27/64	10,7
6291	2	11/16	17,5	17/32	13,5	1/2	12,7	19/64	7,5	29/64	11,5
633	4	3/8	9,5	7/16	11,1	1/4	6,4	5/16	7,9	7/16	11,1
2943	5	9/16	14,2	23/64	9,2	7/16	11,1	5/16	7,9	23/64	9,2
629	2	11/16	17,5	17/32	13,5	1/2	12,7	21/64	8,3	29/64	11,5
40140	2	11/16	17,4	17/32	13,6	1/2	12,7	21/64	8,4	29/64	11,6
6251	7	5/8	15,9	5/8	15,9	1/2	12,7	21/64	8,3	15/32	11,9
6224	7	7/16	11,1	5/8	15,9	5/16	7,9	21/64	8,3	1/2	12,7
636	7	1-1/8	28,6	9/16	14,3	1	25,4	11/32	8,7	1/2	12,7
6252	7	5/8	15,9	5/8	15,9	1/2	12,7	3/8	9,5	15/32	11,9
40100	7	5/8	15,8	5/8	15,8	1/2	12,7	3/8	9,5	15/32	12,0
6253	1	5/8	15,9	1/2	12,7	1/2	12,7	3/8	9,5	1/2	12,7
6301	1	11/16	17,5	19/32	15,1	9/16	14,3	.400	10,2	33/64	13,1
630	2	29/32	23,0	19/32	15,1	11/16	17,5	13/32	10,3	1/2	12,7
6222	2	3/4	19,1	11/16	17,5	1/2	12,7	15/32	11,9	19/32	15,1
622	2	3/4	19,1	.725	18,5	1/2	12,7	1/2	12,7	5/8	15,9
6223	2	11/16	17,5	13/16	20,6	1/2	12,7	9/16	14,3	11/16	17,5
676	2	1	25,4	7/8	22,2	3/4	19,1	.595	15,1	3/4	19,1
673	2	1	25,4	7/8	22,2	3/4	19,1	5/8	15,9	3/4	19,1
6751	2	7/8	22,2	1	25,4	5/8	15,9	.718	18,2	7/8	22,2
682	2	1-1/8	28,6	1-1/8	28,6	7/8	22,2	13/16	20,6	1	25,4
6821	2	7/8	22,2	1-1/8	28,6	5/8	15,9	13/16	20,6	1	25,4
680	2	7/8	22,2	1-1/4	31,8	3/4	19,1	.938	23,8	1-1/8	28,6
681	4	1-1/4	31,8	1-1/4	31,8	1-1/8	28,6	1	25,4	1-1/4	31,8

