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SUPER CUP™





“Supplying All Your Needs for Vacuum Cups, Grippers, Seals and Rollers”

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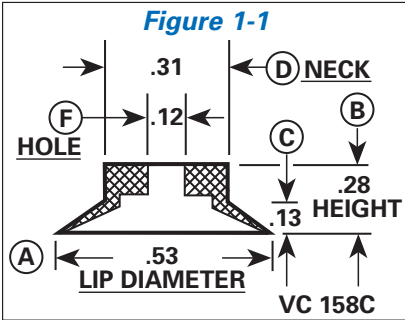


Guidelines

For Easy Vacuum Cup Selection

Proper vacuum cup selection can be divided into two categories:

A. Finding a suitable replacement to an already existing Vacuum Cup



Refer to cups by diameter (see Parts Index starting on page 48).

Step 1: Match your existing vacuum cup to one of the styles shown on pages 6 and 7.

Step 2: Turn to that page and match the lip diameter of your cup using the "A" column. Now select the part which closest represents the existing cup by comparing the rest of the dimensions. Example: If you have a cup which matches Figure 1-1, then you would turn to style "B". Next you would locate .53 in the "A" column and match the rest of the dimensions. In this case your final selection would be VC 158C.

B. Selecting a Vacuum Cup for a "new" application

Step 1: Determine the lip diameter required. (Below is a chart that will allow you to calculate the approximate lifting capacity based on the lip diameter.)

Step 2: Select style of vacuum cup preferred (pages 6 & 7).

Step 3: Find matching diameter in the "A" column.

Step 4: Cross-reference style and "A" dimension to select the proper vacuum cup.

Unless otherwise specified, parts ordered will be manufactured from our standard A50 blue vinyl material.

Note: If your selection cannot be found or you have a special application, please refer to our Technical Help Department at 513-791-7741.

Vacuum in Inches	1"	1-1/4"	1-1/2"	1-3/4"	2"	2-1/4"	3"	3-1/8"	3-1/2"	4"	4-1/2"	5"	5-1/4"	5-3/4"	6-1/2"	7"	8-1/2"
Mercury	1"	1-1/4"	1-1/2"	1-3/4"	2"	2-1/4"	3"	3-1/8"	3-1/2"	4"	4-1/2"	5"	5-1/4"	5-3/4"	6-1/2"	7"	8-1/2"
5	.5	.8	1.1	1.5	2	2.5	4.5	5	6	8	10	12	13	16	20	24	35
10	1	1.6	2.2	3	4	5	9	10	12	16	20	24	26	32	40	48	70
15	1.5	2.4	3.3	4.5	6	7.5	13.5	15	18	24	30	36	39	48	60	72	105
20	2	3.2	4.4	6	8	10	18.0	20	24	32	40	48	52	64	80	96	140
21	2.1	3.4	4.6	6.3	8.4	10.5	18.9	21	25.2	33.6	42	50.4	54.6	67.2	84	100.8	147
25	2.5	4	5.5	7.5	10	12.5	22.5	25	30	40	50	60	65	80	100	120	175

Figures shown are approximate to 1/2 lb., have a 4 to 1 safety factor, and are based on the following formula:

$$\text{Lifting capacity} = \frac{.4912 \times \text{cup area} \times \text{inches vacuum}}{4}$$

Due to the variety of lip design the actual lifting capacity cannot be guaranteed.

Material Specifications



Material	Working Temperature	Wear Resistance	Oil Resistance	Durometer
Vinyl	+32 – +125°F	Excellent	Fair	A20 – A75 Range
Urethane	+32 – +150°F	Good	Good	A20 – A70 Range
Silicone	-50 – +400°F	Good	Good	A30 – A60 Range
Oil Resistant Vinyl	+32 – +125°F	Good	Excellent	A40 – A60 Range

Standard Durometer is A50 + or - 5 points.

Unless otherwise specified, parts ordered will be manufactured from our standard A50 blue vinyl material.

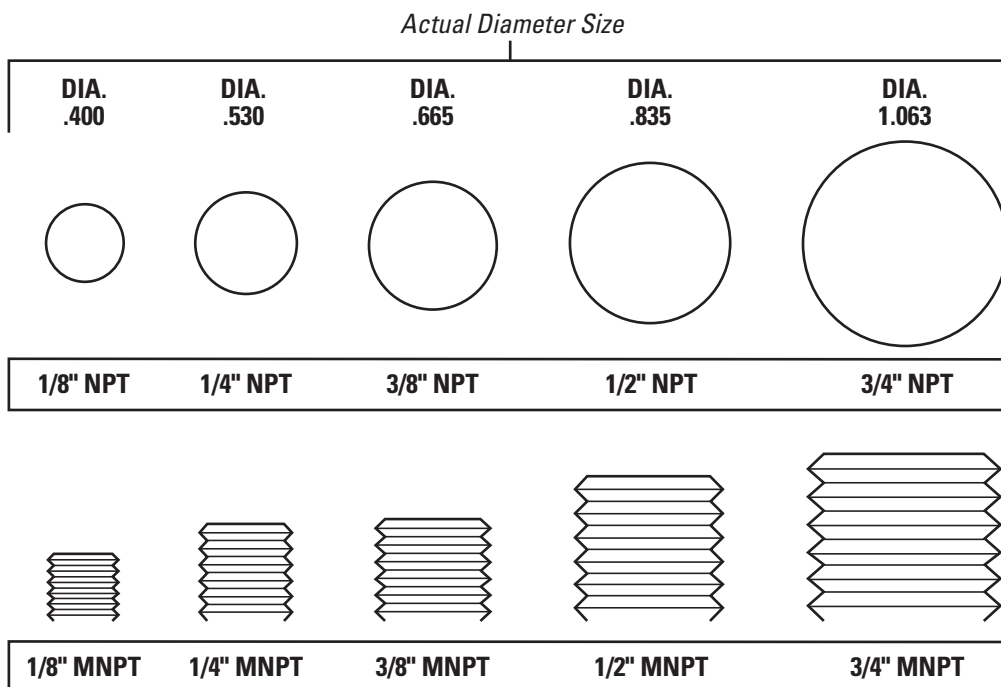
Other materials available:

- FDA Vinyl
- Anti-Static Vinyl
- FDA Silicone

Definitions

- Durometer:** Method by which the hardness of the material is gauged
- Cleats:** Bottom protrusions used for maintaining a larger vacuum area
- Bellows:** The fold or collapsible area that allows the cup to compress like an accordion
- Insert/Fitting:** Metallic piece bonded to the material to allow fastening by threads or bolts
- Convolution:** The folded area of a bellows cup that makes up 1 internal "V"
- Suction Cup:** Cup that does not require an external vacuum source to adhere to a surface
- Vacuum Cup:** Cup that does require the use of an external vacuum source to adhere to a surface

SIZE COMPARISONS ACTUAL OUTSIDE DIAMETERS OF PIPE THREADS



Most ordering problems occur by measuring the actual size of a fitting. This is the incorrect way of measuring. This sizing guide will help in determining the correct size that you need to order.

The most widely used pipe threads are National Pipe Threads (NPT). This thread has a taper that provides a leak resistant fit. NPT and FPT = Female Threads
MPT and MNPT = Male Threads

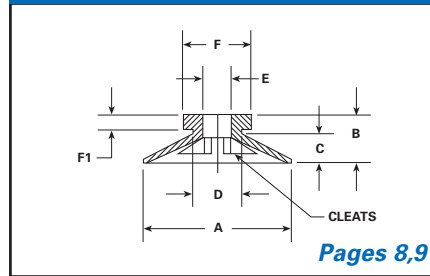
Need a custom vacuum cup made?

Vi-Cas can duplicate your existing part or work from a drawing without tooling or mold charges.

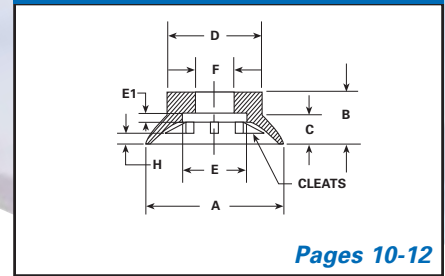
By only charging a small set-up fee and adding your part to our product line we can save you the expense of a mold.

Adapters are available. See page 30 for listing.

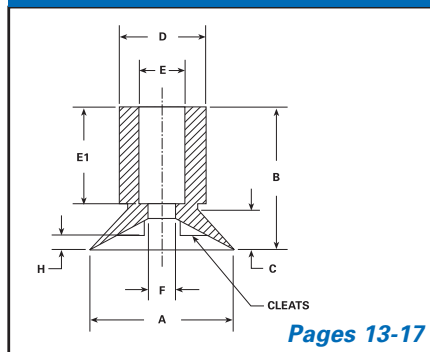
Style A



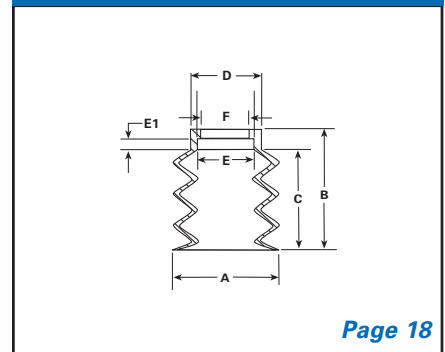
Style B



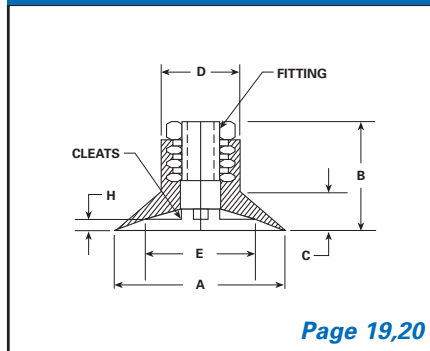
Style C



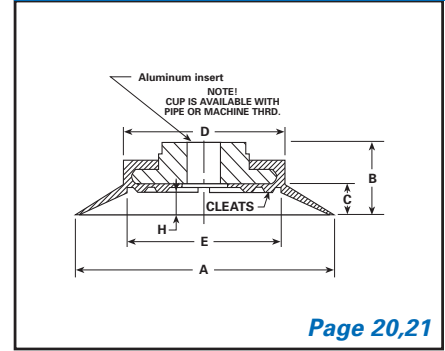
Style D



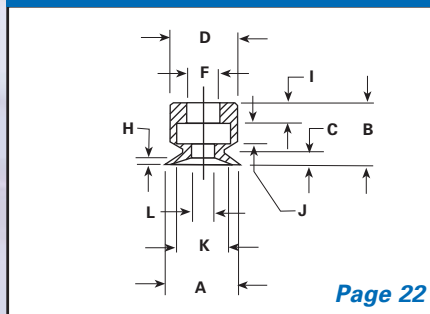
Style E



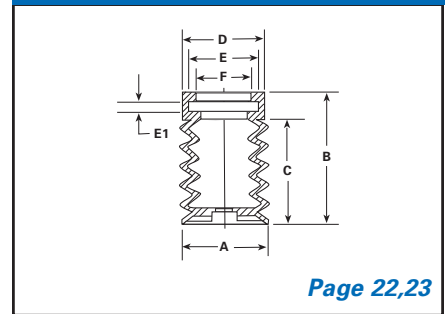
Style F



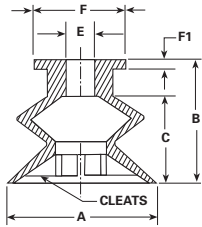
Style G



Style H

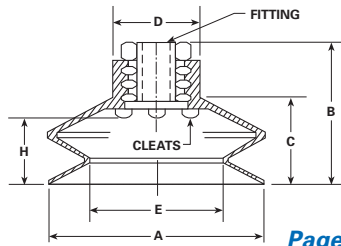


Style I



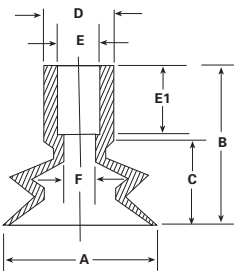
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Style J

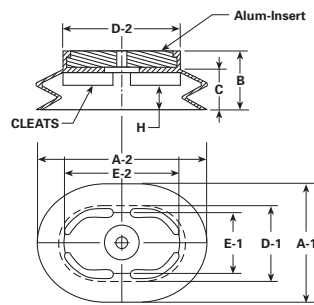


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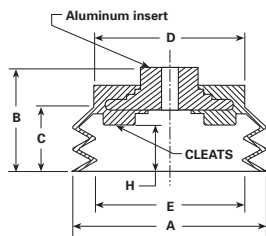
Style K



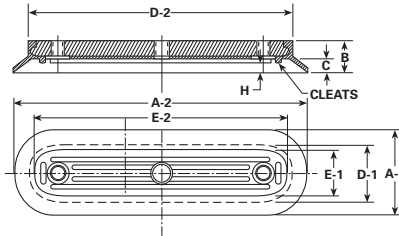
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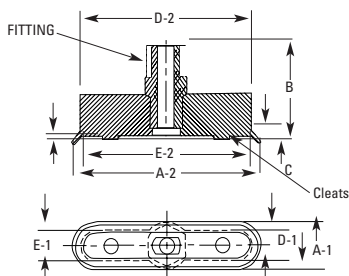
Style M



Page 29



Style O



Page 32

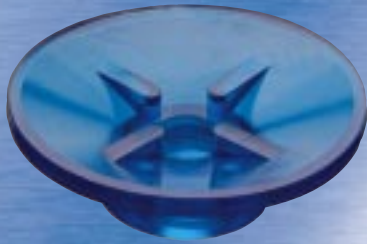
**Many cups can be provided with filters.
Please call for specific applications.**





Vacuum Cups – Style A

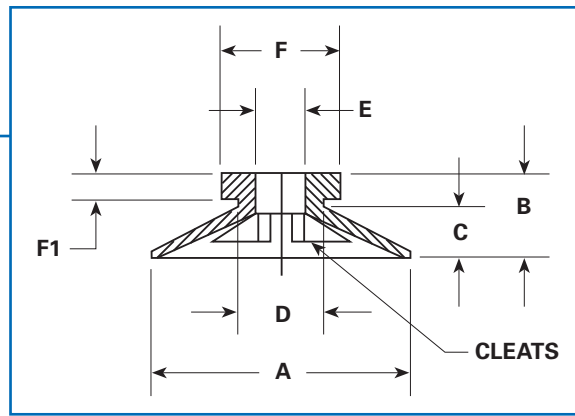
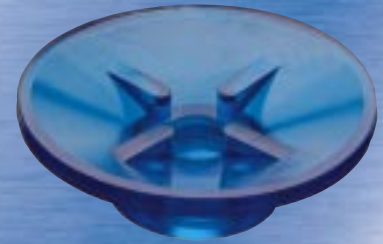
Style A



VC No.	A	B	C	D	E	F x F1	Cleats
144 F	2.46	0.76	0.51	0.71	0.37	0.95 x 0.18	YES
5B	2.10	0.75	0.48	0.75	0.37	0.93 x 0.20	YES
U50	2.06	0.69	0.40	0.75	0.49	1.05 x 0.14	NO
D50P	2.03	1.25	0.67	0.71	0.50	1.04 x 0.18	NO
142	1.85	0.64	0.40	0.82	0.25	1.00 x 0.17	YES
144B	1.85	0.62	0.39	0.62	0.37	0.89 x 0.17	YES
144	1.85	0.62	0.37	0.75	0.37	0.95 x 0.15	YES
144A	1.75	0.50	0.31	0.79	0.37	0.98 x 0.14	NO
100B	1.67	0.50	0.39	0.43	0.25	0.65 x 0.09	YES
100B1	1.67	0.68	0.39	0.43	0.25	0.65 x 0.09	YES
100C1	1.67	0.54	0.37	0.42	0.25	0.60 x 0.10	NO
100A	1.65	0.53	0.39	0.42	0.25	0.65 x 0.07	YES
100C	1.65	0.57	0.42	0.42	0.25	0.60 x 0.09	NO
100E	1.65	0.62	0.28	0.76	0.34	0.98 x 0.18	NO
100	1.65	0.50	0.40	0.43	0.25	0.60 x 0.04	NO
272	1.64	0.50	0.27	0.50	0.28	0.75 x 0.10	YES
144A1	1.62	0.64	0.34	0.75	0.39	0.95 x 0.14	NO
144D	1.62	0.59	0.35	0.62	0.37	0.90 x 0.17	YES
121C	1.62	0.43	0.33	0.50	0.18	0.60 x 0.07	YES
U40	1.60	0.47	0.27	0.51	0.34	0.78 x 0.10	NO
50A	1.57	0.89	0.50	0.42	0.23	0.60 x 0.06	YES
57	1.53	0.75	0.43	0.75	0.31	1.01 x 0.25	NO
100F	1.51	0.53	0.51	0.43	0.25	0.62 x 0.09	YES
100D	1.50	0.50	0.37	0.43	0.25	0.59 x 0.09	YES
105	1.49	0.76	0.52	0.43	0.25	0.62 x 0.09	YES
R61	1.42	0.78	0.34	0.46	0.25	0.60 x 0.09	YES
299	1.40	0.38	0.21	0.43	0.25	0.68 x 0.07	NO
166	1.40	0.64	0.42	0.54	0.26	0.74 x 0.05	NO
2E2	1.35	0.54	0.31	0.43	0.31	0.60 x 0.09	NO
144C	1.35	0.50	0.51	0.62	0.37	0.89 x 0.18	YES
57A	1.32	0.62	0.31	0.75	0.37	0.95 x 0.21	YES
2A1	1.31	0.53	0.43	0.37	0.25	0.60 x 0.07	YES
57C	1.31	0.62	0.39	0.75	0.39	0.93 x 0.18	NO
57B	1.29	0.57	0.40	0.67	0.31	0.90 x 0.18	NO
D30P	1.26	0.73	0.33	0.37	0.20	0.57 x 0.08	NO
R62	1.25	0.43	0.32	0.42	0.25	0.62 x 0.07	NO
2EF	1.25	0.40	0.26	0.45	0.25	0.56 x 0.06	YES
57D	1.25	0.43	0.25	0.62	0.31	0.87 x 0.18	NO
144C1	1.25	0.59	0.35	0.82	0.37	1.00 x 0.20	NO
9D	1.19	0.25	0.17	0.47	0.28	0.57 x 0.05	NO
121	1.18	0.31	0.18	0.50	0.18	0.62 x 0.07	YES
105A	1.17	0.71	0.33	0.41	0.22	0.61 x 0.09	YES
6A	1.17	0.40	0.28	0.59	0.37	0.67 x 0.06	NO
317	1.16	0.30	0.19	0.47	0.23	0.90 x 0.06	YES
9A	1.14	0.46	0.32	0.45	0.25	0.62 x 0.09	YES
9A1	1.14	0.54	0.39	0.43	0.25	0.62 x 0.09	YES
9B	1.14	0.48	0.30	0.44	0.25	0.60 x 0.09	NO
9	1.14	0.50	0.34	0.43	0.25	0.62 x 0.09	NO
28	1.14	0.50	0.28	0.44	0.25	0.56 x 0.09	YES
381A	1.13	0.64	0.19	0.53	0.31	0.67 x 0.08	YES
120	1.06	0.31	0.22	0.43	0.29	0.56 x 0.03	NO
F25	1.06	0.35	0.15	0.37	0.20	0.55 x 0.07	YES
9C	1.04	0.56	0.35	0.43	0.27	0.60 x 0.09	YES
20	1.04	0.26	0.18	0.45	0.25	0.57 x 0.04	NO
36J	1.03	0.34	0.25	0.43	0.25	0.55 x 0.06	YES
141	1.01	0.60	0.34	0.90	0.31	0.87 x 0.18	NO