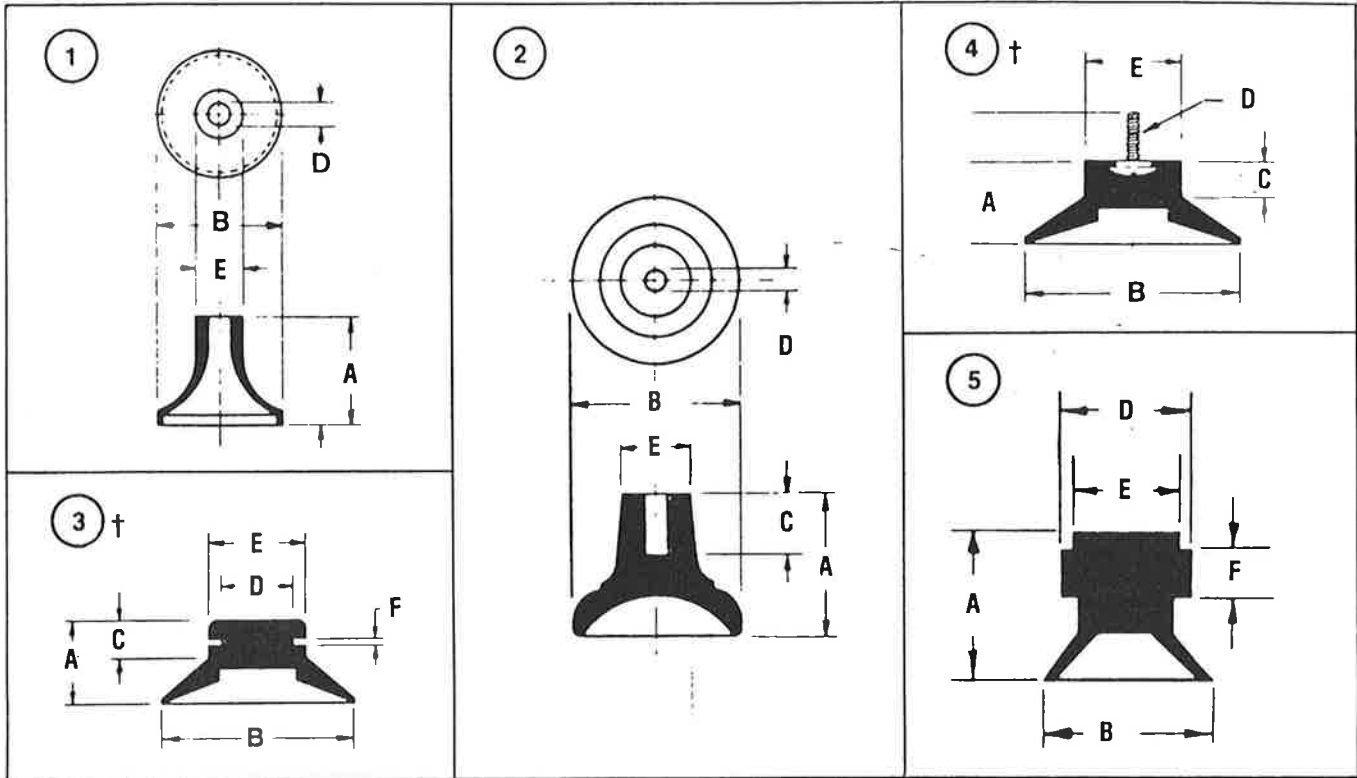
STEP BUSHINGS BY "C" DIMENSION



PART NO.	FIG. NO.	A		B		C		D		E	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
7041		1/2	12,7	3/32	2,4	1/32	0,8	1/4	6,4	1/8	3,2
2632		.470	15,7	.196	5,0	.085	2,2	5/16	8,0	1/8	3,2
7022		3/8	9,5	.212	5,3	.095	2,4	.107	2,6	.040	1,0
702		3/8	9,5	3/16	4,8	1/8	3,2	3/32	2,4	1/16	1,6
7024		3/8	9,5	1/4	6,4	1/8	3,2	3/8	9,5	1/8	3,2
2474		3/8	9,5	1/4	6,4	.120	3,0	11/16	17,5	1/16	1,6
7025		3/8	9,5	.209	5,3	.125	3,2	7/64	2,8	.041	1,0
2946		.620	15,8	.380	1,0	1/8	3,1	.530	13,5	1/4	6,3
2942		3/4	19,0	1/2	12,7	.140	3,6	3/8	9,5	1/8	3,1
7026		3/8	9,5	1/4	6,3	.150	3,8	3/16	4,7	1/16	1,5
2956		.370	9,5	1/4	6,3	.155	3,8	5/16	7,9	3/32	2,4
7102		3/8	9,5	1/4	6,4	5/32	4,0	3/16	4,8	1/8	3,2
704		17/32	13,5	3/8	9,5	.160	4,1	9/16	14,3	3/32	2,4
2431		1/2	12,7	.240	6,1	.166	4,2	1/4	6,4	3/32	2,4
2699		.500	12,8	.240	6,1	.166	4,2	.343	8,8	.093	2,4
703		27/64	10,7	19/64	7,5	11/64	4,4	1/4	6,4	5/64	2,0
2694		.531	13,6	.437	11,2	.171	4,4	.500	12,8	.125	3,2
40090		.531	13,6	7/16	11,1	.171	4,4	1/2	12,7	1/8	3,1
701		11/32	8,7	.208	5,2	.177	4,5	5/32	4,0	1/16	1,6
705		9/16	14,3	3/8	9,5	3/16	4,8	1/4	6,4	1/8	3,2
7042		17/32	13,5	7/16	11,1	3/16	4,8	1/2	12,7	1/8	3,2
7061		5/8	15,9	5/16	7,9	3/16	4,8	7/64	2,8	1/16	1,6
7062		5/8	15,9	13/64	5,2	3/16	4,8	7/32	5,6	1/8	3,2
2408		1/2	12,7	3/8	9,5	.200	5,1	.185	4,7	.062	2,5
7093		1	25,4	21/32	16,7	.203	5,2	3/8	9,5	3/16	4,8
7075		11/16	17,5	3/8	9,5	13/64	5,2	.110	2,8	.075	0,8
7021		13/32	10,3	5/16	7,9	7/32	5,6	3/16	4,8	5/64	2,0
7023		3/8	9,5	19/64	7,5	7/32	5,6	3/16	4,8	5/64	2,0

SUCTION CUPS — TYPE SC

BY "B" DIMENSION



PART NO.	FIG.	A	B	C	D	E	F
SC2593	1,5	13/16	5/8		①-1/8 ⑤-5/8	3/8	⑤-1/8
SC251	2	7/16	19/32	7/32		5/16	
SC252	3	27/64	19/32	7/32	1/4	5/16	3/64
SC625	1	9/16	43/64		7/64	1/4	
2696	1	.595	.671	.156	.109	.250	
SC875	2	3/4	7/8	5/16	7/64	3/8	
SC877	2	3/4	7/8	5/16	3/16	3/8	
SC2445	5	3/4	7/8	1/2	11/16**	9/16	1/4**
SC1001	4	15/32	1	3/16	#8-32*	1/2	1/4
SC1001-B	3	7/16	1	7/32	3/8	1/2	1/32
SC1002-B	3	7/16	1	9/32	3/8	1/2	3/32
SC1310	4	7/16	1	3/16	#8-32*	1/2	1/2
SC1310-B-1	3	7/16	1	3/16	3/8	1/2	1/32
SC1310-B-2	3	15/32	1	7/32	3/8	1/2	1/16
SC1310-B-3	3	1/2	1	1/4	3/8	1/2	3/32
SC1325	4	17/32	1-1/4	3/16	#8-32*	5/8	1/2
SC1374	4	1/2	1-3/8	5/32	#8-32*	5/8	1/4
2617	1	.708	1-3/8		SOLID	5/8	

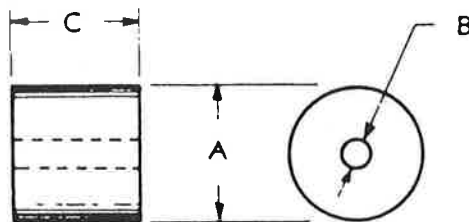
*Can also be supplied with .140 dia. tubular rivet.
 **Indicates rib

†At manufacturers option, inside configuration may be spherical radius rather than shape as shown.

ROLLERS SLEEVES • WASHERS

BY "B" DIMENSION

PARTS LISTED BELOW ARE MOLDED. WE HAVE FACILITIES
FOR PRODUCING EXTRUDED AND CUT PARTS AT
ATTRACTIVE PRICES.



PART NO.	FIG. NO.	A		B		C				
		INCH	MM	INCH	MM	INCH	MM			
2927		.181	4,6	.055	1,4	.250	6,4			
2453		5/8	15,9	1/16	1,6	3/16	4,8			
276		.480	12,2	.093	2,4	.360	9,1			
2465		.125	3,1	.093	2,4	.187	4,7			
271		7/16	11,1	3/32	2,4	5/16	7,9			
273		1/2	12,7	3/32	2,4	3/8	9,5			
713-R		11/32	8,7	3/32	2,4	3/32	2,3			
277		.375	9,2	.097	2,5	.395	10,0			
2650		13/32	10,5	.098	2,5	1/4	6,4			
2428		.140	3,5	.100	2,5	3/16	4,8			
2470		3/8	9,5	7/64	2,8	5/64	2,0			
2666		3/4	19,1	.111	2,8	3/16	4,8			
275		5/16	7,9	1/8	3,2	1/2	12,7			
874		.293	7,4	.143	3,6	.068	1,7			
2711		7/16	11,1	.160	4,1	5/16	7,9			
2712		7/16	11,1	.182	4,6	5/16	7,9			
2559		11/16	17,5	3/16	4,8	19/32	15,1			
2420		1/2	12,7	3/16	4,8	5/16	7,9			
2611		.660	16,9	.190	4,9	.270	6,9			
40030		.660	17,0	.190	4,9	.270	6,9			
2681		.525	13,3	.211	5,4	1/4	6,4			
2670		.396	10,1	1/4	6,4	1/4	6,4			
2450		.550	14,0	.310	7,9	.500	12,7			
2423		9/16	14,3	5/16	7,9	5/16	7,9			
2424		3/4	19,1	5/16	7,9	5/16	7,9			
2517		.400	10,2	.315	7,9	.375	9,5			
2913		.370	9,5			.040	1,0			
2900		1-1/4	31,8	3/8	9,5	3/8	9,5			
2686		.736	18,7	.464	11,8	.154	3,9			
272		Serrated								
2721		Same as 272 – except 1/8" I.D.								



SPECIFICATIONS

STOPPERS — PLUGS

GRADE	DESCRIPTION	DUROMETER SHORE A + 5	BLOOMING	FREE SULFUR (MAXIMUM)	SHELF LIFE	RESILIENCE	RESISTANCE TO DEFORMATION
#180	Black Rubber	43	None	½%	Good	Good	Good
#190	Green Neoprene	45	None	None	Good	Good	Fair
#195	Pure Gum	40	None	¼%	Good	Exceptional	Exceptional