Style A



VC No.	A	B	C	D	E	F x F1	Cleats
36A	1.00	0.35	0.25	0.43	0.25	0.65 x 0.09	NO
36B	1.00	0.34	0.25	0.42	0.24	0.56 x 0.07	YES
36C	1.00	0.29	0.25	0.46	0.26	0.56 x 0.06	NO
36D	1.00	0.34	0.18	0.45	0.26	0.62 x 0.07	YES
36F	1.00	0.39	0.21	0.43	0.25	0.61 x 0.75	NO
36G	1.00	0.34	0.23	0.43	0.25	0.62 x 0.07	YES
36H	1.00	0.34	0.21	0.45	0.25	0.62 x 0.07	NO
36	1.00	0.42	0.25	0.43	0.25	0.62 x 0.07	NO
184	1.00	1.06	0.21	0.37	0.21	0.50 x 0.18	NO
26	0.96	0.62	0.37	0.37	0.18	0.56 x 0.08	NO
U20	0.87	0.31	0.08	0.38	0.19	0.53 x 0.10	NO
D20P	0.84	0.50	0.21	0.37	0.18	0.56 x 0.07	NO
41	0.82	0.29	0.19	0.40	0.19	0.59 x 0.06	NO
381	0.80	0.63	0.17	0.40	0.27	0.55 x 0.08	YES
41G	0.80	0.39	0.22	0.42	0.13	0.63 x 0.10	NO
170	0.79	0.25	0.09	0.31	0.18	0.42 x 0.09	NO
48	0.78	0.29	0.62	0.34	0.25	0.37 x 0.06	NO
41E	0.76	0.39	0.12	0.34	0.20	0.54 x 0.09	NO
41F	0.76	0.20	0.14	0.43	0.26	0.75 x 0.04	NO
263	0.72	0.37	0.12	0.50	0.13	0.62 x 0.09	YES
41A	0.71	0.43	0.25	0.40	0.18	0.56 x 0.12	YES
41B	0.71	0.43	0.25	0.40	0.18	0.56 x 0.12	NO
41D	0.71	0.42	0.23	0.39	0.21	0.54 x 0.12	YES
329	0.61	0.18	0.05	0.23	0.07	0.31 x 0.04	NO
41C	0.60	0.32	0.14	0.29	0.18	0.46 x 0.09	NO
123A	0.57	0.51	0.14	0.29	0.20	0.75 x 0.09	NO
123A1	0.57	0.54	0.18	0.31	0.18	0.75 x 0.09	NO
123B	0.57	0.50	0.14	0.31	0.18	0.73 x 0.23	NO
167C1	0.56	0.37	0.78	0.15	0.06	0.18 x 0.09	NO
68	0.37	0.51	0.06	0.28	0.18	0.50 x 0.18	YES
1P	0.35	0.54	0.35	0.35	0.18	0.50 x 0.07	NO
MINI-.300	0.29	0.18	0.03	0.16	0.09	0.21 x 0.03	NO
MINI-.250	0.23	0.20	0.04	0.15	0.09	0.21 x 0.03	NO
MINI-.210	0.21	0.21	0.04	0.10	0.06	0.21 x 0.03	NO
MINI-.200	0.20	0.21	0.02	0.15	0.06	0.22 x 0.04	NO

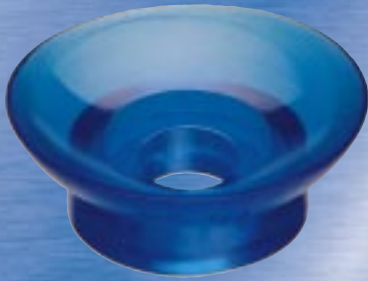
Style A Includes A-1 (oval cup)

VC No.	A	A-1	B	C	D	E	F x F1	Cleats
100B2	1.18	2.00	0.48	0.35	0.42	0.25	0.25 x 0.63	YES
55F	1.50	2.39	0.69	0.42	0.77	0.31	1.02 x 0.13	NO
199	0.69	1.00	0.59	0.31	0.50	0.31	0.62 x 0.20	NO
98	0.62	0.98	1.78	0.34	0.46	0.18	1.00 x 0.18	NO
MINI-7x16	0.28	0.64	0.38	0.19	0.20	0.06	0.28 x 0.08	YES
69A	0.19	0.74	0.60	0.08	0.38	0.09	0.50 x 0.09	NO
69B	0.19	1.00	0.63	0.05	0.37	0.13	0.50 x 0.08	NO



Vacuum Cups – Style B

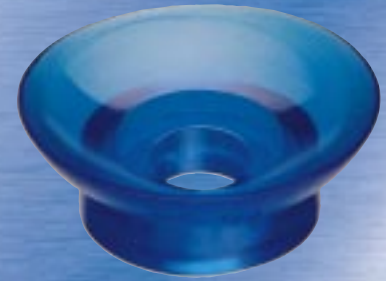
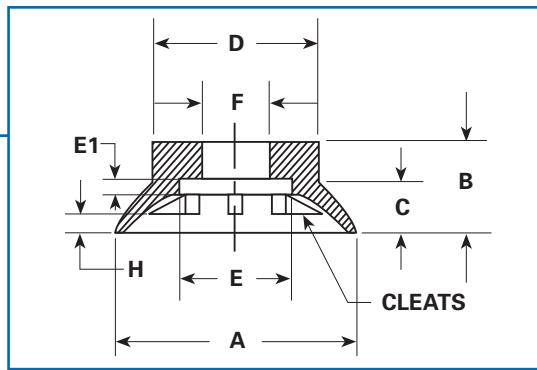
Style B



VC No.	A	B	C	D	E x E1	F	H	Cleats
117	6.50	0.56	0.43	1.12	0.90 x 0.13	0.25	0.26	NO
109	5.18	1.31	1.00	3.50		2.87	0.75	NO
112	5.03	1.39	1.00	3.50		2.89	1.00	NO
198	4.00	0.96	1.04	1.84	1.14 x 0.11	0.70	0.50	YES
378	3.78	0.88	0.88	1.50		0.78	0.47	NO
284	3.57	0.92	0.78	1.56	1.09 x 0.26	0.72	0.13	YES
BH89	3.52	1.30	1.06	1.67	1.12 x 0.11	0.75	0.53	YES
115	3.40	0.82	0.82	0.93		1.50	0.50	NO
114	3.37	0.95	0.85	1.43		1.09	0.50	NO
155	3.35	1.13	1.01	1.25	1.51 x 0.21	0.78	0.28	NO
156	3.28	0.75	0.65	1.23	0.62 x 0.20	0.20	0.31	NO
29	3.25	0.73	0.73	1.65	1.23 x 0.18	0.75	0.31	YES
92A	3.09	0.85	0.55	1.40	0.75 x 0.12	0.41	0.35	NO
92	3.07	0.96	0.78	1.07	0.56 x 0.23	0.26	0.37	NO
18	3.00	0.75	0.70	0.73		0.50	0.37	NO
106C	3.00	0.98	0.70	1.09	0.90 x 0.15	0.39	0.50	NO
153	2.90	1.00	1.00	1.39		0.31	0.38	NO
153A	2.90	1.01	1.01	1.42	0.70 x 0.13	0.40		NO
194	2.87	0.96	0.37	1.75	1.35 x 0.14	0.56	0.18	YES
18D	2.80	0.58	0.58	0.78		0.50	0.41	NO
181	2.75	0.56	0.25	2.18		1.60	0.25	NO
303	2.73	0.71	0.30	2.12	1.87 x 0.30	1.68	0.30	NO
106B	2.73	0.87	0.60	1.09	0.90 x 0.25	0.25	0.43	NO
70B	2.67	0.80	0.50	1.50	1.00 x 0.12	0.50	0.32	NO
62	2.65	1.10	1.10	0.76		0.45	0.79	YES
116	2.62	0.82	0.82	1.20		0.75	0.56	NO
385	2.58	0.44	0.14	1.99	1.80 x 0.19	0.39	0.17	YES
325	2.57	1.00	0.76	0.59	1.0 x 0.09	0.40	0.35	NO
59D	2.50	0.81	0.30	1.25	0.63 x 0.14	0.31	0.11	YES
70A	2.50	0.79	0.60	1.56		0.56	0.38	NO
106	2.50	0.76	0.53	1.09	0.91 x 0.12	0.25	0.37	NO
106PG	2.50	1.00	0.56	1.09	0.90 x 0.12	0.37	0.37	NO
185	2.46	1.48	0.67	1.15		0.75	0.50	NO
171	2.43	0.75	0.46	1.06	1.00 x 0.12	0.50	0.37	NO
91B	2.37	0.98	0.51	1.23	0.57 x 0.31	0.39	0.25	NO
91	2.32	0.93	0.63	0.89	0.56 x 0.28	0.25	0.28	NO
BH60F	2.31	1.42	0.56	1.58	1.20 x 0.22	0.75	0.57	NO
198A	2.29	0.90	0.56	1.56	1.15 x 0.32	0.75	0.50	YES
91A	2.20	0.92	0.53	0.89	0.56 x 0.25	0.25	0.50	NO
54HA	2.15	0.85	0.45	1.37	0.70 x 0.13	0.40	0.35	NO
54H	2.13	0.81	0.30	1.25	0.63 x 0.14	0.31	0.11	YES
5A	2.10	0.71	0.45	1.37	0.75 x 0.12	0.56	0.12	YES
5	2.09	0.71	0.87	1.35	0.87 x 0.17	0.56	0.15	YES
54G	2.09	0.81	0.40	1.35	1.00 x 0.25	0.31	0.37	NO
54E	2.07	0.70	0.29	1.20	0.93 x 0.25	0.54	0.18	NO
54E1	2.07	0.70	0.34	1.20	0.93 x 0.25	0.43	0.25	NO
46	2.04	0.71	0.45	1.28	0.87 x 0.10	0.50	0.25	NO
106A	2.03	0.56	0.43	1.12	0.90 x 0.13	0.25	0.26	NO
59	2.00	0.65	0.25	1.56	0.75 x 0.25	0.25	0.25	YES
99	2.00	1.14	0.35	0.98	0.50 x 0.42	0.25	0.37	NO
149	2.00	1.03	0.09	1.34	0.75 x 0.18	0.50	0.34	YES
168	2.00	0.67	0.45	1.09		0.56	0.31	NO
195	2.00	0.71	0.21	1.50	0.38 x 0.03	0.25	0.59	YES
BH50	2.00	1.00	0.50	1.00	0.68 x 0.43	0.39	0.25	NO
162B	1.98	0.73	0.60	0.50		0.50	0.18	NO
162	1.98	0.57	0.51	0.37		0.31	0.37	NO
54E2	1.98	0.62	0.62	1.03	0.78 x 0.15	0.31	0.14	NO
BH50-2	1.95	1.25	0.50	1.58	1.20 x 0.28	0.75	0.40	NO
54	1.93	0.75	0.42	1.37	0.92 x 0.25	0.56	0.31	NO
54-1	1.90	0.73	0.42	1.35	0.92 x 0.12	0.62	0.37	NO
45	1.84	0.84	0.48	0.87	0.57 x 0.20	0.23	0.28	NO
150	1.82	0.70	0.60	0.82		0.31	0.25	NO



Style B



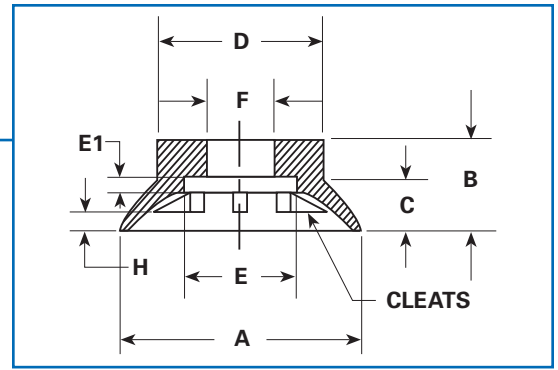
VC No.	A	B	C	D	E x E1	F	H	Cleats
149A	1.81	1.09	0.25	0.75	0.75 x 0.21	0.50	0.50	YES
54A	1.78	0.79	0.39	1.26	0.93 x 0.12	0.56	0.25	NO
111	1.75	0.81	0.09	1.50		0.40		NO
162A	1.75	0.42	0.26	0.54		0.32	0.12	YES
54HD	1.71	0.81	0.32	1.26	0.92 x 0.18	0.56	0.37	YES
54K	1.63	0.81	0.30	0.88	0.92 x 0.14	0.31	0.31	YES
54F	1.62	0.81	0.31	1.14	0.93 x 0.25	0.56	0.25	NO
100G	1.62	0.53	0.43	0.60		0.38	0.31	NO
163	1.62	0.48	0.48	0.37		0.31	0.32	NO
100H	1.60	0.53	0.34	0.70	0.40 x 0.07	0.15	0.29	NO
307	1.58	0.50	0.11	0.47	0.31 x 0.24	0.25	0.11	NO
54B	1.57	0.81	0.44	1.14	0.93 x 0.12	0.56	0.31	NO
100J	1.57	0.48	0.38	0.63	0.43 x 0.09	0.22	0.14	YES
BH40	1.57	1.00	0.45	0.96	0.70 x 0.15	0.39	0.31	NO
37	1.53	0.75	0.37	0.85	0.56 x 0.21	0.37	0.25	YES
210	1.53	0.45	0.37	0.73		0.56	0.20	NO
8	1.51	0.56	0.35	0.56		0.23	0.21	NO
54J	1.51	0.65	0.20	1.48	0.85 x 0.15	0.56	0.12	NO
37A	1.50	0.81	0.31	0.87	0.58 x 0.25	0.25	0.25	NO
37B	1.50	0.70	0.40	0.85		0.25	0.26	YES
87	1.50	0.43	0.37	0.56		0.18	0.18	NO
257	1.43	0.42	0.23	0.76	0.54 x 0.12	0.31	0.12	YES
51A	1.42	0.43	0.28	0.68		0.32	0.18	NO
146A	1.42	0.75	0.40	0.92	0.68 x 0.12	0.40	0.37	NO
12	1.40	0.50	0.50	0.75		0.31	0.12	NO
146	1.40	0.70	0.35	0.87	0.62 x 0.25	0.39	0.50	NO
205	1.37	1.04	0.37	1.03	0.70 x 0.37	0.45	0.50	NO
59H	1.37	0.82	0.41	0.69	0.53 x 0.40	0.31	0.17	YES
60A	1.37	1.04	0.25	0.67	0.39 x 0.62	0.31	0.04	YES
132	1.35	0.48	0.48	0.54		0.25	0.26	NO
292	1.33	0.45	0.23	0.62		0.31	0.01	YES
67	1.32	0.90	0.43	0.62		0.25	0.25	NO
225B	1.32	0.76	0.43	0.62	0.62 x 0.15	0.32	0.10	YES
23A	1.29	0.62	0.35	0.62		0.18	0.04	YES
23B	1.29	0.65	0.22	0.87		0.31	0.18	YES
23	1.29	0.62	0.34	0.60		0.22	0.26	NO
2C1	1.26	0.32	0.23	0.60	0.35 x 0.09	0.25	0.06	YES
54C	1.25	0.75	0.46	1.04	0.93 x 0.12	0.56	0.31	NO
R24H	1.25	0.25	0.23	0.79		0.60	0.13	NO
270	1.21	0.45	0.13	0.46	0.35 x 0.09	0.15	0.01	NO
88	1.21	0.75	0.34	0.78		0.56	0.25	NO
11	1.18	0.50	0.26	0.75		0.31	0.23	NO
121A	1.18	0.29	0.21	0.60	0.39 x 0.04	0.28	0.01	YES
121B	1.18	0.35	0.25	0.59	0.39 x 0.09	0.18	0.12	NO
133A	1.18	0.48	0.40	0.60		0.18	0.25	NO
138A	1.18	0.53	0.20	0.59	0.39 x 0.10	0.31	0.18	NO
177	1.17	0.37	0.26	0.48		0.26	0.18	NO
BH30	1.17	0.87	0.25	0.78	0.62 x 0.18	0.39	0.25	NO
6	1.12	0.54	0.50	0.39		0.21	0.31	NO
186	1.12	0.31	0.31	0.50		0.31	0.25	NO
207A	1.12	0.48	0.48	0.53	0.43 x 0.09	0.23	0.07	NO
107	1.11	0.75	0.75	0.78	0.56 x 0.25	0.25	0.26	NO
323	1.10	0.40	0.40	0.58		0.40	0.23	NO
193	1.09	0.48	0.20	0.75	0.56 x 0.09	0.37	0.17	NO
36E	1.07	0.26	0.21	0.46		0.40	0.09	NO
279D	1.06	0.18	0.14	0.57		0.20	0.04	YES

(continued on next page)

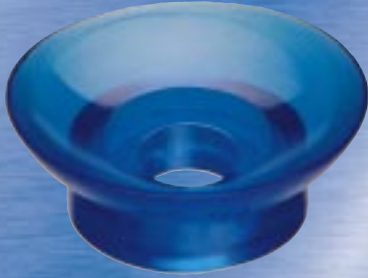


Vacuum Cups

Style B (continued)