1" = 25.4 MILLIMETERS

SIZES IN MILLIMETERS				DIAMETER OF HOLES		YIELD: STOPPERS PER POUND								
						#180 BLACK RUBBER			#190 GREEN NEOPRENE			#195 PURE GUM		
SIZES	TOP	BOTTOM	LENGTH	1 HOLE	2 HOLES	SOLID	1 HOLE	2 HOLES	SOLID	1 HOLE	2 HOLES	SOLID	1 HOLE	2 HOLES
000	12.7	8.2	21	3	—	189	—	—	160	—	—	232	—	—
00	15	10	25	3	3	110	114	119	95	102	105	141	145	151
0	17	13	25	3	3	81	84	86	68	71	73	96	105	108
1	19	14	25	4	4	60	62	56	48	50	53	73	76	81
2	20	16	25	5	5	54	56	59	44	45	48	67	70	74
3	24	18	25	5	5	41	43	45	32	35	37	59	51	54
4	26	20	25	5	5	34	36	38	27	29	30	41	43	46
5	27	23	25	5	5	29	30	31	23	24	25	35	36	37
5½	28	24	25	5	5	27	28	29	22	23	24	33	34	35
6	32	26	25	5	5	21	22	23	17	18	18	26	27	28
6½	34	27	25	5	5	19	20	21	15	16	17	23	24	25
7	37	30	25	5	5	16	16	17	12	12	13	19	19	20
7½	39	31	25	5	5	15	15	16	11	11	12	18	18	19
8	41	33	25	5	5	12	12	13	10	10	11	15	15	16
8½	43	36	25	5	5	11	11	12	9	9	10	14	14	15
9	45	37	25	5	5	10	10	11	8	8	9	13	13	13
9½	46	38	25	5	5	9	9	10	7	7	8	11	11	11
10	50	42	25	5	5	8	8	8	7	7	8	10	10	10
10½	53	45	25	5	5	7	7	7	5	5	5	9	9	9
11	56	48	25	5	5	6	6	6	4	4	4	8	8	8
11½	63	50	25	5	5	5	5	5	4	4	4	7	7	7
12	64	54	25	5	5	5	5	5	4	4	4	6	6	6
13	68	58	25	5	5	4	4	4	3	3	3	5	5	5
13½	75	62	35	5	5	3	3	3	3	3	3	4	4	4
14	90	75	39	5	5	9½ oz	9½ oz	9½ oz	11 oz	11 oz	11 oz	8 oz	8 oz	8 oz
15	103	83	39	5	5	11½ oz	11½ oz	11½ oz	13 oz	13 oz	13 oz	10 oz	10 oz	10 oz

Micro stopper

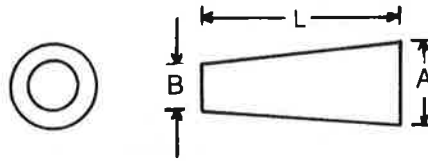
M-21	(Part Number)	M-35
Red	(Color)	Green
12.7 mm	(Top O.D.)	12.7 mm
3.0 mm	(Bottom O.D.)	3.0 mm
50.0 mm	(Length)	47.00 mm



MASKING RUBBERS

Molded from high-strength rubber which resists most plating solutions at temperatures normally encountered in the finishing industry. Generally these parts can be reused many times over.

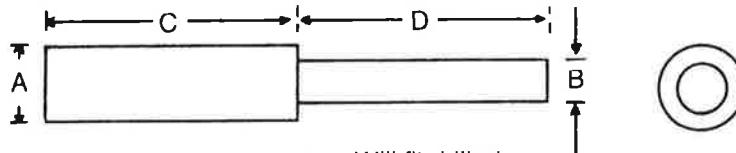
Masking Plugs



Part Number	A	B	L	To fit these size holes
86112	.122"	.046"	.465"	1/16" to 3/32"
86135	.135"	.085"	.386"	3/32" to 1/8"
86160	.160"	.100"	.390"	1/8" to 9/64"
86200	.200"	.115"	.475"	9/64" to 3/16"
86251	.251"	.125"	.530"	3/16" to 15/64"
86313	.313"	.187"	.530"	7/32" to 9/32"
86370	.370"	.260"	.730"	9/32" to 11/32"
86430	.430"	.320"	.730"	5/16" to 13/32"

Masking plugs are especially useful to protect holes, threads, & counterbores during electroplating or painting processes. Where required, customer-specific masks can be designed to meet more specialized requirements. This includes masks & plugs for use in sand blasting operations.