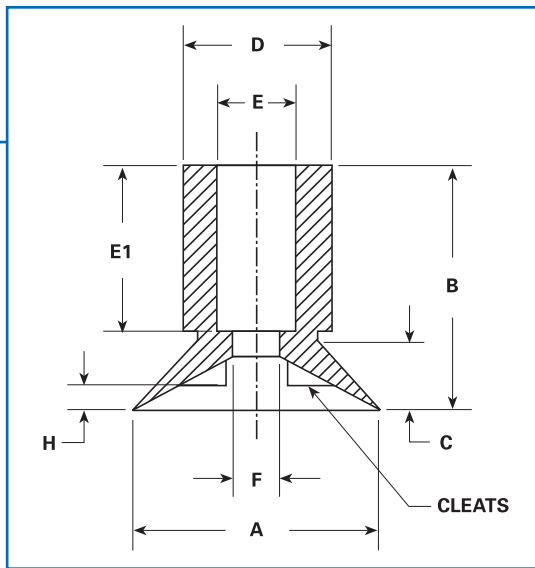
Style B



VC No.	A	B	C	D	E x E1	F	H	Cleats
10A	1.04	0.59	0.25	0.72		0.28	0.25	NO
10	1.04	0.51	0.28	0.62		0.31	0.35	NO
59G	1.01	0.72	0.18	0.70	0.47 x 0.27	0.28	0.10	YES
177A	1.00	0.31	0.23	0.48		0.25	0.15	NO
148	1.00	0.42	0.14	0.54		0.37	0.14	NO
159	1.00	0.62	0.28	0.48		0.18	0.07	YES
207D1	1.00	0.56	0.26	0.62	0.45 x 0.12	0.25	0.09	NO
230	0.93	0.31	0.18	0.48		0.26	0.31	NO
165	0.87	0.37	0.12	0.66		0.50	0.08	NO
279	0.85	0.16	0.12	0.47	0.50 x 0.03	0.25	0.06	NO
197	0.85	0.48	0.17	0.50	0.45 x 0.21	0.26	0.10	NO
257A	0.85	0.32	0.20	0.46	0.35 x 0.07	0.23	0.09	NO
84	0.84	0.50	0.23	0.50		0.18	0.29	NO
279A	0.83	0.15	0.12	0.42	0.46 x 0.03	0.19	0.04	NO
151	0.81	0.60	0.73	0.54		0.25	0.23	NO
207B	0.81	0.40	0.17	0.57	0.43 x 0.12	0.18	0.07	NO
45A	0.79	0.45	0.18	0.42	0.35 x 0.14	0.15	0.12	NO
228	0.79	0.60	0.15	0.46	0.75 x 0.31	0.18	0.09	NO
279C	0.79	0.16	0.10	0.59		0.35	0.09	NO
108	0.78	0.39	0.21	0.46		0.25	0.04	NO
66B	0.75	0.92	0.12	0.45		0.25	0.14	NO
158A	0.75	0.37	0.18	0.44		0.17	0.09	YES
230A	0.75	0.17	0.09	0.42		0.26	0.17	NO
279B	0.72	0.18	0.13	0.31		0.15	0.06	NO
158	0.71	0.43	0.04	0.45		0.18	0.06	YES
286	0.71	0.30	0.30	0.22		0.06	0.04	YES
133	0.67	0.25	0.21	0.37		0.18	0.15	NO
248	0.67	0.46	0.10	0.35	0.17 x 0.25	0.15	0.09	NO
43	0.65	0.32	0.12	0.37		0.15	0.06	NO
207	0.62	0.34	0.12	0.46	0.31 x 0.12	0.18	0.09	NO
158F	0.54	0.28	0.12	0.31	0.17 x 0.14	0.12	0.07	YES
158C	0.53	0.28	0.13	0.31	0.25 x 0.10	0.15	0.10	YES
172	0.53	0.70	0.09	0.35		0.18	0.09	NO
207C	0.50	0.34	0.12	0.42	0.23 x 0.12	0.18	0.07	NO
206	0.42	0.48	0.07	0.35	0.25 x 0.12	0.20	0.03	NO
207D	0.40	0.34	0.08	0.43	0.21 x 0.12	0.18	0.06	NO
MINI-.400	0.40	0.30	0.05	0.21		0.08	0.02	NO
158D	0.38	0.29	0.12	0.29	0.23 x 0.06	0.17	0.06	YES
164A	0.37	0.31	0.06	0.31	0.23 x 0.20	0.18	0.06	NO
165A	0.37	0.25	0.25	0.37	0.31 x 0.109	0.21	0.03	NO
164	0.37	0.34	0.07	0.28	0.25 x 0.09	0.21	0.07	NO
MINI-.224	0.32	0.19	0.07	0.31		0.15	0.04	NO
MINI-.299	0.31	0.25	0.07	0.34		0.20		NO
MINI-.310	0.31	0.26	0.04	0.20	0.09 x 0.09	0.04	0.03	NO
MINI-.312	0.29	0.46	0.04	0.26		0.18		YES
MINI-.260	0.26	0.09	0.03	0.18		0.12		NO
MINI-.255	0.25	0.39	0.04	0.18		0.09	0.06	NO

Vacuum Cups

Style C



Style C



VC No.	A	B	C	D	E x E1	F	H	Cleats
244	3.84	2.20	0.67	1.50		0.78	0.25	NO
204	3.50	0.94	0.64	0.98		0.38	0.37	NO
15	3.45	1.39	0.70	1.14		0.62	0.43	NO
30A	3.09	1.84	0.59	1.09	0.67 x 0.84	0.58	0.25	NO
30B	3.09	2.23	0.69	1.12	0.53 x 1.17	0.50	0.50	NO
31A	3.09	1.31	0.61	1.16		0.48	0.50	YES
30	3.06	1.39	0.64	1.14		0.50	0.37	NO
18A	2.93	0.86	0.72	1.21	0.45 x 0.35	0.31	0.32	YES
237	2.77	1.22	0.52	0.98	0.45 x 0.65	0.31	0.51	YES
355	2.69	0.63	0.63	0.88		0.75	0.57	NO
47N	2.65	0.23	0.80	0.06	0.41 x 0.57	0.23	0.46	NO
1	2.62	2.23	1.08	1.03	0.63 x 0.89	0.33	0.25	YES
49C	2.55	2.03	0.64	0.98	0.62 x 1.15	0.31	0.62	YES
49D	2.55	2.00	0.71	1.00	0.63 x 1.44	0.31	0.17	YES
204A	2.51	1.06	0.67	0.98		0.38	0.42	NO
254	2.50	1.50	0.50	1.25	0.94 x 0.93	0.56	0.45	NO
4	2.50	2.02	0.33	1.00		0.38	0.62	YES
13A	2.48	1.36	0.64	1.17	0.50 x 0.50	0.63	0.37	YES
49	2.47	1.91	0.81	1.03	0.62 x 0.90	0.38	0.56	YES
13	2.45	1.35	0.69	1.17	0.64 x 0.51	0.63	0.40	NO
101	2.40	1.25	0.56	0.73		0.38	0.31	YES
242	2.34	2.48	0.88	1.50	0.95 x 1.59	0.38	0.48	NO
204B	2.03	0.70	0.44	0.81	0.38 x 0.29	0.50	0.46	NO
365	2.00	1.92	0.46	0.97	0.67 x 0.99	0.25	0.32	NO
58	1.98	1.05	0.44	0.73		0.38	0.18	YES
58A	1.98	1.00	0.45	0.75	0.31 x 0.45	0.18	0.25	NO
52	1.97	1.34	0.84	0.73		0.25	0.75	NO
47N1	1.91	1.14	0.59	0.88	0.39 x 0.56	0.19	0.34	NO
3A	1.86	0.97	0.30	0.97	0.63 x 0.36	0.25	0.31	YES
3	1.86	1.92	0.30	0.97	0.63 x 0.93	0.27	0.31	YES
316A	1.75	0.66	0.36	0.61		0.39	0.13	NO
204C	1.75	0.92	0.47	0.81	0.38 x 0.50	0.50	0.31	NO
100S	1.70	0.72	0.34	0.72	0.38 x 0.43	0.52	0.20	NO
100S1	1.67	0.77	0.33	0.73		0.38	0.29	YES
127A	1.66	1.11	0.33	0.98		0.45	0.25	NO
51	1.64	1.95	0.30	0.94	0.64 x 0.85	0.25	0.20	NO
7	1.64	1.47	0.28	0.91		0.33	0.17	NO
7A	1.64	1.47	0.23	0.91	0.63 x 0.93	0.25	0.15	NO
7-1	1.63	1.50	0.27	0.92		0.38	0.18	NO
133B	1.62	0.66	0.61	0.63		0.19	0.39	NO
7C	1.60	1.50	0.28	0.90	0.50 x 0.96	0.25	0.16	NO
373	1.59	0.78	0.22	0.63	0.31 x 0.59	0.19	0.07	YES

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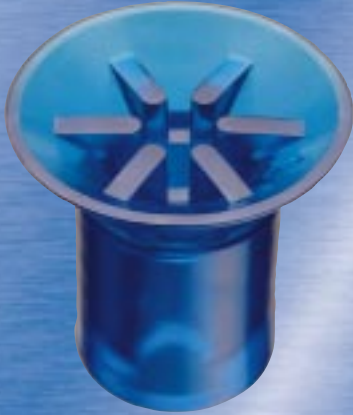
NOTE:
Style C cups
WITH
E and E1
dimensions
have a counter-bore
mounting hole.

Style C cups
WITHOUT
E and E1
dimensions
(F only)
have a thru
mounting hole.



Vacuum Cups – Style C *(continued)*

Style C



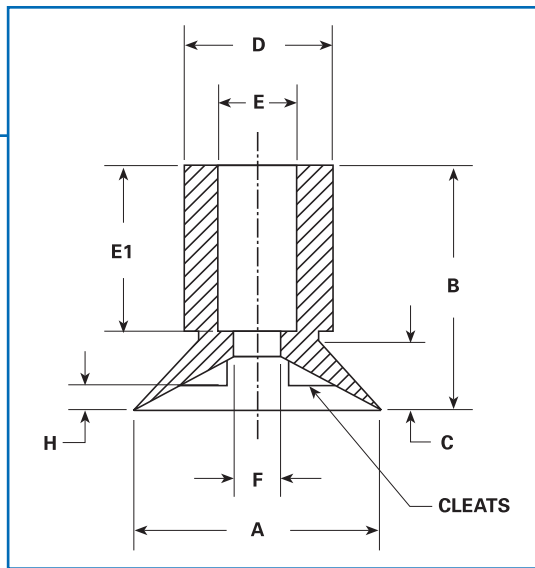
VC No.	A	B	C	D	E x E1	F	H	Cleats
233	1.59	0.61	0.31	0.98		0.44	0.18	NO
47L	1.58	1.19	0.72	0.73	0.41 x 0.62	0.14	0.40	NO
49A	1.56	1.55	0.38	0.97	0.38 x 0.89	0.31	0.37	YES
49A1	1.56	1.02	0.37	0.96		0.38	0.09	NO
49B	1.56	1.81	0.38	0.97	0.61 x 0.75	0.33	0.37	YES
50	1.56	0.94	0.47	0.48		0.23	0.26	YES
7B	1.52	1.03	0.34	0.78	0.38 x 0.67	0.19	0.17	YES
127	1.50	1.17	0.33	0.98		0.45	0.32	NO
143	1.50	2.52	0.30	0.84	0.63 x 0.89	0.31	0.15	NO
204D	1.50	0.88	0.42	0.80		0.50	0.29	NO
97	1.43	0.58	0.20	0.69	0.47 x 0.42	0.56	0.06	YES
126	1.39	0.92	0.20	0.98		0.44	0.15	NO
177B	1.39	0.35	0.30	0.47		0.24	0.15	NO
177C	1.39	0.71	0.31	0.59		0.38	0.20	NO
131	1.38	1.54	0.45	0.61	0.39 x 1.06	0.27	0.28	YES
360	1.38	0.56	0.18	0.75		0.28	0.18	NO
2E1	1.37	1.00	0.27	0.61		0.31	0.09	YES
2E	1.36	1.09	0.28	0.63		0.38	0.14	YES
60	1.32	1.06	0.41	0.73	0.50 x 0.75	0.25	0.23	NO
65	1.32	1.05	0.27	0.69	0.42 x 0.57	0.25	0.12	YES
2A	1.31	0.77	0.23	0.63		0.25	0.11	YES
2EB	1.31	0.95	0.30	0.64		0.19	0.10	YES
2EH	1.31	1.04	0.27	0.63		0.38	0.12	YES
2C	1.29	0.80	0.25	0.61		0.25	0.11	NO
2	1.28	1.00	0.23	0.63	0.41 x 0.54	0.25	0.15	YES
64	1.28	1.07	0.28	0.67	0.42 x 0.62	0.28	0.11	NO
2D	1.25	1.00	0.23	0.61	0.41 x 0.58	0.25	0.11	YES
42	1.25	1.11	0.25	0.61	0.42 x 0.62	0.25	0.05	YES
127B	1.25	1.00	0.25	0.75		0.56	0.48	NO
327	1.24	0.90	0.20	0.80	0.44 x 0.66	0.36	0.03	YES
110	1.23	1.00	0.35	0.53	0.25 x 0.60	0.14	0.23	NO
59J	1.22	0.59	0.19	0.59	0.43 x 0.41	0.26	0.12	YES
236	1.21	1.19	0.38	0.80	0.39 x 0.48	0.23	0.32	NO
152	1.20	1.09	0.27	0.66	0.42 x 0.62	0.27	0.26	NO
2D2	1.19	0.59	0.18	0.59	0.44 x 0.39	0.23	0.10	YES
313B	1.19	0.61	0.21	0.59	0.39 x 0.25	0.31	0.18	NO
127C	1.18	0.93	0.25	0.61		0.32	0.17	NO
140	1.18	0.83	0.36	0.55		0.28	0.32	NO
301B	1.18	1.38	0.40	0.83	0.63 x 0.98	0.47	0.25	NO
342	1.18	0.85	0.13	0.63	0.44 x 0.48	0.12	0.06	YES
258	1.17	0.25	0.08	0.50		0.36	0.04	NO
110B	1.16	0.48	0.25	0.31	0.15 x 0.23	0.15	0.16	NO
316B	1.16	0.94	0.25	0.62		0.32	0.20	NO
224	1.13	0.52	0.27	0.32		0.16	0.16	NO
209	1.12	1.14	0.48	0.56		0.38	0.45	NO
19	1.11	0.72	0.41	0.47	0.23 x 0.32	0.31	0.31	NO
118	1.11	0.66	0.16	0.48		0.31	0.11	NO
136B	1.10	0.63	0.16	0.87	0.47 x 0.39	0.47	0.11	YES
136C	1.10	0.66	0.17	0.87	0.56 x 0.39	0.23	0.08	YES
354	1.09	0.38	0.36	0.58		0.39	0.20	NO
369	1.09	0.66	0.18	0.84	0.43 x 0.45	0.25	0.05	YES
250	1.08	0.97	0.16	0.77		0.42	0.06	NO
53	1.06	0.73	0.23	0.56		0.23	0.18	NO
145	1.06	1.88	0.25	1.00	0.75 x 0.09	0.44	0.25	YES
160	1.06	0.77	0.20	0.50		0.23	0.09	YES
160C	1.06	0.83	0.20	0.58	0.28 x 0.50	0.23	0.09	YES
19A	1.05	0.58	0.22	0.47		0.27	0.18	NO
147	1.04	1.00	0.25	0.67	0.38 x 0.59	0.27	0.20	NO

NOTE:
Style C cups WITH E and E1 dimensions have a counter-bore mounting hole.

Style C cups WITHOUT E and E1 dimensions (F only) have a thru mounting hole.



Style C



VC No.	A	B	C	D	E x E1	F	H	Cleats
14	1.03	1.01	0.17	0.69		0.28	0.12	NO
147B	1.03	0.69	0.25	0.47		0.23	0.19	YES
R10	1.03	0.52	0.23	0.34		0.22	0.14	NO
2F	1.02	1.06	0.19	0.63	0.41 x 0.60	0.25	0.08	YES
59G1	1.01	0.59	0.18	0.70		0.28	0.13	YES
66	1.01	0.84	0.25	0.53		0.27	0.37	NO
113	1.01	0.72	0.11	0.36		0.22	0.31	NO
147A	1.01	0.98	0.22	0.69	0.38 x 0.65	0.25	0.18	YES
159A	1.01	0.61	0.20	0.50		0.19	0.06	YES
2E3	1.00	0.98	0.20	0.63	0.37 x 0.62	0.25	0.09	NO
110A	1.00	0.83	0.35	0.54	0.23 x 0.45	0.12	0.23	NO
147E	1.00	0.85	0.29	0.63	0.43 x 0.50	0.12	0.05	YES
204F	1.00	0.86	0.25	0.80	0.38 x 0.43	0.45	0.14	NO
218	1.00	0.56	0.28	0.28		0.13	0.23	YES
147C	0.98	1.02	0.23	0.50		0.31	0.22	NO
276B	0.98	0.57	0.29	0.25	0.16 x 0.28	0.12	0.15	NO
2D1	0.97	0.86	0.20	0.54	0.23 x 0.53	0.12	0.09	YES
361	0.93	1.00	0.22	0.51	0.32 x 0.71	0.19	0.20	NO
311	0.93	1.10	0.33	0.40		0.20	0.28	NO
R23A	0.86	0.53	0.33	0.28		0.09	0.31	NO
17	0.85	1.03	0.20	0.63		0.33	0.23	NO
R23	0.85	0.80	0.44	0.38		0.14	0.42	NO
79	0.84	0.66	0.19	0.48		0.14	0.11	NO
178	0.84	0.75	0.27	0.42		0.19	0.21	NO
246	0.84	1.03	0.20	0.63		0.42	0.21	NO
372	0.84	0.53	0.32	0.38		0.13	0.02	YES
21A	0.83	0.56	0.53	0.36		0.14	0.32	NO
66A	0.83	0.92	0.14	0.48		0.25	0.15	NO
R22	0.82	0.25	0.23	0.38		0.25	0.14	NO
136A	0.81	0.94	0.19	0.63	0.45 x 0.48	0.22	0.25	YES
21	0.79	0.58	0.41	0.34		0.22	0.25	NO
158B	0.79	0.47	0.11	0.44		0.20	0.08	YES
276C	0.79	0.45	0.17	0.25		0.17	0.08	NO
293	0.79	0.76	0.17	0.66	0.45 x 0.53	0.25	0.14	NO
119B	0.78	0.59	0.19	0.45	0.28 x 0.35	0.14	0.14	YES
135A	0.78	1.12	0.27	0.39	0.26 x 0.50	0.16	0.28	NO
275	0.78	0.61	0.16	0.43	0.18 x 0.24	0.10	0.07	NO
2E5	0.77	1.17	0.16	0.63	0.38 x 0.71	0.20	0.15	YES
16	0.77	0.69	0.13	0.50		0.27	0.08	NO
119A	0.77	0.67	0.13	0.41	0.22 x 0.31	0.16	0.08	YES
2E4	0.75	1.19	0.16	0.63	0.38 x 0.75	0.20	0.15	YES
139	0.75	0.23	0.09	0.38		0.26	0.03	YES
140A	0.75	0.67	0.19	0.47		0.30	0.15	NO
313A	0.75	0.70	0.10	0.58	0.50 x 0.75	0.32	0.05	NO
79A	0.73	0.77	0.19	0.50	0.13 x 0.39	0.25	0.18	NO
158G	0.73	0.36	0.05	0.33		0.16	0.04	YES

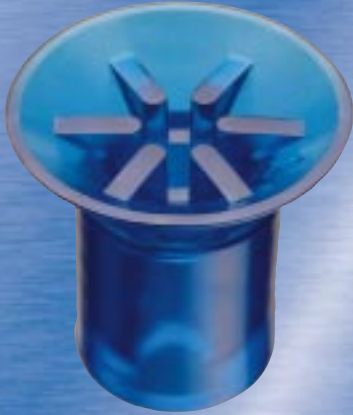
(continued on next page)

NOTE:
Style C cups WITH E and E1 dimensions have a counter-bore mounting hole.
Style C cups WITHOUT E and E1 dimensions (F only) have a thru mounting hole.



Vacuum Cups – Style C *(continued)*

Style C

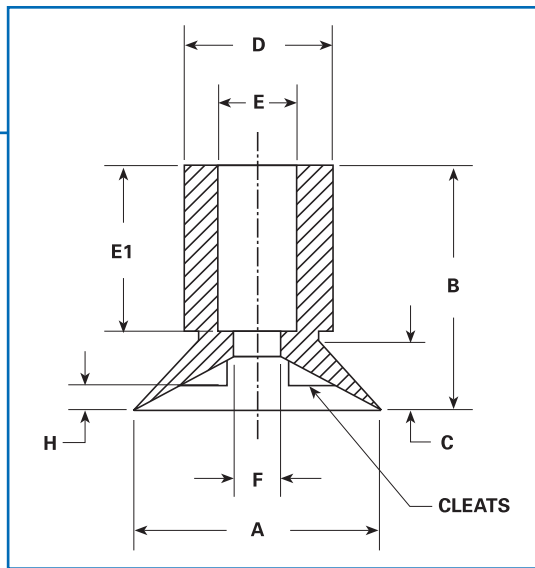


VC No.	A	B	C	D	E x E1	F	H	Cleats
249	0.70	1.19	0.15	0.72	0.57 x 0.62	0.31	0.11	NO
316D	0.70	0.70	0.20	0.31	0.16 x 0.50	0.31	0.11	NO
312	0.69	0.67	0.32	0.35		0.15	0.25	NO
136	0.68	0.92	0.13	0.63	0.42 x 0.53	0.16	0.11	YES
24A	0.67	0.50	0.38	0.25		0.11	0.20	NO
179A	0.66	0.55	0.19	0.38		0.19	0.05	YES
24	0.65	0.59	0.34	0.30		0.11	0.14	NO
179	0.64	0.58	0.19	0.38		0.19	0.35	NO
D15	0.64	0.63	0.28	0.35	0.15 x 0.11	0.14	0.27	NO
351	0.63	0.81	0.13	0.44	0.25 x 0.56	0.15	0.06	NO
24B	0.62	0.56	0.27	0.31		0.20	0.21	NO
66C	0.62	0.92	0.14	0.46		0.25	0.17	NO
122	0.62	0.63	0.16	0.39		0.13	0.25	NO
135	0.62	0.82	0.16	0.31	0.19 x 0.67	0.13	0.10	NO
157B	0.62	0.56	0.25	0.38		0.19	0.20	NO
61	0.60	0.77	0.13	0.75		0.25	0.08	YES
122A	0.60	0.89	0.17	0.41	0.19 x 0.37	0.14	0.14	NO
316C	0.60	0.47	0.17	0.32		0.15	0.07	NO
276A	0.59	0.48	0.10	0.33		0.11	0.10	NO
306	0.59	1.50	0.12	0.04	0.29 x 1.08	0.18	0.11	NO
379	0.59	0.44	0.15	0.35	0.20 x 0.29	0.08		NO
123	0.56	0.82	0.16	0.56	0.31 x 0.48	0.19	0.12	NO
167B	0.56	0.19	0.11	0.16		0.06	0.08	NO
167C	0.56	0.31	0.11	0.16		0.05	0.09	NO
190	0.56	0.43	0.11	0.33		0.16	0.08	NO
190A	0.56	0.50	0.13	0.33		0.16	0.09	YES
122B	0.53	1.50	0.12	0.26		0.18	0.12	NO
287	0.53	0.41	0.14	0.32		0.17	0.09	NO
157	0.50	0.53	0.25	0.28		0.13	0.28	NO
157A	0.50	0.54	0.23	0.28		0.19	0.32	NO
191A	0.50	0.63	0.07	0.33		0.15	0.10	NO
191B	0.50	0.63	0.07	0.33	0.20 x 0.25	0.13	0.31	NO
220	0.50	0.35	0.06	0.42	0.28 x 0.14	0.14	0.07	NO
251	0.50	1.01	0.08	0.61	0.42 x 0.67	0.14	0.06	NO
191	0.46	0.37	0.06	0.33		0.16	0.28	NO
211	0.45	0.45	0.11	0.33		0.16	0.05	NO
157C	0.43	0.51	0.11	0.23		0.12	0.08	NO
265	0.41	0.23	0.09	0.28		0.16	0.06	NO
167	0.40	0.25	0.05	0.14		0.06	0.06	NO
173	0.40	0.75	0.20	0.31		0.16	0.13	NO
135B	0.39	0.48	0.14	0.20	0.13 x 0.31	0.06	0.09	NO
276	0.39	0.48	0.15	0.33	0.15 x 0.24	0.09	0.09	NO
MINI-U9.5	0.37	0.29	0.07	0.20	0.08 x 0.14	0.05	0.07	NO
161	0.36	0.53	0.63	0.23		0.13	0.03	NO
161C	0.36	0.50	0.06	0.23		0.13	0.05	YES
234	0.35	0.34	0.13	0.33		0.22	0.09	NO
169	0.34	0.36	0.12	0.22		0.13	0.08	NO
169D	0.33	1.00	0.13	0.16		0.06	0.13	NO
MINI-.335	0.33	0.30	0.08	0.23	0.13 x 0.23	0.19	0.06	NO
169A	0.32	1.50	0.12	0.20		0.10	0.12	NO

NOTE:
Style C cups WITH E and E1 dimensions have a counter-bore mounting hole.
Style C cups WITHOUT E and E1 dimensions (F only) have a thru mounting hole.



Style C



VC No.	A	B	C	D	E x E1	F	H	Cleats
169C	0.32	0.90	0.13	0.15		0.06	0.13	NO
MINI-7.9	0.31	0.35	0.06	0.20		0.11	0.04	NO
161A	0.29	1.00	0.11	0.22		0.09	0.09	NO
MINI-U6	0.28	0.26	0.20	0.20		0.08	0.03	NO
167A	0.25	0.19	0.03	0.11		0.06	0.03	NO
MINI-.246	0.25	0.48	0.08	0.16		0.06	0.06	NO
MINI-.199	0.19	0.47	0.05	0.16		0.06	0.03	NO
MINI-.160	0.15	0.50	0.03	0.11		0.05	0.03	NO
MINI-.148	0.14	0.28	0.05	0.23		0.05	0.03	NO
MINI-.125	0.12	0.46	0.03	0.11		0.05	0.02	NO

Style C Includes A-1 (oval cup)

VC No.	A	A-1	B	C	D	E x E1	F	H	Cleats
239	1.20	1.89	0.89	0.36	0.63		0.31	0.21	YES
98A	0.65	0.98	1.01	0.34	0.46	0.18 x 0.76	0.46	0.23	NO
69	0.52	0.39	0.75	0.46	0.43	0.25 x 0.56	0.06	0.11	YES

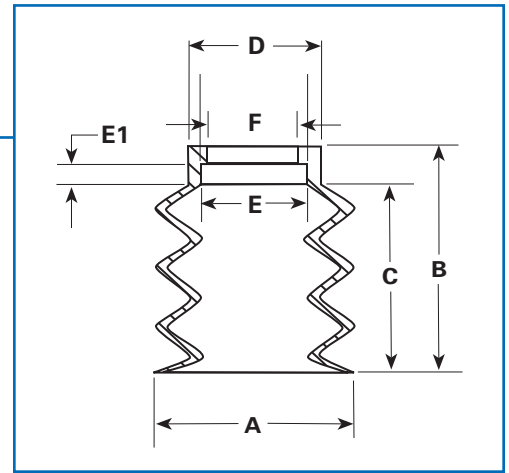
NOTE:
 Style C cups
 WITH
 E and E1
 dimensions
 have a counter-bore
 mounting hole.

Style C cups
 WITHOUT
 E and E1
 dimensions
 (F only)
 have a thru
 mounting hole.



Vacuum Cups

Style D

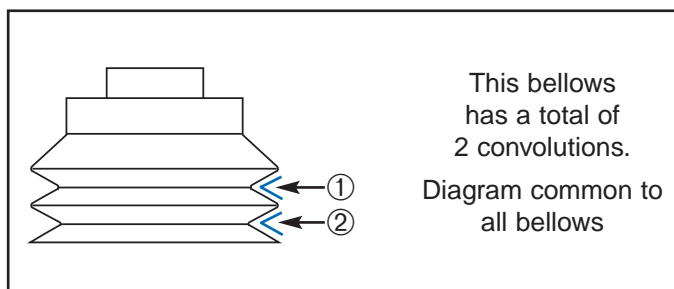


Style D



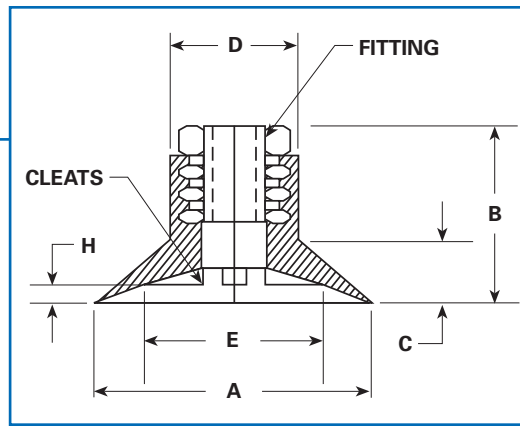
VC No.	A	B	C	D	E x E1	F	Style
104A	3.97	4.14	3.88	1.47	1.40 x 0.28	0.86	D4
321	2.87	1.62	1.50	1.15	0.86 x 0.13	0.68	D3
32E	2.77	1.78	1.41	0.44	0.70 x 0.35	0.50	D1
298	2.75	1.78	1.53	1.25	1.00 x 0.25	0.88	D3
32E1	2.50	1.69	1.06	0.97	0.78 x 0.09	0.63	D1
32G	2.25	1.75	1.19	1.00	0.79 x 0.14	0.56	D2
32W2	2.25	1.19	0.94	0.94	0.75 x 0.22	0.69	D1
201D	2.20	1.35	1.01	1.82	1.67 x 0.26	1.47	D2
33D2	2.19	1.84	1.58	0.98	0.78 x 0.17	0.66	D3
321B4	2.00	1.68	1.46	1.15	0.85 x 0.13	0.67	D4
32W1	1.95	1.16	0.91	0.97	0.73 x 0.25	0.67	D1
32A	1.94	1.98	1.64	0.97	0.75 x 0.20	0.69	D3
32ABC	1.94	1.45	1.17	0.98	0.75 x 0.20	0.69	D2
32TC	1.88	1.63	1.42	0.89	0.76 x 0.12	0.70	D2
32UJ	1.88	1.11	0.84	0.92	0.78 x 0.23	0.70	D1
320	1.81	1.22	0.95	1.15	0.86 x 0.13	0.68	D2
32W	1.79	1.20	0.94	0.97	0.73 x 0.23	0.67	D1
32	1.75	1.69	1.33	1.02	0.76 x 0.28	0.67	D2
B1PA1	1.75	0.82	0.63	0.99	0.87 x 0.04	0.68	D1
33L	1.62	1.60	1.44	1.20	0.93 x 0.03	0.68	D5
33M	1.59	1.66	1.41	0.72		0.46	D2
33B	1.52	1.73	1.50	0.91		0.69	D3
33J	1.50	2.55	2.28	0.94	0.78 x 0.12	0.69	D5
32H3	1.50	1.69	1.47	1.00	0.79 x 0.09	0.69	D3
33D	1.50	1.34	1.09	0.98	0.78 x 0.14	0.67	D2
33	1.48	1.72	1.45	0.97	0.82 x 0.12	0.70	D3
33C	1.41	1.67	1.38	0.94	0.76 x 0.12	0.64	D3
32H6	1.37	1.13	0.88	1.00	0.78 x 0.12	0.66	D2
B1PA	1.27	0.82	0.63	0.99	0.87 x 0.04	0.68	D1
B1P	1.25	1.00	0.64	0.97	0.60 x 0.18	0.67	D1
32H	1.19	0.84	0.61	1.00		0.67	D1
32H2	1.06	2.48	2.23	1.00	0.78 x 0.10	0.66	D5
364	1.00	1.19	0.88	1.00	0.88 x 0.05	0.70	D3
33G2	1.00	1.58	1.27	0.73	0.62 x 0.21	0.50	D3
182	0.97	1.58	1.20	0.73	0.62 x 0.23	0.44	D3
B25	0.94	1.13	0.91	0.59	0.37 x 0.12	0.13	D1
33A5-3	0.87	0.88	0.74	0.79	0.44 x 0.08	0.25	D3
33A5-4	0.87	1.08	0.96	0.79	0.44 x 0.06	0.25	D4

STYLE = Number of Convolutions

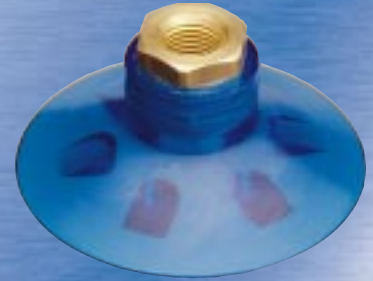


Vacuum Cups

Style E



Style E



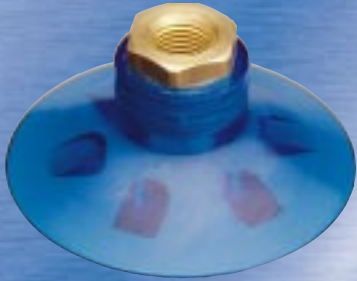
VC No.	A	B	C	D	E	H	Cleats	Remarks	NPT Thrd.
204	3.50	1.10	0.56	0.98	0.51	0.37	NO	LOW PROFILE	1/4
204-1	3.50	1.06	0.61	0.98	0.56	0.20	NO		1/4
15	3.45	1.60	0.62	1.14	0.68	0.37	NO		3/8
15A	3.42	2.58	1.00	1.15	0.66	0.08	YES	3/8M	
72	3.18	2.00	1.35	1.39	1.14	1.00	NO	DEEP DISH	3/8
31A	3.09	1.48	0.59	1.14	0.43	0.12	YES	1/4	
31A	3.09	1.73	0.59	1.14	0.43	0.12	YES	3/8	
212	3.08	1.06	0.84	1.06	0.63	0.36	YES	1/4M	
30	3.06	1.67	0.59	1.14	0.60	0.37	NO		3/8
30	3.06	1.48	0.59	1.14	0.60	0.37	NO		1/4
92	3.07	1.37	0.75	1.06	0.56	0.44	NO		1/4
328	3.00	1.40	1.05	1.50	0.75	0.29	YES	3/8	
106C	3.00	1.28	0.72	1.13	0.94	0.53	NO		1/4
103C	3.00	1.88	0.46	1.18		0.22	NO		5/8-18M
153	2.90	1.38	0.99	1.43	1.65	0.42	NO		1/8
70	2.51	1.00	0.60	1.50	1.50	0.18	YES	3/8	
70	2.51	1.15	0.60	1.50	1.50	0.18	YES	1/4	
70	2.51	1.01	0.60	1.50	1.50	0.18	YES	1/8	
204A	2.51	1.07	0.62	1.00	0.51	0.37	NO	LOW PROFILE	1/4
204A1	2.51	1.12	0.56	1.00	0.43	0.43	NO	LOW PROFILE	1/4
72A	2.50	1.80	0.72	1.35	0.95	0.62	YES	1/2,3/8,1/4	
353A	2.50	1.62	0.77	0.77		0.66	NO		1/4
106	2.50	1.09	0.54	1.09	0.92	0.37	NO		1/8
4	2.50	2.65	0.36	1.00	0.36	0.11	YES	5/8-18M	
13A	2.48	1.67	0.65	1.17	0.63	0.12	NO		3/8
49	2.47	2.23	0.76	1.05	0.43	0.15	YES	1/4	
13	2.45	1.75	0.70	1.18	0.65	0.43	NO		1/4,3/8
59L	2.32	1.88	0.38	1.56	1.28	0.31	YES	7/16-14M	
91	2.32	1.16	0.69	0.88	1.20	0.31	NO		3/8
91A	2.20	2.01	0.51	0.89	0.57	0.37	NO		1/4M
5A	2.10	1.20	0.40	1.37	0.89	0.12	YES	THICK LIP	1/4
5A1	2.10	0.88	0.41	1.37	1.26	0.27	YES	1/8	
368	2.09	0.99	0.35	0.89		0.24	NO		3/8-24M
86	2.09	1.39	0.50	1.17	1.07	0.31	YES	3/8M	
86	2.09	0.98	0.50	1.17	1.07	0.31	YES	1/8	
46	2.04	0.99	0.44	1.28	0.92	0.27	NO		3/8
106A	2.03	1.25	0.41	1.09	0.90	0.25	NO		3/8
204B	2.03	1.12	0.42	0.81	0.51	0.31	NO	LOW PROFILE	1/4
59	2.00	1.00	0.25	1.56	1.31	0.18	YES	RADIAL CLEATS	1/4
59	2.00	0.85	0.25	1.56	1.31	0.18	YES	RADIAL CLEATS	1/8
59A	2.00	1.76	0.24	1.56	1.33	0.19	YES	3/8	
59B	2.00	1.92	0.41	1.28	1.12	0.36	YES	1/8	
99	2.00	1.67	0.34	1.00	0.50	0.31	NO		1/4M
168	2.00	1.02	0.47	1.10	0.83	0.34	NO		1/4
59C	1.83	0.82	0.46	0.88	0.63	0.11	YES	1/8	
204C	1.75	1.14	0.43	0.45	0.53	0.31	NO	LOW PROFILE	1/4
100S	1.70	0.89	0.34	0.73	0.52	0.20	NO		1/8
353	1.66	1.63	0.50	0.78		0.44	NO		1/4
272A	1.65	0.90	0.26	0.75	1.32	0.07	YES	1/8	
214C	1.60	1.16	0.21	1.00		0.13	NO		M10x1.25M
37C	1.53	1.17	0.34	0.90	0.66	0.08	YES	3/8	

When ordering, please specify thread size.