Pull-Through Plugs



Part Number	A	B	C	D	Will fit drilled tapped holes:
87069	.069"	.047"	.625"	.625"	1/16", 2-56, 2-64
87093	.093"	.062"	.625"	.625"	3/32", 4-36, 4-40, 4-48
87107	.107"	.062"	.625"	.625"	5/40", 5-44, 6-32, 6-48
87125	.125"	.062"	.625"	.625"	1/8", 8-32, 8-36, 8-40
87156	.156"	.062"	.375"	.375"	5/32", 10-24, 10-30, 10-32
87166	.166"	.093"	.625"	.625"	11/64", 10-30, 10-32,
87195	.195"	.110"	.625"	.625"	3/16", 12-24, 12-28,
87260	.260"	.130"	.625"	.625"	1/4", 3/16-18, F
87312	.312"	.147"	.625"	.625"	5-16, 3/8-16
87388	.388"	.157"	.625"	.625"	3/8", 7/16-14, V, W
87440	.440"	.157"	.625"	.625"	7/16", 1/2-13

The Laboratory Stoppers listed on opposite page can also be used for masking purposes. In addition, we have the capability to mold custom-designed rubber masks. A marked-up drawing of the part to be masked is required with your inquiry.

"MOUSE TAILS" (Flexible Fasteners for Electronic Components)

"Mouse Tails" offer an economical and reliable method for securing electronic components to PC Boards, especially where vibration is a factor.

Holes having clean and sharp edges are drilled on either side of the component. The rubber strap is positioned around the component, and both ends are then inserted through the holes. The ends are simultaneously pulled so that the crosssection of the strap decreases evenly along its length. (Straps not properly pulled will have a larger crosssection around the part than in the area between the component and the board.)

A hand-pulled pressure of about 15 pounds is held for between 10 to 15 seconds and then allowed to relax. Both ends can then be trimmed to about .100" from the surface of the board. This completes installation, and the component is held firmly in position.

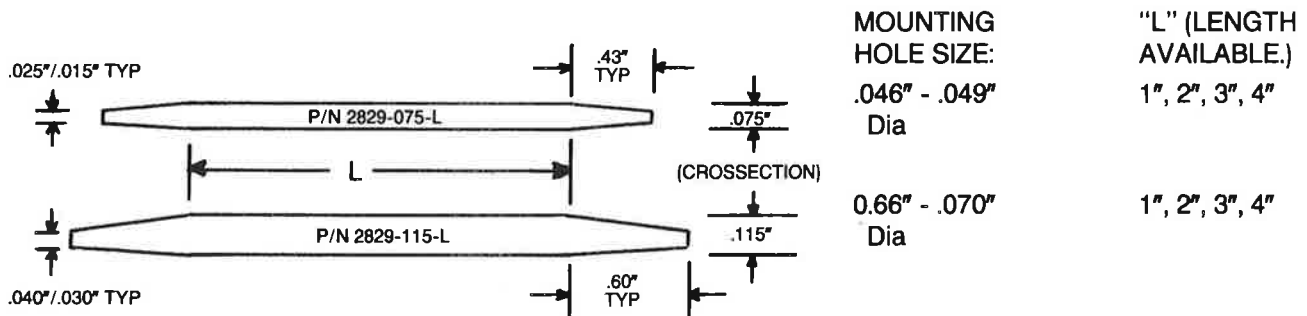
"Mouse Tails" are made in two profiles:

STYLE #2829 ROUND crosssections are used primarily to hold down electrical components.

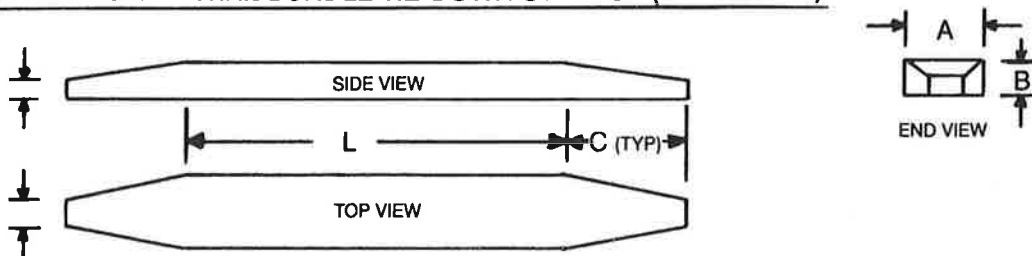
STYLE #2927 FLAT crosssections are better suited for holding down groups of wire.

STYLE #2829 — "Mouse Tails" for Components tie-down: (ROUND STYLE)

Part Number Designation is: "2829 — (crosssection) — (length)



STYLE #2927 — WIRE BUNDLE TIE-DOWN STRAPS (FLAT STYLE)



PART NUMBER	A	B	C	MOUNTING HOLE	"L" (LENGTH) AVAILABLE
P/N 2927-1-L	.100"	.045"	.45"	.049"/.046" dia	1", 2", 3", 4"
P/N 2927-2-L	.200"	.055"	.60"	.078"/.076" dia	1", 2", 3", 4"

VIBRATION ISOLATORS

STANDARD CONSTRUCTION

Plated steel studs or inserts for rust and corrosion resistance.

Natural rubber compound specially developed for extremely high vibration absorption rate and low noise transmission.

Metal parts chemically bonded to rubber under heat and pressure for permanent rubber-to-metal adhesion.