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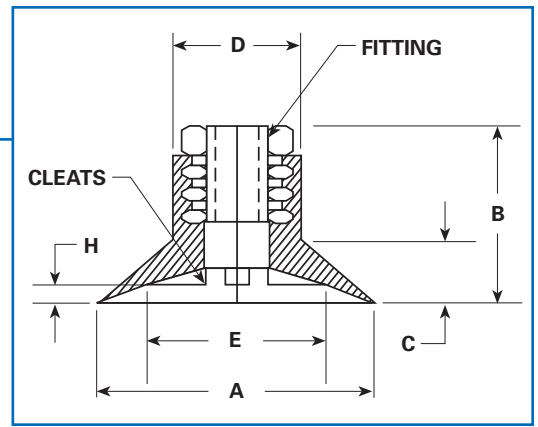


Styles E & F



Vacuum Cups

Style E (continued)



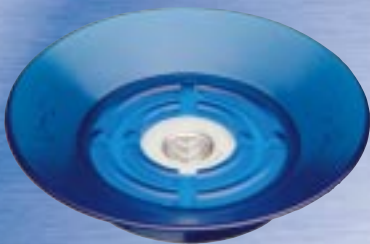
VC No.	A	B	C	D	E	Cleats	H	Remarks	NPT Thrd.
37A	1.50	0.78	0.32	0.89	0.57	0.37	NO		1/8
37B	1.50	1.09	0.40	0.87	0.56	0.18	YES	1/8M	
204D	1.50	1.04	0.43	0.79	0.51	0.29	NO	LOW PROFILE	1/4
59E	1.50	1.62	0.28	1.25	1.06	0.12	YES	1/8	
59F	1.50	1.68	0.36	1.00	0.81	0.18	YES	1/8	
368A	1.48	0.85	0.25	0.89	0.31	0.15	NO		3/8-24M
2EA	1.34	0.90	0.31	0.62	0.89	0.03	YES	THIN LIP	1/8M
204E	1.25	1.10	0.23	0.81	0.51	0.25	NO	LOW PROFILE	1/4
214D	1.22	1.14	0.14	0.80 - 0.84		0.11	NO		M10x1.25M
88	1.21	1.15	0.34	0.75	0.71	0.21	NO		1/8
107	1.11	1.14	0.20	0.77	0.55	0.25	NO		1/8
10	1.04	0.90	0.25	0.62	0.32	0.28	NO		1/8
10A	1.04	0.85	0.32	0.71	0.32	0.21	NO		1/8M
214E	1.02	1.10	0.14	0.59-0.66		0.14	NO		M10x1.25M
204F	1.00	1.12	0.25	0.81	0.45	0.17	NO	LOW PROFILE	1/4

When ordering, please specify thread size.

M = Male thrd.

Vacuum Cups

Style F

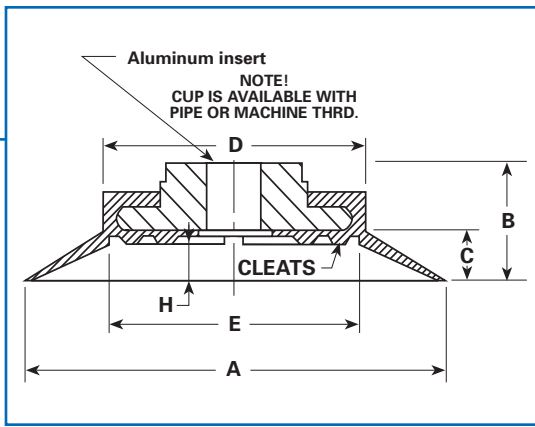


VC No.	A	B	C	D	E	F	H	Cleats
95E	14.68	2.31	1.40	14.00	11.25		1.37	YES
95B	14.00	1.87	1.00	14.00	11.25		0.87	YES
95C	12.00	1.39	0.92	12.00	10.65		0.48	YES
95F	11.80	1.75	1.75	7.83	7.86		0.55	YES
95	11.00	2.00	1.50	8.50	8.25		1.00	YES
95A	10.50	1.39	0.92	10.37	8.75		0.48	YES
95D	10.50	1.87	1.05	8.54	8.10		0.76	YES
96B	8.50	1.62	1.18	6.12	6.62		0.75	YES
96	8.50	1.25	0.87	7.00	7.06		0.38	YES
96A	8.12	2.00	1.18	5.50	4.14		1.00	YES
340	8.00	1.60	0.67	4.25	5.08		0.92	YES
96C	7.20	0.97	0.42	6.38	6.45		0.12	YES
94	7.00	1.62	0.78	5.00	5.21		0.50	YES
295	6.31	0.68	0.50	4.64	4.45		0.25	YES
34A	6.25	1.50	0.75	4.50	3.50		0.50	YES
34	6.25	1.37	0.81	5.00	3.50		0.50	YES

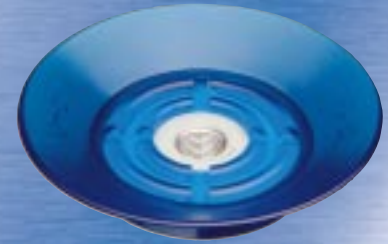
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Vacuum Cups

Style F (continued)



Style F



VC No.	A	B	C	D	E	F	H	Cleats
39	6.00	1.31	0.50	4.75	4.90		0.12	YES
93	5.87	1.25	0.78	5.06	4.81		0.25	YES
35	5.50	2.30	2.06	2.31	2.00		1.50	YES
71	5.31	2.34	1.97	2.25	2.06		1.44	YES
76	5.00	1.75	1.12	3.25	2.65		0.62	YES
103D	5.00	2.06	1.26	1.34	3.37	5/8-18	0.50	YES
38	4.75	1.50	1.12	2.00	3.25		0.37	YES
63	4.75	1.25	1.00	1.67	3.25		0.25	YES
BH115	4.62	1.18	0.97	1.31	2.75		0.50	YES
241	4.50	1.35	0.75	2.90	2.50		0.37	YES
73	4.31	2.00	12.69	2.25	1.80		1.12	YES
27	4.25	1.18	0.50	2.75	2.43		0.37	YES
77	4.12	1.20	0.76	2.81	2.60		0.43	YES
103	4.00	1.37	1.00	1.50	0.75		0.37	NO
208	4.00	1.37	0.43	2.80	2.60		0.25	YES
203	3.93	1.12	0.45	3.00	2.75		0.25	YES
203A	3.90	1.20	0.37	2.75	2.65		0.25	YES
TC100	3.90	1.43	1.00	1.56	1.37	0.75	0.62	NO
245D	3.87	0.59	0.59	3.13	2.20		0.13	YES
219	3.56	1.30	0.50	2.48	1.70		0.37	YES
80	3.50	1.31	1.06	1.62	2.00		0.50	YES
27A	3.25	1.15	0.50	2.23	1.87		0.37	YES
27A1	3.25	1.15	0.50	2.25	1.82		0.31	YES
27B	3.25	1.25	1.00	2.75	2.25		0.18	YES
29	3.25	1.37	0.69	1.67	2.32		0.12	YES
245	3.21	0.71	0.41	2.00	2.28		0.18	YES
72	3.18	2.00	1.40	1.37	1.14		1.06	YES
214A	3.17	1.17	0.23	1.98	2.60	M10x1.25M	0.13	NO
216C	3.13	0.90	0.23	2.76	2.67		0.06	NO
73A2	3.12	1.98	1.69	1.43	1.34		0.93	NO
216	3.12	0.89	0.21	2.73	2.65		0.06	YES
103A	3.09	1.56	1.39	1.48	0.75		0.31	NO
78	3.06	1.65	0.68	1.85	1.43		0.31	YES
31B	3.05	1.21	0.35	2.26	0.64		0.17	YES
TC75	2.95	1.37	0.87	1.56	1.59	0.75	0.56	NO
245B	2.90	0.45	0.35	2.20	2.13		0.19	YES
70	2.51	1.37	0.62	1.50	1.93		0.25	YES
262	2.42	0.70	0.37	1.50	1.56		0.18	YES
214	2.37	1.12	0.21	1.00	1.25		0.18	NO
27A1A	2.25	1.00	0.37	1.56	1.25		0.25	YES
232	2.12	0.97	0.50	1.56	1.43		0.25	YES
245C	2.10	0.45	0.35	1.40	1.33		0.19	YES
86	2.09	1.21	0.50	1.12	1.14		0.31	YES
216A	2.00	0.89	0.21	1.38	1.60		0.06	YES
27A1B	2.00	1.00	0.37	1.56	1.25		0.20	YES
216B	2.00	0.90	0.21	1.62	1.60		0.06	NO
380	1.95	0.73	0.43	1.24	1.33	1/8	0.18	YES
259	1.61	0.51	0.31	0.98			0.16	YES

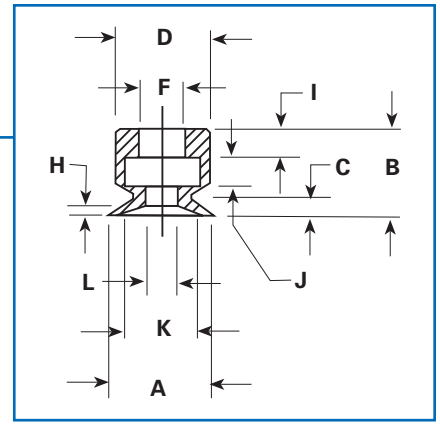
When ordering, please specify thread size.

M = Male thrd.



Vacuum Cups

Style G



Style G & H



VC No.	A	B	C	D	F	H	I	J	K	L
18B	3.05	0.95	0.95	1.18	0.81	0.35	0.32	0.17	1.43	0.31
266	2.07	0.75	0.43	0.55	0.36	0.12	0.28	0.05	0.50	0.28
387	1.64	0.82	0.29	0.76	0.31	0.06	0.17	0.40	0.44	0.13
RM40	1.56	0.46	0.31	0.59	0.34	0.09	0.09	0.09	0.46	0.12
337	1.19	0.37	0.23	0.48	0.20	0.13	0.10	0.08	0.28	0.13
313	1.18	1.03	0.33	0.60	0.39	0.48	0.09	0.09	0.39	0.23
313E	1.18	0.75	0.10	0.59	0.39	0.05	0.09	0.15	0.31	0.51
RM30	1.17	0.46	0.15	0.59	0.35	0.09	0.07	0.09	0.46	0.12
138	1.15	0.62	0.22	0.50	0.28	0.11	0.20	0.13	0.36	0.13
297	0.91	0.55	0.15	0.51	0.24	0.08	0.27	0.07	0.31	0.17
231	0.89	0.59	0.25	0.53	0.23	0.22	0.13	0.13	0.31	0.28
22	0.81	0.56	0.19	0.49	0.25	0.06	0.12	0.12	0.31	0.19
22A	0.78	0.54	0.15	0.54	0.24	0.13	0.10	0.12	0.36	0.20
313D	0.78	0.87	0.27	0.59	0.39	0.43	0.09	0.15	0.31	0.19
119	0.77	0.50	0.23	0.36	0.13	0.03	0.10	0.08	0.19	0.13
349	0.77	0.50	0.26	0.50	0.22	0.21	0.10	0.07	0.30	0.19
RM14	0.65	0.46	0.11	0.59	0.35	0.09	0.07	0.09	0.46	0.12
25	0.63	0.63	0.32	0.50	0.25	0.00	0.13	0.12	0.33	0.19
NJ7	0.59	0.56	0.14	0.50	0.20	0.18	0.11	0.09	0.37	0.14
NJ2	0.51	0.50	0.14	0.34	0.14	0.07	0.12	0.12	0.20	0.10
NJ10.5	0.44	0.30	0.06	0.31	0.16	0.05	0.10	0.08	0.16x0.25	0.11
NJ1	0.42	0.48	0.10	0.35	0.14	0.04	0.07	0.10	0.42	0.12
NJ14	0.42	0.30	0.10	0.33	0.14	0.06	0.08	0.08	0.22	0.09
RM10.5	0.40	0.45	0.06	0.59	0.36	0.04	0.08	0.08	0.47	0.15
389	0.39	0.44	0.06	0.39	0.28	0.38	0.05	0.09	0.20	0.28
NJ6	0.39	0.56	0.09	0.48	0.20	0.14	0.11	0.09	0.35	0.14
NJ10	0.39	0.29	0.06	0.29	0.17	0.04	0.10	0.09	0.25	0.12
MINI-.350	0.35	0.30	0.09	0.27	0.14	0.10	0.09	0.06	0.08	0.07
NJ13	0.35	0.23	0.06	0.35	0.19	0.05	0.06	0.06	0.28	0.11
NJ3	0.32	0.53	0.04	0.40	0.21	0.03	0.17	0.06	0.28	0.14
NJ5	0.32	0.50	0.07	0.45	0.21	0.04	0.12	0.07	0.34	0.07
NJ9	0.32	0.28	0.06	0.31	0.15	0.03	0.09	0.09	0.25	0.11
NJ11	0.28	0.50	0.04	0.40	0.21	0.03	0.15	0.07	0.31	0.12
NJ12	0.26	0.28	0.09	0.29	0.12	0.07	0.10	0.03	0.18	0.07
NJ4	0.23	0.50	0.04	0.39	0.20	0.04	0.09	0.07	0.28	0.09
NJ8	0.23	0.26	0.03	0.31	0.17	0.03	0.08	0.09	0.25	0.09
MINI-.138	0.15	0.15	0.03	0.15	0.07	0.03	0.06	0.03	0.12	0.04
MINI-.080	0.09	0.15	0.02	0.15	0.07	0.02	0.06	0.03	0.12	0.04

Vacuum Cups

Style H



VC No.	Style	A	B	C	D	E x E1	F
202	D3	1.47	1.34	1.05	0.73	0.64 x 0.09	0.38
134	D5	1.38	2.14	1.72	1.31	1.14 x 0.19	0.91
134A	D3	1.34	1.72	1.38	1.31	1.14 x 0.19	0.91
B20P1	D1	0.88	0.76	0.48	0.57	0.40 x 0.08	0.20
267	D1	0.87	0.89	0.64	0.64	0.50 x 0.10	0.37
304C	D1	0.72	0.66	0.39	0.48	0.27 x 0.05	0.20



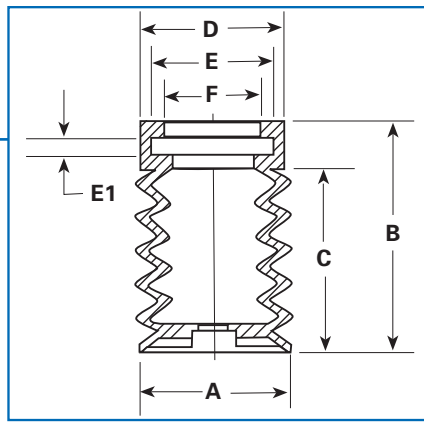
Styles H & I



This bellows has a total of 2 convolutions. Diagram common to all bellows

Vacuum Cups

Style H (continued)

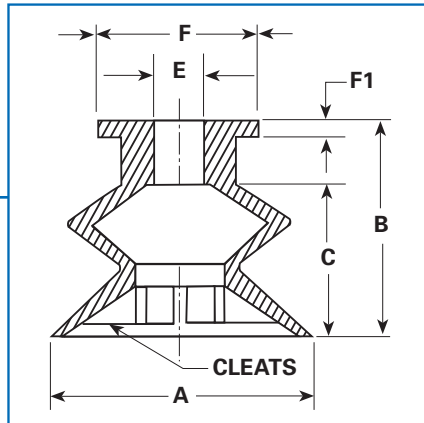


VC No.	Style	A	B	C	D	E x E1	F
RM16	D2	0.67	0.84	0.64	0.59	0.47 x 0.08	0.38
33A6-3	D1	0.66	0.69	0.35	0.52	0.43 x 0.06	0.35
304	D1	0.65	0.46	0.24	0.64	0.48 x 0.07	0.37
176	D1	0.64	0.83	0.38	0.52	0.45 x 0.08	0.34
RM15.8	D2	0.63	0.55	0.33	0.80	0.64 x 0.09	0.50
33A6	D2	0.61	0.98	0.64	0.73	0.56 x 0.06	0.42
B14.5	D1	0.60	0.71	0.38	0.38	0.28 x 0.06	0.20
304A	D1	0.56	0.69	0.45	0.47	0.29 x 0.12	0.21
B3-1A	D3	0.52	1.08	0.82	0.30	0.20 x 0.08	0.15
33A61	D2	0.39	0.91	0.64	0.59	0.50 x 0.08	0.38
B9.5	D2	0.39	0.59	0.31	0.39	0.09 x 0.20	0.20
NJ7.5	D2	0.30	0.77	0.57	0.59	0.47 x 0.08	0.36

STYLE = Number of Convolutions

Vacuum Cups

Style I



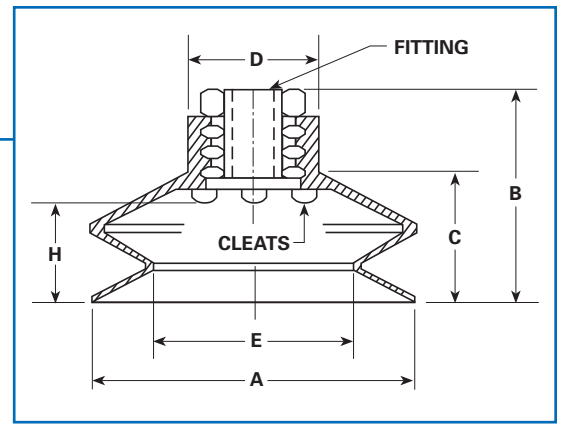
STYLE = Number of Convolutions

VC No.	Style	A	B	C	E	F x F1
B50P	D1	2.10	1.42	0.95	0.40	1.04 x 0.12
B50P1	D2	2.10	2.00	1.45	0.42	1.06 x 0.13
32CS	D1	2.02	1.28	0.83	0.37	0.57 x 0.18
B40P	D1	1.70	1.13	0.89	0.29	0.75 x 0.10
B30-2	D1	1.37	1.04	0.71	0.29	0.78 x 0.09
B30-1	D1	1.34	1.13	0.76	0.31	0.90 x 0.22
B30P	D1	1.30	1.00	0.73	0.20	0.56 x 0.06
B1D	D1	1.21	1.03	0.79	0.29	0.54 x 0.10
BL30	D4	1.21	1.21	0.95	0.29	0.80 x 0.10
B1F	D1	1.20	0.85	0.73	0.25	0.64 x 0.09
124A	D1	1.00	0.84	0.59	0.18	0.62 x 0.06
192	D2	1.00	1.00	0.56	0.06	0.50 x 0.09
33F	D2	0.98	1.17	1.00	0.18	0.54 x 0.10
B20P	D1	0.87	0.75	0.48	0.28	0.56 x 0.07
324B	D1	0.82	0.62	0.44	0.31	0.60 x 0.10
BL20	D4	0.79	0.88	0.73	0.20	0.56 x 0.07
B2F	D1	0.75	0.68	0.45	0.18	0.64 x 0.10
314	D1	0.67	0.44	0.30	0.21	0.43 x 0.13
B3A	D1	0.57	0.56	0.31	0.31	0.54 x 0.07
B3F	D1	0.51	0.51	0.37	0.15	0.50 x 0.10
B3F1	D1	0.50	0.59	0.31	0.33	0.52 x 0.09
BL11	D3	0.43	0.87	0.71	0.24	0.55 x 0.09



Vacuum Cups

Style J



Style J

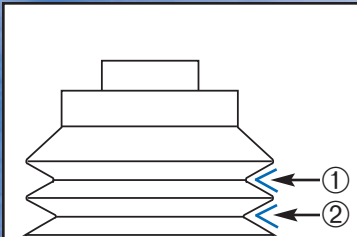


STYLE = Number of Convolutions

VC No.	Style	A	B	C	D	E	H	Cleats	NPT THRD.
B111	D1	4.45	1.66	1.40	2.12	1.65	1.33	YES	3/8
175B	D2	3.38	3.86	2.91	0.82	1.29	2.36	YES	1/4
B85	D1	3.37	1.28	0.98	1.58	1.23	1.08	YES	3/8
175	D2	3.25	3.00	2.20	1.00	1.53	2.00	NO	3/8
32B1	D1	2.82	2.00	1.37	1.00	1.81	0.62	YES	3/8
32B	D1	2.80	2.06	1.35	1.00	1.71	0.93	YES	1/4, 3/8
32E	D1	2.77	2.03	1.42	1.31	1.46	0.18	YES	1/4, 3/8
32ABC1	D2	2.50	2.40	1.75	1.00	1.12	1.80	NO	1/4
32E1	D1	2.50	1.65	1.07	0.98	1.48	0.75	YES	1/4, 3/8
32FB	D1	2.42	1.87	1.23	1.14	1.26	0.75	YES	3/8
137C	D2	2.42	3.00	1.95	0.77	0.92	1.60	NO	1/4
32F	D1	2.38	1.85	1.23	1.00	1.31	0.87	YES	1/4, 3/8
32F1	D1	2.37	1.72	1.30	1.00	1.03	0.96	YES	1/4
32G1	D4	2.26	3.11	2.10	1.00	1.30		NO	3/8
137	D2	2.36	1.84	1.43	1.03	1.03	1.18	YES	1/4, 3/8
217A	D2	2.21	2.86	1.95	1.37	0.99		NO	5/8-18
B50	D1	2.10	1.87	0.92	1.31	1.25	0.78	YES	1/8, 1/4
32C	D1	2.00	2.04	0.84	0.75	1.18	0.56	YES	1/4
32C1F	D1	2.00	1.54	0.89	1.00	1.17	0.68	YES	1/4, 3/8
32D	D2	2.00	1.65	1.26	0.75	1.10	1.00	NO	1/4
322D	D1	2.00	1.13	0.73	1.00	1.37	0.33	YES	
32W	D1	1.79	1.46	0.87	0.98	1.00	0.81	NO	1/8
322C	D1	1.75	1.13	0.64	1.00	1.18	0.33	YES	
B40	D1	1.65	1.37	0.71	0.95	0.89	0.43	YES	1/8, 3/8, 1/8M
32W3	D1	1.64	1.51	0.90	0.98	0.87	0.85	NO	1/8, 1/4
BL40	D4	1.56	2.13	1.50	0.80	1.11		YES	1/4
290	D2	1.56	2.64	1.70	0.75	1.03		YES	1/4M
33N	D2	1.53	2.04	1.05	0.96	0.97	0.92	YES	1/4
33D	D2	1.50	2.00	1.09	1.00	0.65	1.32	NO	1/4
322A	D1	1.50	1.12	0.71	1.06	1.00	0.31	YES	1/4
33A	D3	1.42	1.93	1.32	0.68	0.71	1.28	NO	1/8, 1/4, 1/8M
33A1	D2	1.40	1.87	0.92	0.70	0.76	0.85	NO	1/8, 1/4
B1A	D1	1.38	1.26	0.75	0.54	0.60	0.62	NO	1/8
32H6-1	D2	1.38	1.88	0.88	1.00	0.63	0.65	NO	3/8
33AR	D1	1.37	1.30	0.85	0.70	0.73	0.74	NO	1/8M
294A	D3	1.37	2.03	1.37	0.66	1.12	0.25	YES	1/8
294	D3	1.37	1.12	1.12	0.66	1.18	0.26	YES	1/8
B30	D1	1.35	1.43	0.76	0.73	0.67	0.64	YES	1/8, 1/4
B32	D1	1.26	1.60	0.82	0.63	0.80	0.50	YES	1/8
33A2	D2	1.25	1.43	0.82	0.68	0.70	0.81	NO	1/8
B1	D1	1.20	1.15	0.76	0.56	0.59	0.60	NO	1/8
289	D2	1.18	1.95	1.00	0.87	0.46		NO	1/4 BSPP
33A4	D3	1.14	2.00	1.32	0.70	0.51	1.37	NO	1/8, 1/4, 1/8M, 1/4M
33A4A	D1	1.12	1.12	0.55	0.71	0.54	0.50	NO	1/8M
294C	D4	1.00	1.48	0.85	0.56	0.44	0.85	NO	1/8
33A3	D2	0.90	1.21	0.60	0.68	0.54	0.55	NO	1/8, 1/4
33A5L	D5	0.87	2.43	1.76	0.79	0.48	1.75	NO	1/8, 1/4
B20F	D1	0.87	1.07	0.46	0.62	0.46	0.45	YES	1/8, 1/8M
33A5	D3	0.73	1.43	0.75	0.67	0.45	0.79	NO	1/8, 1/8M

When ordering, please specify thread size.

M = Male thrd.

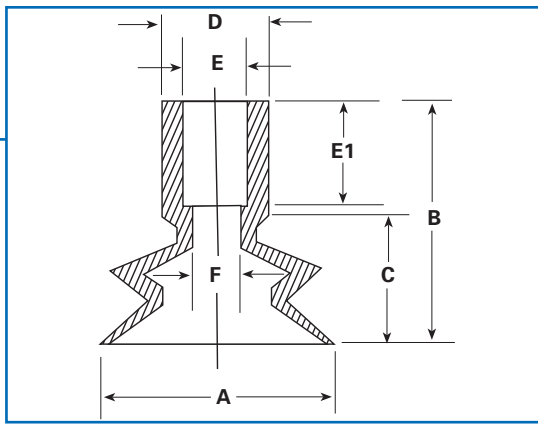


This bellows has a total of 2 convolutions.

Diagram common to all bellows

Vacuum Cups

Style K



STYLE = Number of Convolutions

VC No.	Style	A	B	C	D	E x E1	F
175	D2	3.25	2.67	2.22	1.00	0.73 x 0.12	0.55
175A	D2	3.37	4.00	3.20	1.00		0.36
B1A4	D1	3.00	1.15	1.01	0.55		0.29
32B	D1	2.80	1.97	1.36	0.98		0.38
32BM	D1	2.77	1.95	1.33	1.00		1.36
B30A	D1	2.73	0.97	0.72	0.75		0.25
130C	D4	2.63	2.75	2.12	1.19	0.87 x 0.82	0.72
32C4	D1	2.50	1.59	0.87	0.75		0.50
32F	D1	2.38	1.98	1.23	1.00		0.38
137	D2	2.36	1.64	1.42	1.00		0.38
137B	D2	2.26	2.10	1.61	0.81-0.77		0.38
B53	D1	2.13	1.43	0.94	0.72		0.33
B50	D1	2.12	1.44	0.92	1.30		0.25
32C2	D1	2.02	1.42	0.78	1.31		0.75
32J	D1	2.02	1.07	0.88	0.76		0.38
32C	D1	2.00	1.61	0.81	0.73		0.38
32C1	D1	2.00	1.59	0.80	0.75		0.50
32D	D2	2.00	1.96	1.21	0.75	0.44 x 0.84	0.28
32DS	D2	2.00	1.30	1.20	0.75	0.44 x 0.09	0.28
32MW	D2	1.99	1.75	1.34	0.75		0.43
32D1	D2	1.98	1.97	1.23	0.73	0.44 x 0.83	0.31
274	D1	1.75	0.89	0.37	0.50		0.15
32C5	D1	1.75	1.47	0.71	0.75		0.38
32MP	D2	1.75	1.84	1.19	1.00		0.42
32EP	D2	1.74	1.90	1.26	0.67		0.43
274A	D2	1.73	0.91	0.59	0.50		0.14 BARB
32W3	D1	1.64	1.44	0.91	0.98	0.56 x 0.07	0.31
BL40	D4	1.59	1.59	1.38	0.80	0.42 x 0.09	0.28
370	D2	1.56	1.68	1.25	0.63		0.36
32MP1	D2	1.52	1.84	1.19	0.98		0.42
261		1.50	0.57	0.50	0.57		0.34
33A8	D6	1.47	2.94	2.28	0.70		0.44
33A	D3	1.42	1.69	1.41	0.69		0.25
174	D2	1.42	1.20	0.98	0.50		0.28
33A1	D2	1.40	1.66	0.95	0.69		0.44
33E9	D4	1.39	1.19	1.05	0.66		0.45
B1A	D1	1.38	0.91	0.77	0.53		0.28
40	D1	1.33	1.05	0.80	0.81		0.28
300	D2	1.33	1.11	0.87	0.73		0.34
B30	D1	1.33	1.20	0.73	0.73		0.25
180	D2	1.31	0.91	0.91	0.77		0.64
294A	D3	1.31	1.87	1.25	0.50		0.18
33A2	D2	1.25	0.98	0.83	0.67		0.44
33A2S	D2	1.25	1.50	0.88	0.69		0.44
33A7	D2	1.25	0.89	0.77	0.55		0.27
32MP1.25	D2	1.25	1.92	1.08	0.98	0.75 x 0.18	0.44
264	D1	1.25	0.95	0.50	0.67		0.44
B1Q	D1	1.25	1.00	0.56	0.75		0.56
33AD1	D1	1.20	1.12	0.59	0.67		0.23
33K	D2	1.20	1.38	0.89	0.64	0.42 x 0.48	0.23
376	D1	1.20	0.50	0.36	0.80		0.62
B1	D1	1.20	0.88	0.77	0.55		0.27
B1C	D1	1.20	0.88	0.78	0.53		0.27
B4AC	D2	1.20	1.23	1.06	0.50		0.28

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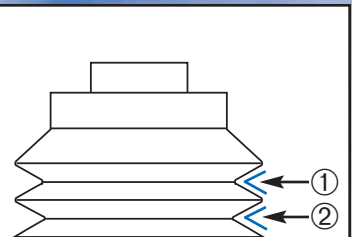


Style K



NOTE:
Style K cups
WITH
E and E1
dimensions
have a counter-bore
mounting hole.

Style K cups
WITHOUT
E and E1
dimensions
(F only)
have a thru
mounting hole.



This bellows
has a total of
2 convolutions.
Diagram common to
all bellows



Vacuum Cups – Style K *(continued)*

Style K



STYLE = Number of Convolutions

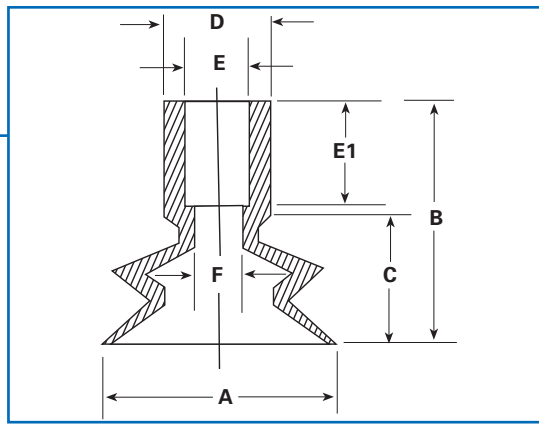
VC No.	Style	A	B	C	D	E x E1	F
32C3	D1	1.19	1.25	0.67	0.64		0.31
33H	D2	1.19	1.25	0.94	0.78		0.36
B4A	D2	1.19	1.25	1.09	0.48		0.27
196A	D1	1.17	0.89	0.66	0.48		0.27
33E2	D2	1.16	1.54	0.99	0.63	0.31 x 0.50	0.31
B1A2	D1	1.15	0.94	0.94	0.55		0.28
33A4	D3	1.14	1.64	1.34	0.69		0.25
33E	D2	1.14	1.52	0.89	0.61	0.31 x 0.54	0.28
209A	D1	1.13	1.14	0.78	0.56		0.39
196	D1	1.11	0.66	1.03	0.48	0.43 x 0.01	0.25
134B2	D1	1.10	0.98	0.68	0.52		0.25
33E1	D2	1.09	1.20	0.76	0.66		0.34
B28	D1	1.09	0.80	0.47	0.50		0.14
196D	D1	1.08	0.64	0.52	0.50		0.25
124A3	D1	1.03	0.90	0.65	0.43		0.18
124F1	D2	1.03	1.45	0.75	0.75	0.42 x 0.70	0.38
388	D2	1.03	1.63	1.00	0.75	0.44 x 0.60	0.25
124	D1	1.02	1.45	0.77	0.64	0.35 x 0.62	0.31
333	D1	1.02	1.13	0.46	0.73	0.44 x 0.56	0.28
32MP1A	D2	1.00	1.86	1.05	0.75	0.50 x 0.17	0.43
124B	D1	1.00	1.38	0.74	0.64	0.37 x 0.64	0.28
128A	D3	1.00	1.75	1.09	0.48		0.23
128	D3	0.98	1.80	1.11	1.00		0.25
134B	D1	0.98	0.91	0.63	0.50	0.25 x 0.31	0.25
359	D2	0.98	1.49	1.11	0.40		0.16 BARB
356	D1	0.94	0.91	0.67	0.39	0.18 x 0.16	0.17 BARB
196B	D1	0.92	0.63	0.53	0.48		0.28
33A3	D2	0.90	1.02	0.59	0.67		0.39
33A5EL	D8	0.88	2.75	2.31	0.80		0.37
33A5L3	D3	0.88	1.23	0.89	0.80		0.25
33G1	D2	0.88	1.29	0.94	0.78		0.34
33G	D2	0.86	1.30	0.97	0.78		0.34
273	D2	0.85	1.69	0.89	0.59		0.27
B20-2	D1	0.84	0.75	0.47	0.38	0.19 x 0.28	0.19
B18-1	D1	0.80	0.86	0.33	0.48		0.26
B20	D1	0.80	0.81	0.39	0.38		0.16
B21	D3	0.80	1.03	0.89	0.47	0.31 x 0.12	0.25
315	D2	0.79	0.87	0.59	0.56		0.20
B20.5	D2	0.79	1.06	0.65	0.46	0.31 x 0.37	0.25
33A9	D2	0.78	0.72	0.66	0.39	0.28 x 0.06	0.13
124C	D1	0.78	1.47	0.75	0.63	0.43 x 0.65	0.30
B19	D1	0.78	0.58	0.39	0.39		0.19
33A5	D3	0.77	1.27	0.75	0.66		0.25
33A5S	D3	0.77	0.91	0.66	0.68		0.25
B2 0.64	D1	0.76	0.64	0.47	0.52		0.27
B2A1	D1	0.76	0.72	0.40	0.64		0.28
B2	D1	0.75	0.71	0.43	0.51		0.26
124D	D1	0.75	0.65	0.40	0.43		0.18
124D3	D1	0.75	0.92	0.41	0.44		0.19
310	D1	0.72	0.89	0.38	0.39		0.25
B18	D2	0.72	0.94	0.64	0.39		0.20
196C	D1	0.67	0.44	0.36	0.34		0.23
176A	D1	0.64	1.19	0.38	0.63	0.38 x 0.81	0.30
33A10	D1	0.63	0.62	0.42	0.75		0.35
B15-1	D1	0.63	0.80	0.41	0.34		0.14
B15-2	D1	0.63	0.97	0.39	0.38		0.16
B15	D1	0.61	0.81	0.25	0.36		0.16
B19A	D2	0.60	0.60	0.41	0.40	0.28 x 0.08	0.22

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NOTE:
Style K cups WITH E and E1 dimensions have a counter-bore mounting hole.
Style K cups WITHOUT E and E1 dimensions (F only) have a thru mounting hole.