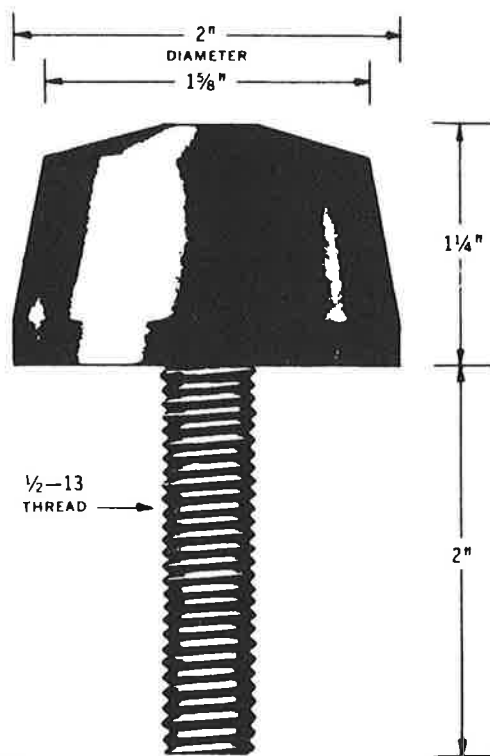
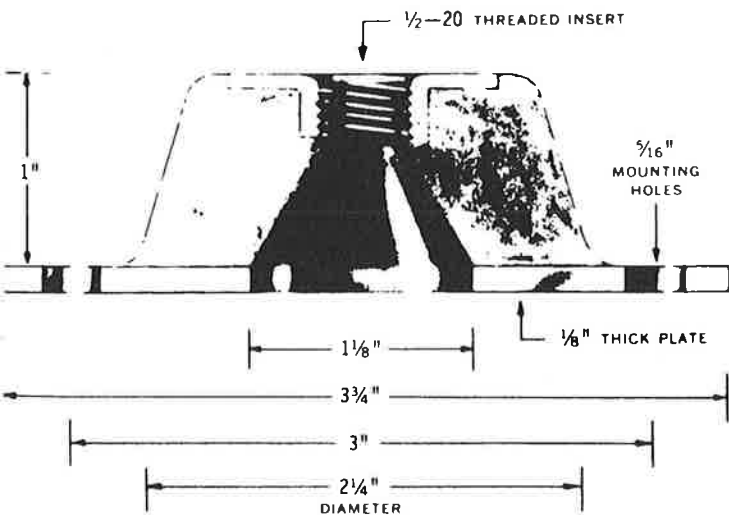
MODIFIED CONSTRUCTION

Special size studs or solid brass studs are available to suit individual requirements.

Synthetic rubber compounds are available to meet most any unusual service, environmental or atmospheric conditions.

Load ratings as shown have been calculated on 12½% deflection for compression loads and 15% deflection for shear loads. Higher load ratings are available for special applications.

Vibration Isolators are specially designed rubber mountings which effectively reduce vibration, sound, and shock transmission. They resiliently support and allow relative motion between the vibrating object and the supporting structure. The vibration absorption rate is largely dependent upon the use of the proper rubber compound. Exhaustive laboratory and complete field testing, over a period of many years, has provided the basis for the development of an extremely absorbent rubber compound. Isolators have been used on virtually every type of machine or mechanism that vibrates. Their use provides many benefits including increased efficiency, quiet operation, reduction of structural failures, protection of delicate components, and increased equipment life.



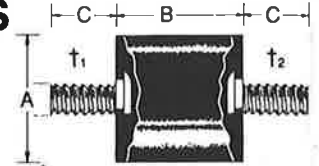
PART NO.
NO. 555-137

LOAD RATING: COMPRESSION 175 LBS.

PART NO.
NO. 555-138

LOAD RATING: COMPRESSION 125 LBS.

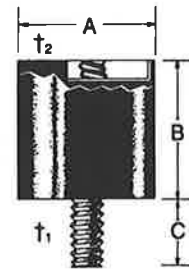
CYLINDRICAL-SHAPED VIBRATION ISOLATORS STUD-BOTH-ENDS