Style K



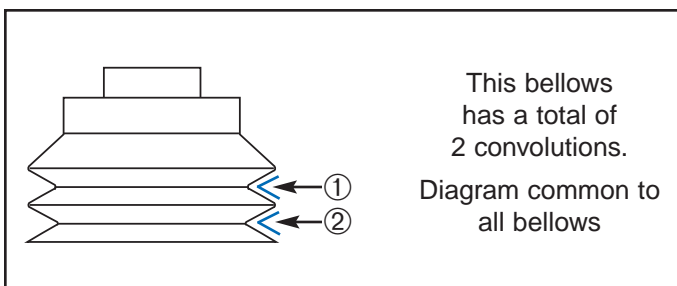
VC No.	Style	A	B	C	D	E x E1	F
B3	D1	0.52	0.59	0.38	0.40		0.15
B3-1	D3	0.52	1.06	0.81	0.31		0.15
B3-2	D5	0.51	1.53	1.25	0.31		0.15
B10-3	D1	0.44	0.65	0.25	0.36		0.15 BARB
B10-5	D1	0.44	0.70	0.20	0.31		0.16
277	D1	0.43	0.50	0.33	0.22		0.72
B10-4	D1	0.43	1.03	0.24	0.35	0.15 x 0.78	0.15
B10.5	D1	0.43	0.65	0.21	0.32		0.16 BARB
B10	D1	0.41	0.55	0.23	0.20		0.06
B10-1	D1	0.41	0.53	0.23	0.19		0.11
B9.5A	D2	0.40	0.51	0.27	0.40	0.28 x 0.20	0.20
B9	D2	0.39	0.89	0.53	0.41		0.20
B10-6	D1	0.39	1.06	0.28	0.18		0.06
B10-2	D2	0.38	0.75	0.41	0.19		0.06
B8.1	D1	0.35	0.47	0.21	0.22	0.09 x 0.10	0.08
B8	D1	0.31	0.50	0.14	0.19		0.08
B7	D1	0.28	0.66	0.25	0.27		0.15
B7-1	D3	0.27	0.63	0.30	0.27		0.16
B6	D1	0.25	0.45	0.17	0.14		0.06
B6-2	D2	0.25	0.60	0.26	0.15		0.06
B6.4	D1	0.25	1.62	0.14	0.14		0.06
B6.5	D2	0.25	0.57	0.33	0.34		0.08
B3.4	D3	0.19	0.56	0.23	0.27		0.08
B5-2	D2	0.19	0.50	0.17	0.12		0.06
B5-3	D3	0.19	0.50	0.20	0.12		0.06
B5	D1	0.18	0.46	0.10	0.12		0.06
B3.5	D3	0.13	0.56	0.26	0.29	0.15 x 0.33	0.06

STYLE = Number of Convolutions

Style K Includes A-1 (oval cup)

VC No.	Style	A	A-1*	B	C	D	E x E1	F
33I	D2	1.18	2.34	1.29	0.90	0.79		0.32
33H1	D2	1.14	1.34	1.34	1.02	0.75		0.34
33I-1	D2	1.12	1.37	0.98	0.59	0.78		0.40
33I-3	D2	1.10	1.76	1.00	0.60	0.76		0.39
33I-4	D2	1.00	1.00	1.03	0.60	0.78	0.56 x 0.07	0.40
252	D1	0.98	0.75	0.70	0.42	0.51		0.26
33I-2	D2	0.78	0.96	0.98	0.57	0.76		0.40
33I-5	D2	0.74	1.37	0.98	0.75	0.78	0.56 x 0.07	0.40
B4	D1	0.61	1.67	0.88	0.50	0.50		0.19 x 2.00

*Denotes oval cup.



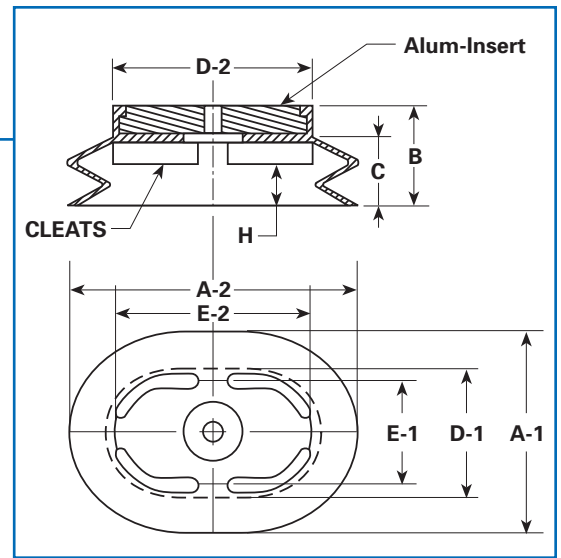
NOTE:
Style K cups WITH E and E1 dimensions have a counter-bore mounting hole.

Style K cups WITHOUT E and E1 dimensions (F only) have a thru mounting hole.



Vacuum Cups

Style L



Style L



Style L Includes A-1 (oval cup)

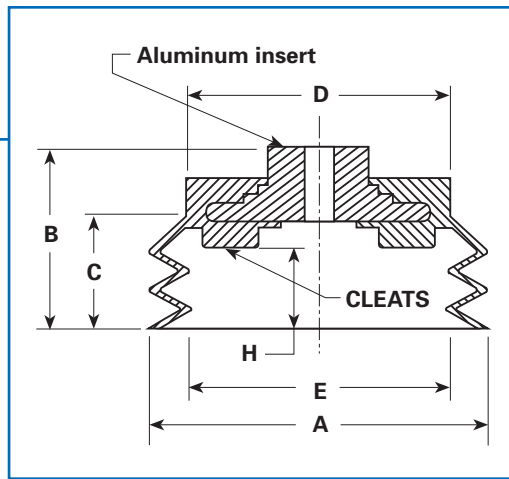
STYLE = Number of Convolutions

VC No.	Style	A-1	A-2	B	C	D-1	D-2	E-1	E-2	H	Cleats
32 3.5 x 10	D1	3.50	10.00	1.77	1.25	2.00	8.50	1.81	8.31	0.75	YES
32 3.5 x 5	D1	3.45	4.93	1.75	1.25	1.40	2.45	1.82	3.35	0.68	YES
129	D2	3.25	7.87	2.00	1.56	2.20	6.87	2.28	6.93	1.18	YES
32 3 x 3.25	D4	3.00	3.25	2.75	2.25	2.50	2.75	1.75	1.94	2.03	YES
32 3 x 7	D4	3.00	7.00	2.50	1.94	1.88	5.88	2.09	6.09	1.81	YES
32 2.75 x 6.5	D2	2.75	6.50	2.50	1.98	1.61	5.36	1.24	4.99	1.69	YES
32 2.5 x 6DP	D4	2.50	6.00	3.84	1.12	1.37	4.87	1.00	4.50	2.00	YES
32 2.5 x 6	D1	2.46	5.95	1.79	1.21	1.37	4.87	0.98	4.51	0.81	YES
32 2.25 x 3.87	D1	2.18	3.84	1.50	0.95	1.34	2.98	1.14	2.73	0.43	YES
32 2 x 3.25L	D5	2.00	3.25	3.38	2.81	1.50	2.75	0.53	2.07	2.46	YES
32 2 x 3.5	D1	2.00	3.50	1.38	0.61	1.50	3.25	0.75	2.25	0.50	YES
32 1.5 x 3.87	D1	1.50	3.84	1.48	0.79	1.50	3.62	0.84	3.18	0.31	YES
32 1.5 x 2.75D2	D2	1.50	2.75	1.70	1.08	0.86	2.11	2.11	0.86	0.84	YES
32 1.5 x 2.75	D1	1.46	2.73	1.39	0.64	0.85	2.12	0.85	2.12	0.50	YES
32 1.3 x 3.05	D1	1.25	3.00	0.87	0.71	0.75	2.50	0.90	2.62	0.37	NO
32 1.25 x 2.5	D1	1.25	2.46	1.28	0.64	0.75	2.00	0.64	1.87	0.39	YES
32 1.25 x 2.5D2	D2	1.25	2.50	1.71	1.04	0.75	2.00	0.47	1.72	0.14	YES
32 1 x 13	D2	1.00	13.00	1.07	0.57	1.00	13.00	0.73	12.75	0.43	YES
188B1	D2	1.00	4.50	1.31	0.94	1.00	4.50	0.41	3.91	0.70	YES
32 .75 x 5	D2	0.75	5.00	0.94	0.43	0.75	5.00	0.59	4.25	0.34	YES
188C1	D1	0.75	2.87	0.70	0.56	0.75	2.89	0.35	2.50	0.39	NO
32 .62 x 1.87	D1	0.62	1.87	0.55	0.32	0.43	1.68	0.26	1.50	0.46	NO

When ordering, please specify thread size.

Vacuum Cups

Style M



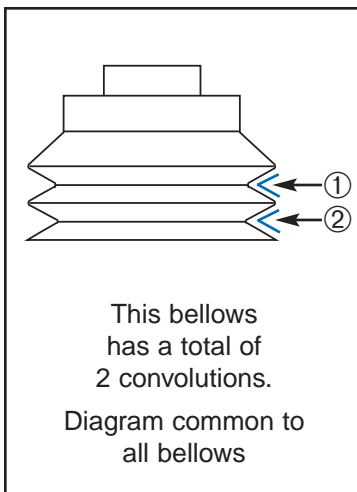
Style M



STYLE = Number of Convolutions

VC No.	Style	A	B	C	D	E	H	Cleats
104 12.5	D1	12.50	4.25	4.12	9.25	9.00	3.10	YES
104 10	D1	10.00	3.12	3.00	7.25	8.00	1.13	YES
104 9.5	D1	9.50	2.85	2.85	8.38	8.20	1.00	YES
104 8.5	D1	8.50	3.81	3.17	5.71	6.50	1.62	YES
104 8.5-2	D2	8.50	2.75	1.62	7.50	7.50	1.12	YES
104 7.94	D2	7.94	2.81	1.96	6.04	6.00	1.50	YES
104 7.5	D1	7.37	2.25	1.75	5.46	5.46	1.12	YES
104 7.0-1	D6	7.00	5.50	4.00	6.06	5.96	2.75	YES
104 7.0	D2	7.00	2.62	1.51	6.00	5.87	1.06	YES
104 6.43	D1	6.43	2.75	2.43	4.18	4.54	1.62	YES
104 6.0	D2	6.00	2.38	1.62	5.12	5.12	0.87	YES
104 5.6	D1	5.60	2.00	1.62	3.00	4.00	0.87	YES
B110	D1	4.62	2.50	1.68	3.50	3.03	1.12	YES
104 4.5	D2	4.50	2.50	1.56	3.50	3.68	1.12	YES
104 4.33	D2	4.33	1.42	1.30	2.75	3.50	0.88	YES
104 3.75	D2	3.75	2.00	1.43	2.75	2.78	1.00	YES
322F	D1	3.50	1.13	0.77	2.50	2.60	0.31	YES
130D2	D2	3.36	1.78	1.45	2.43	2.48	0.76	YES
130	D4	3.31	2.75	2.18	2.42	2.50	1.68	YES
130G	D4	3.31	2.75	2.38	2.38	2.50	1.25	YES
130SB	D1	3.31	1.37	0.81	2.40	2.50	0.31	YES
B75	D1	3.09	1.82	0.18	2.29	2.21	0.73	YES
322E	D1	3.00	1.13	0.78	1.64	2.10	0.31	YES
130A5	D5	2.75	3.21	2.56	2.26	1.90	2.18	YES
130A	D4	2.75	2.84	2.18	2.26	0.92	1.81	YES
130D	D4	2.36	2.36	2.13	1.41	1.61	1.97	YES
130F	D2	2.25	1.89	1.01	2.25	1.31	0.52	YES
130B	D4	2.21	3.46	2.46	2.21	1.37	2.37	YES
130E	D4	1.97	1.97	1.73	1.18	1.34	1.61	YES

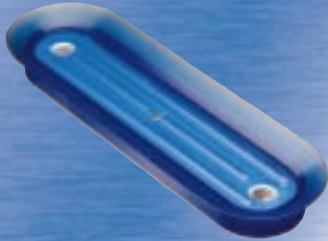
When ordering, please specify thread size.





Vacuum Cups – Style N

Style N

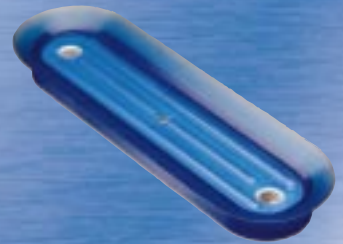
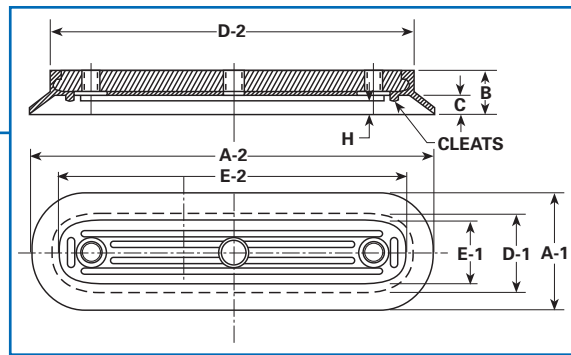


NOTE:

*Style N cups
DO NOT have
3 Threaded Ports*

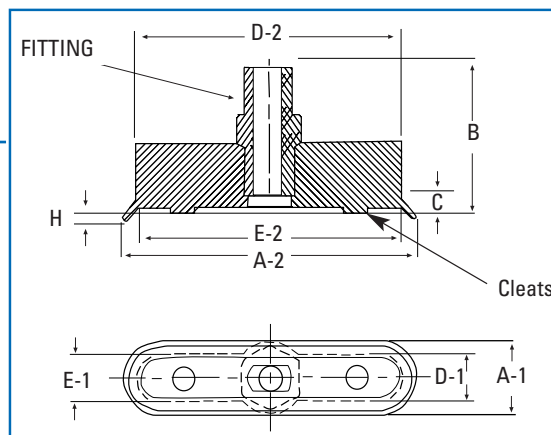
VC No.	A-1	A-2	B	C	D-1	D-2	E-1	E-2	H	Cleats
90 12 x 12	12.00	12.00	2.00	1.95	9.93	9.93	9.40	9.40	1.05	YES
90 10.75 x 13	10.75	13.00	1.50	0.91	9.37	11.62	9.12	11.37	0.50	YES
90 9.5 x 10.5	9.50	10.50	1.50	0.91	8.12	9.12	7.87	8.87	0.50	YES
90 8.5 x 10DP	8.50	10.00	2.00	1.45	6.87	8.37	6.38	7.88	0.12	YES
90 8 x 15	8.00	15.00	2.75	2.28	5.50	12.50	4.31	11.25	2.12	YES
90 8 x 20	8.00	20.00	2.68	2.03	5.75	17.75	4.75	16.75	1.00	YES
90 7 x 12	7.00	12.00	1.88	1.10	4.92	9.92	4.32	9.32	0.90	YES
90 6 x 14 DP	6.00	14.00	1.90	1.34	4.50	12.37	3.92	11.92	1.12	NO
90 6 x 12DP	6.00	12.00	2.37	1.56	4.50	10.50	3.81	9.82	0.88	YES
90 6 x 10	6.00	10.00	1.12	0.45	5.00	9.00	4.12	8.37	0.36	NO
90 6 x 10 DP	6.00	10.00	1.87	1.25	4.50	8.50	3.75	6.81	1.18	YES
90 6 x 9 BRD	6.00	9.00	1.06	0.71	4.62	7.62	4.29	7.29	0.44	NO
90 6 x 8.5DP	6.00	8.50	1.87	1.37	4.37	7.03	0.40	6.50	0.80	YES
90 6 x 8.5	6.00	8.50	1.44	0.68	4.62	7.18	4.37	5.81	0.43	YES
90 6 x 6	6.00	6.00	1.75	1.37	4.50	4.50	3.95	3.95	1.00	YES
90 5 x 14	5.00	14.00	1.50	0.89	3.75	12.75	3.67	12.39	0.50	YES
90 5 x 12	4.96	12.00	1.53	0.76	3.99	10.98	3.79	10.78	0.47	YES
90 4 x 14	4.00	14.00	1.50	0.75	3.00	13.00	2.79	12.75	0.45	YES
73A	4.00	9.00	1.84	1.60	2.25	7.37	1.64	6.75	1.00	NO
90 4 x 8	4.00	8.00	1.62	0.75	2.75	6.62	2.25	6.25	0.50	YES
75	3.90	8.75	1.50	1.38	2.38	7.25	1.63	6.75	1.00	YES
90 3.625 x 5.375	3.63	5.38	1.25	0.75	2.38	4.13	2.13	3.88	0.44	YES
90 3.5 x 14	3.50	14.00	1.12	0.50	2.50	13.00	1.89	12.37	0.43	YES
90 3.5 x 11	3.50	11.00	1.25	0.46	2.50	10.00	1.93	9.37	0.37	YES
90 3.5 x 7.5	3.50	7.50	1.33	0.56	2.25	6.25	1.90	5.90	0.37	YES
74	3.50	7.50	1.60	0.75	2.34	6.18	1.89	5.90	0.56	NO
74A	3.50	7.50	1.60	0.78	2.34	6.34	1.89	5.90	0.40	YES
213	3.44	7.68	0.92	0.51	2.00	3.23	2.68	3.92	0.06	YES
90 3.25 x 15.5	3.25	15.50	1.33	0.55	2.25	14.50	2.16	14.41	0.15	YES
90 3.25 x 5	3.25	5.00	1.25	0.75	2.00	3.75	1.75	3.50	0.43	YES
82	3.12	6.00	1.75	1.50	1.43	4.32	1.20	4.12	0.87	YES
90 3 x 10	3.00	10.00	1.12	0.53	2.00	9.00	1.71	8.75	0.37	YES
90 3 x 8	3.00	8.00	1.25	0.45	2.25	7.12	1.68	6.68	0.37	YES
90 3 x 12	3.00	12.00	1.29	0.94	1.26	10.26	1.50	10.50	0.63	YES
90 3 x 13	3.00	13.00	1.43	0.53	2.06	12.06	1.46	11.43	0.46	YES
288	2.75	5.85	0.70	0.40	1.75	4.85	1.86	4.06	0.20	YES
90 2.75 x 4.75	2.75	4.75	1.00	0.50	2.00	4.00	2.00	4.00	0.25	YES
90 2.75 x 3.5	2.73	3.48	1.18	0.70	2.03	2.78	1.75	2.48	0.25	NO
338 2.718 x 6	2.72	6.00	0.88	0.52	1.38	4.63	0.75	4.00	0.13	YES
90 2.68 x 3.5	2.68	3.50	0.47	0.30	1.80	2.62	1.80	2.62	0.08	YES
90 2.68 x 6.62	2.68	6.62	0.50	0.34	1.81	5.74	1.80	5.75	0.28	YES
90 2.68 x 5.75	2.68	5.75	0.51	0.30	1.81	4.87	1.81	4.87	0.12	YES
90 2.50 x 3.75	2.50	3.75	1.00	0.33	1.62	2.87	1.50	2.75	0.20	YES
90 2.5 x 5.0	2.50	5.00	1.00	0.33	1.62	4.12	1.50	4.00	0.20	NO
125	2.50	5.50	1.25	0.62	1.37	4.34	0.88	2.56	0.37	NO
90 2.375 x 4.25	2.38	4.25	0.66	0.33	1.50	3.38	1.38	3.25	0.23	YES
90 2.25 x 5.25	2.29	5.26	1.25	0.55	1.54	4.51	1.54	4.51	0.38	YES
90 2.25 x 3.0	2.25	3.00	1.14	0.37	2.00	2.75	1.58	2.33	0.26	NO
90 2.2 x 7.5	2.20	7.50	1.33	0.44	1.38	6.69	1.18	6.50	0.16	YES
81	2.06	4.00	0.73	0.56	1.40	3.37	0.85	2.78	0.37	NO
90 2 x 10	2.00	10.00	0.89	0.42	1.00	9.00	0.85	0.75	0.43	NO
183 2 x 7	2.00	7.00	1.00	0.45	1.25	6.25	6.18	1.20	0.25	NO
183 2 x 6	2.00	6.00	0.93	0.39	1.25	5.23	2.00	5.21	0.25	NO
183 2 x 6 R	2.00	5.59	1.00	0.50	1.25	5.23	1.17	5.15	0.12	NO
183 2 x 5	2.00	5.00	1.17	0.48	1.25	4.25	1.18	4.18	0.25	YES
183 2 x 4	2.00	4.00	1.00	0.50	1.23	3.23	1.15	3.12	0.37	YES
183 2 x 4 R	2.00	3.54	1.00	0.46	1.23	3.23	1.15	3.15	0.31	NO
81A	1.89	4.12	1.20	0.51	1.50	3.73	0.87	3.06	0.37	YES
90 1.87 x 16	1.88	16.00	1.63	0.86	1.38	15.50	1.23	15.38	0.19	YES
90 1.75 x 16	1.75	16.00	1.62	0.73	1.35	15.50	1.23	15.31	0.18	NO
90 1.62 x 4.0	1.62	4.00	1.04	0.31	1.25	3.60	0.96	3.34	0.18	YES
83	1.56	4.09	1.23	0.50	1.18	3.37	0.73	3.31	0.31	NO