PART NUMBER	DIAMETER (A)	HEIGHT (B)	STUD LENGTH (C)		LOAD COMPRESSION	VALUES SHEAR	
			t ₁	t ₂			
555-144	2-1/8	1-3/4	1-1/8	5/8-18	5/8-18	135	65
555-101	2	1-11/16	5/8	3/8-16	3/8-16	175	35
555-101-516	2	1-11/16	5/8	5/16-18	5/16-18	175	35
555-153	2	1-5/8	5/8	3/8-16	3/8-16	100	100
555-145	2	3/4	1-1/8	3/8-16	3/8-16	100	40
555-154	1-9/16	1	5/8	3/8-16	3/8-16	100	40
555-102	1-1/2	1	5/8	3/8-16	3/8-16	25	30
555-102-516	1-1/2	1	5/8	3/8-16	3/8-16	25	30
555-146	1-1/2	3/4	1/2	1/4-20	1/4-20	70	30
555-155	1-3/8	1	5/8	5/16-18	5/16-18	60	25
555-104	1-1/4	1-1/4	5/8	5/16-18	5/16-18	40	8
555-103	1-1/4	1	5/8	5/16-18	5/16-18	50	10
555-105	1-1/4	3/4	1/2	1/4-20	1/4-20	60	18
555-105-516	1-1/4	3/4	1/2	5/16-18	5/16-18	60	18
555-156	1	3	5/8	5/16-18	5/16-18	25	
555-106	1	1	1/2	1/4-20	1/4-20	35	8
555-106-516	1	1	1/2	5/16-18	5/16-18	35	8
555-107	1	3/4	1/2	1/4-20	1/4-20	40	10
555-107-3/8L			3/8	1/4-20	1/4-20	40	10
555-107-5/8L			5/8	1/4-20	1/4-20	40	10
555-107-516			1/2	5/16-18	5/16-18		
555-147	1	1/2	1/2	1/4-20	1/4-20	35	10
555-148	3/4	1	5/8	5/16-18	5/16-18	20	6
555-149	3/4	3/4	1/2	1/4-20	1/4-20	25	10
555-108	3/4	5/8	3/8	10-32	10-32	18	3
555-108-14			3/8	1/4-20	1/4-20	18	3
555-150	5/8	1/2	1/2	8-32	8-32	15	6
555-109	9/16	1/2	3/8	8-32	8-32	8	2
555-109-1032	9/16	1/2	3/8	10-32	10-32	8	2
555-141	9/16	3/8	3/8	8-32	8-32	8	2
555-151	1/2	9/16	3/8	8-32	8-32	6	1
555-110	7/16	7/16	1/4	6-32	6-32	4	1
555-110-832	7/16	7/16	1/4	8-32	8-32	4	1
555-152	3/8	1/2	1/2	8-32	8-32	5	1
555-143	1/4	9/32	3/16	4-40	4-40	1	

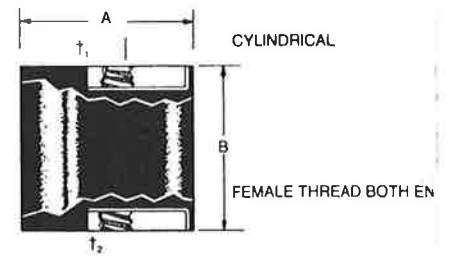
CYLINDRICAL VIBRATION ISOLATORS

STUD-ONE-END (Opposite end has *Female threaded insert*)



PART NUMBER	DIAMETER (A)	HEIGHT (B)	STUD LENGTH (C)	THREADS		LOAD VALUES	
				STUD t_1	INSERT t_2	COMPRESSION	SHEAR
55-157	2	2	1-1/8	3/8-16	3/8-16	100	90
55-158	2	1-5/8	5/8	3/8-16	3/8-16	100	100
55-159	2	3/4	1-1/8	3/8-16	3/8-16	100	40
55-112	1-1/2	1-3/8	5/8	3/8-16	3/8-16	75	15
55-160	1-1/2	1	5/8	5/16-18	5/16-18	100	40
55-114	1-1/4	1	5/8	5/16-18	5/16-18	50	12
55-116	1	1	1/2	5/16-18	5/16-18	35	10
55-116-14	1	1	1/2	1/4-20	1/4-20	35	10
55-115	1	3/4	1/2	5/16-18	5/16-18	40	12
55-115-14	1	3/4	1/2	1/4-20	1/4-20	40	12
55-117	3/4	5/8	3/8	10-32	10-32	18	3
55-161	5/8	1/2	1/2	8-32	8-32	15	6
55-118	9/16	1/2	3/8	8-32	8-32	8	2
55-118-1032	9/16	1/2	3/8	10-32	10-32	8	2
55-119	7/16	7/16	1/4	6-32	6-32	4	1
55-119-832	7/16	7/16	1/4	8-32	8-32	4	1

CYLINDRICAL-SHAPED VIBRATION ISOLATORS THREADED FEMALE INSERTS ON BOTH ENDS



PART NUMBER	DIAMETER (A)	HEIGHT (B)	THREADS		LOAD VALUES	
			† ₁	† ₂	COMPRESSION	SHEAR
555-136	1-5/8*	1-1/4	5/16-18	5/16-18	75	---
	*(tapered to 1-1/8)					
555-120	1-1/2	1-3/8	3/8-16	3/8-16	75	15
555-163	1-1/2	1	5/16-18	5/16-18	100	40
555-121	1-1/4	1	5/16-18	5/16-18	50	12
555-122	1	1	5/16-18	5/16-18	35	10
555-122-14	1	1	1/4-20	1/4-20	35	10
555-123	3/4	5/8	10-32	10-32	18	3
555-124	9/16	1/2	8-32	8-32	8	2
555-124-1032	9/16	1/2	8-32	8-32	8	2
555-125	7/16	7/16	6-32	6-32	4	1
555-125-832	7/16	7/16	8-32	8-32	4	1

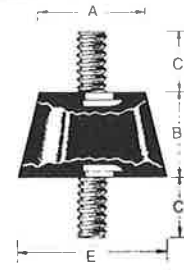
HOLE STRAIGHT THRU - NO THREADS

*555-164	3-1/2	1-51/64	41/64	DIA. HOLE	(These two items are used in heavy equipment and trucking industry)
*555-165	2-1/2	1-51/64	41/64	DIA. HOLE	

(* = HAS STEEL WASHER EMBEDDED IN THE CENTER FOR INCREASED REINFORCING STRENGTH)

555-134	1-5/8	1-3/8	1/2	DIA. HOLE	100	---
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"TAPERED" VIBRATION ISOLATORS STUD BOTH-ENDS

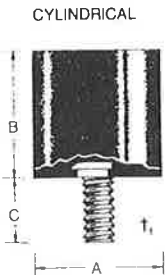


PART NUMBER	LARGE DIAMETER (A)	SMALL DIAMETER (E)	HEIGHT (B)	STUD		THREAD	LOAD VALUE	
				LENGTH (C)	† ₁		† ₂	COMPRESSION
555-135	1-5/8	1-3/16	1-7/16	5/8	5/16-18	5/16-18	75	---
555-135S	1-5/8	1-3/16	1-7/16	7/8	5/16-18	5/16-18	75	---
555-162	1-5/8	1-3/8	1	5/8	5/16-18	5/16-18	55	---

CYLINDRICAL-SHAPED VIBRATION ISOLATORS

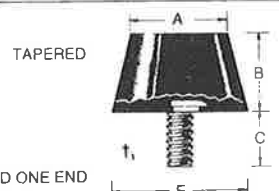
STUD ONE END (Opposite end is blank)

PART NUMBER	DIAMETER (A)	HEIGHT (B)	STUD LENGTH (C)	THREAD t_1	LOAD VALUES
					COMPRESSION
555-166	2-13/64	1-3/32	5/8	3/8-16	165
555-167	2	1-5/8	5/8	3/8-16	100
555-168	2	3/4	1-1/8	3/8-16	100
555-169	1-9/16	1	5/8	3/8-16	100
555-126	1-1/2	1	5/8	3/8-16	100
555-126-516	1-1/2	1	5/8	5/16-18	100
555-170	1-1/2	3/4	1/2	1/4-20	70
555-171	1-3/8	1	5/8	5/16-18	60
555-172	1-3/8	5/8	3/4	1/2-13	85
555-127	1-1/4	3/4	5/8	5/16-18	50
555-127-14x1/2	1-1/4	3/4	1/2	1/4-20	50
555-128	1	3/4	1/2	1/4-20	35
555-173	1	1	5/8	5/16-18	40
555-174	1	5/8	5/8	5/16-18	50
555-175	1	1/2	1/2	1/4-20	30
555-176	3/4	1	5/8	5/16-18	20
555-177	3/4	3/4	1/2	1/4-20	25
555-129	3/4	5/8	3/8	10-32	15
555-178	5/8	1/2	1/2	8-32	15
555-130	9/16	1/2	3/8	8-32	6
555-131	7/16	7/16	1/4	6-32	3
555-179	3/8	1/2	1/2	8-32	5
555-111	1/4	9/32	3/16	4-40	1



CYLINDRICAL
STUD ONE END
(Opposite End is Blank)

“TAPERED” VIBRATION ISOLATORS STUD-ONE-END (Opposite end is blank)



PART NUMBER	BLANK END DIAMETER (A)	STUD END DIAMETER (E)	HEIGHT (B)	STUD LENGTH (C)	THREAD t_1	LOAD VALUE
						COMPRESSION
555-133	1-5/8	1-1/8	1-1/4	5/8	5-16/18	75
555-132	5/8	1-1/8	1	1/2	10-32	25
555-180	1-5/8	1-3/16	1-1/2	5/8	5-16/18	60
555-181	1-5/8	1-3/16	1	5/8	5-16/18	100
555-182	1-3/16	1-5/8	2	5/8	5-16/18	40
555-183	1	1-1/2	1-1/4	5/8	5-16/18	40



Greene Rubber Company

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(203) 239-3336
Fax: (617) 937-9739

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