Styles N & O



VC No.	A-1	A-2	B	C	D-1	D-2	E-1	E-2	H	Cleats
183 1.56 x 4	1.56	4.00	1.00	0.50	0.79	3.25	0.69	3.15	0.31	YES
90 1.5 x 10	1.50	10.00	1.25	0.40	1.00	9.50	0.87	9.37	0.25	YES
90 1.5 x 8	1.50	8.00	1.26	0.39	1.00	7.37	0.74	7.15	0.23	YES
188A TALL	1.50	2.87	2.00	0.37	1.25	2.62	0.73	3.31	0.18	YES
188A	1.50	2.87	1.14	0.37	1.25	2.62	0.82	2.18	0.18	YES
125A	1.43	3.71	0.78	0.56	0.62	2.87	0.78	3.04	0.28	NO
90 1.25 x 11.64	1.25	11.64	1.05	0.55	11.64	1.25	0.67	11.07	0.20	NO
188	1.00	4.50	0.78	0.17	1.00	4.50	0.51	4.00	0.15	NO
188B	1.00	4.50	0.73	0.20	1.00	4.50	0.54	4.04	0.12	YES
188B2	1.00	5.00	0.75	0.25	1.00	5.00	0.55	4.54	0.17	NO
188D	1.00	2.50	0.75	0.28	1.00	2.50	0.37	1.86	0.25	NO
188JC	1.00	5.00	0.63	0.13	1.00	5.00	0.54	4.50	0.06	YES
188E	0.87	4.50	0.70	0.19	0.87	4.50	0.42	4.02	0.16	NO
188F	0.87	3.87	0.50	0.13	0.87	3.87	0.39	3.39	0.12	NO
189D1	0.86	1.75	0.50	0.21	0.75	1.63	0.41	1.30	0.20	NO
188H	0.75	1.63	0.50	0.13	0.75	1.62	0.26	1.20	0.12	NO
188G	0.75	2.38	0.50	0.13	0.75	2.37	0.25	1.95	0.12	NO
188G1	0.75	6.00	0.75	0.14	0.47	5.73	2.86	5.54	0.65	NO
189D	0.75	1.75	0.50	0.14	0.75	1.75	0.37	1.35	0.12	NO
391	0.71	1.63	0.41	0.15	0.41	1.33	0.30	0.93	0.09	NO

Vacuum Cups Style O



VC No.	A-1	A-2	B	C	D-1	D-2	E-1	E-2	H	Cleats	THRD.	REMARKS
55	1.50	2.39	0.94	0.42	0.66	1.55	0.23	1.12	0.31	NO	1/8, 1/4	OVAL
89A	1.47	2.96	0.93	0.19	0.92	0.87	0.88	2.34	0.20	NO	1/4	SQUARE
89	1.15	2.78	1.10	0.20	0.96	0.38	0.48	2.13	0.18	NO	1/4	SQUARE
189	0.87	1.73	1.03	0.21	1.35	0.50	0.40	1.21	0.09	YES	1/8M, 1/8MBSP	
189	0.87	1.73	0.74	0.21	1.35	0.50	0.40	1.21	0.09	YES	1/8M	LOW PROFILE
87	0.75	1.48	1.06	0.37	0.62	0.62	0.35	1.12	0.18	NO	1/8M	
189H	0.71	1.38	0.63	0.18	0.44	1.10	0.22	0.84	0.12	NO	M6x1.0	OVAL
189A	0.50	2.00	1.06	0.12	1.81	0.31	0.29	1.76	0.09	NO	1/8M	
189B	0.50	1.50	1.06	0.12	1.31	0.31	0.29	1.28	0.09	NO	1/8M	
189C	0.50	1.00	1.06	0.12	0.81	0.31	0.29	0.76	0.09	NO	1/8M	

M = Male thrd.

Plastic Suction Cups and Grabbers



Plastic Suction Cups

Part No.	Description
2010	1.5" OD with .25" Hole
2020	1.5" OD with Screw Hole
2030	1.5" OD with Metal Hook
2040	.75" OD with Knob

Part No.	Description
2050	.75" OD with Arrow
2060	.75" OD with Plastic Hook
3062	.75" OD with Metal Hook
3032	1.5" OD with Mushroom Head
	1.5" OD with .125" Cross Hole



Grabbers

Grabber cups can help protect your fingers from cuts and scrapes when handling glass or sheet metal. They also can be used to install ceramic tiles. The uses are unlimited. They can be used on almost any non-porous surface. Four sizes available, up to 4.75 inches in diameter. FREE sample is offered.

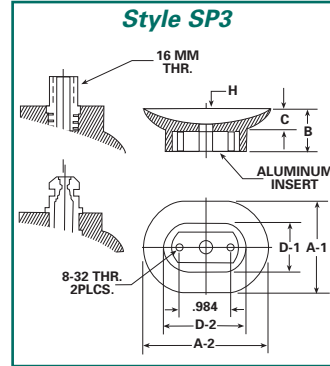
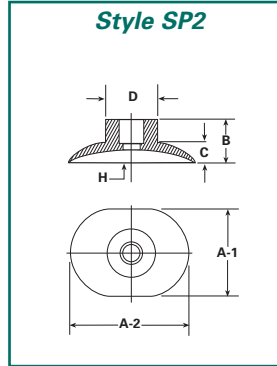
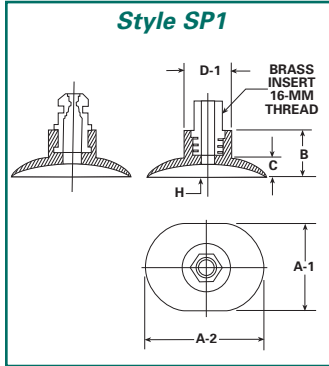
Model	Lifting Capacity*	Diameter	Model	Lifting Capacity*	Diameter
Miss	5 lbs.	2.12"	Mr.	10 lbs.	3.25"
Mrs.	8 lbs.	2.62"	Super	25 lbs.	4.75"

* Based on a vertical lift, surface must be non-porous and clean for best performance.

Soap Cups



Styles SP1, SP2, SP3



Style SP1

VC No.	A-1	A-2*	B	C	D	H	NOTE
47-14	2.46	1.51	1.12	0.41	1.00	0.21	OVAL
47T	1.91	3.32	1.23	0.67	0.75	0.73	OVAL
47-31	1.87	3.12	1.20	0.70	1.01	0.35	SQUARE
47Y	1.87	2.81	1.09	0.51	1.01	0.26	OVAL
47Y1	1.73	2.78	1.06	0.43	1.00	0.37	OVAL
#2	1.70	2.50	0.91	0.54	0.75	0.37	OVAL
DD2	1.68	2.71	1.15	0.75	1.29	0.37	SQUARE
47PG1	1.53		0.75	0.35	1.50	0.56	ROUND
47Y2	0.93	1.75	1.14	0.15	0.95	0.07	OVAL

Style SP2

VC No.	A-1	A-2*	B	C	D	E	E1	H	NOTE
47N	2.65		1.45	0.71	0.87	0.39	0.59	0.43	ROUND
47I	2.29	3.31	1.78	0.67	0.75	0.18		0.39	OVAL
47AV1	2.18		1.03	0.61	0.75	0.18		0.34	ROUND
47PG	2.01		1.00	0.34	1.98	0.25		0.62	ROUND
47B	1.95		1.04	0.65	0.71	0.23		0.57	ROUND
#1A	1.93	2.81	0.89	0.54	0.73	0.14		0.37	OVAL
47N1	1.91		1.12	0.62	0.85	0.35	0.56	0.37	ROUND
47S	1.73	2.41	1.25	0.73	0.84	0.39	0.56	0.43	SQUARE
47L	1.58		1.21	0.70	0.73	0.25	0.67	0.14	ROUND
47H	1.29	2.29	0.87	0.48	0.71	0.25		0.29	OVAL
47	0.92		0.85	0.37	0.75	0.25		0.31	ROUND
#1	0.92	2.85	0.87	0.62	1.23	0.21		0.43	OVAL


















Style SP3

VC No.	A-1	A-2*	B	C	D-1	D-2	H	NOTE
47C	2.12	2.79	0.89	0.46	1.09	1.76	0.31	SQUARE
47E	2.12	3.26	0.87	0.65	1.06	1.64	0.31	SQUARE
47W	2.07	3.06	0.96	0.50	0.85	1.57	0.41	OVAL
47-01	2.01	2.68	0.89	0.37	0.87	1.54	0.29	OVAL
47U	2.00		1.14	0.84	0.89	1.54	0.62	ROUND
47SG	1.98	3.37	1.11	0.57	0.61	1.00	0.50	SQUARE
47-0	1.95	2.65	0.92	0.57	1.59	1.00	0.35	OVAL
47-03	1.92	3.09	0.82	0.41	0.85	1.54	0.25	OVAL
47F	1.88	2.50	0.88	0.44	1.00	1.63	0.31	OVAL
47-02	1.87	2.73	0.91	0.41	0.87	1.56	2.81	SQUARE
47-04	1.82	3.03	0.85	0.31	0.89	1.56	0.26	SQUARE
47F1	1.70	2.42	0.84	0.35	0.87	1.54	0.44	SQUARE
47Z1	1.70	2.70	0.88	0.59	0.87	1.78	0.37	ELLIPSE
47F2	1.68	2.42	0.85	0.34	0.87	2.43	0.25	SQUARE
47Y3	1.54	2.50	0.82	0.34	0.79	1.48	0.18	OVAL
#10A	1.53	2.12	0.81	0.26	0.91	1.45	0.21	OVAL
55AU	1.48	2.37	0.92	0.46	0.96	1.15	0.31	SQUARE
47Z2	1.39	2.53	0.81	0.33	0.79	1.49	0.29	ELLIPSE
#10	1.21	2.04	0.85	0.31	0.93	1.48	0.25	OVAL

* Denotes oval cup



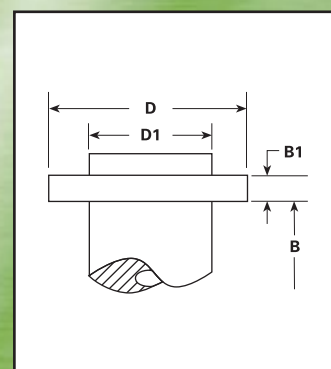
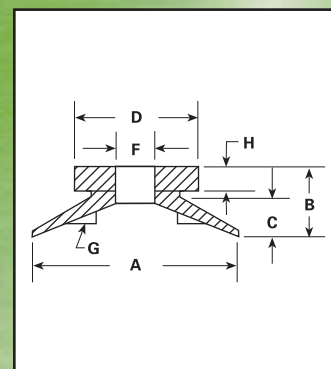
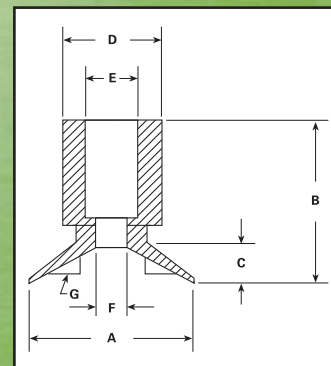
Rubber Cups

	1 KLUGE , paper suckers. Red or gum rubber. 1P - PLASTIC SUCKER Longer Life.		56 MF MIEHLE FEEDERS MF 3336 and packaging machines. Fits 1/2" tube. For light stock. Gum rubber or Neo.		90 TOKO DYY-9-R1 MULTI 1218 CJ-11 IMPERIAL CJ-11 Bourg Modulen Collator
	1a KLUGE Narrow Margin Sucker, very handy in tight places. Red or gum rubber.		57 HARRIS 1108 Fits 5/8" tube, for heavy stock.		92 HEIDELBERG 22.016.008 For T-Press TOK-TOM.
	2 KLUGE card suckers. Red or gum rubber.		58 MIEHLE STREAM FEEDERS CS 11398, packaging machines. Occasionally replaces 3122, 3123, 3124. Fits 1/2" tube - 1-3/8" across. Gum rubber or Poly.		93 MULLER 020.1913 Collating and gathering machines.
	3 KLUGE carton suckers. Red or gum rubber.		59 HARRIS 956-ELB Fits 5/16" tube - 1-3/8" across.		94 PHILLIPSBURG Inserters, bellows type.
	4 UNIVERSAL TIPS light duty C&P, Giant, Web, Chief and Kluge.		60 MF MIEHLE FEEDERS MF 3558 packaging machines, Superchief, tissue suckers. Fits 1/2" tube - 1" across. For light stock. Gum rubber or Neo.		95 McCAIN Bellows type.
	5 UNIVERSAL TIPS heavy duty C&P, Giant, Web, Chief.		61 HARRIS 391-ELB Fits 5/16" tube - 1-3/8" across. For heavy stock.		96 HARRIS/AURELIA bellows type. 1-1/4 across, 1" high.
	6a MACEY COLLATOR HARRIS pickup sucker for cardboard.		62 CS MIEHLE FEEDERS CS-357, 1-1/4" across.		97 RYOBI, 5640-35-531
	7 HARRIS old style, Giant, Web, Chief, Harris, for cardboard. Gum rubber or black.		63 SHERIDAN & other collators with 1/8" tube.		99 HEIDELBERG 42.016.073 for GTO.
	8 HARRIS old style, Giant, Web, Chief, Harris, for paper.		64 MIEHLE FEEDERS K-1196.		100 NORFIN COLLATOR
	9 MILLER Simplex, Major, Southworth envelope press suction feed. Fits 1/4" tube. For paper.		66 A.B. DICK molded sucker. For all presses with 1/4" bottom tube.		101 UHLMANN PACKAGING MACHINES
	10 MILLER Simplex, Major, for cardboard. Gum rubber or black.		67 HARRIS , polyurethane, 3361-LTY. Occasionally replaces 59 & 61. Fits 5/16" tube - 1-3/4" across. For heavy stock.		102 HORIZON COLLATOR, 3013 Small dark grey sucker.
	11 HARRIS 90 ELB fits most presses. Mann, Macey Collator & Sütcher, 6E7 - paper, 6E8 - cardboard. HTB Miehle feeders.		68 HEIDELBERG cylinders. Cup shape prevents snap-back.		103 HORIZON COLLATOR, 3015 Large blue sucker.
	12 HARRIS 1361 LTN fits most presses, for paper. Gum rubber or silicone.		76 MULLER collating and gathering machines. Red or Black.		104 DUPLO COLLATOR Bellows type sucker.
	13 a - MIEHLE CS3122 FEEDER Superchief light forwarder, Miller, Didde Glaser Collator, for paper. b - MIEHLE CS3124 FEEDER Superchief heavy forwarder, Dexter, Giant, for cardboard. Both fit Ebco presses.		77 MULLER collating & gathering machines. Green.		RVC BOURG MODULEN 147B COLLATOR Vinyl.
	14 MIEHLE CS427 FEEDER Farrington Collator, Giant, Web, Chief, for paper.		78 HAMADASTAR printing press.		RVC A.B. DICK CENTURY 3000 176 Bellows type sucker.
	15 MIEHLE CS1026 FEEDER Giant, Web, Chief, for cardboard.		79 ASTRO AND SANDMAR envelope & sheet feeders. Specify medium or heavy.		RU CUMMINGTON 125 collator, Miehle Vertical for cardboard.
	15a MACEY COLLATOR Harris pickup sucker, for paper.		80 ATF Commander 29 Speiss feeders. Heidelberg. For thin stock.		CHIEF 24 Light. for light stock.
	16 C&P, RICE Kluge "D" delivery, for paper and light cardboard.		81 KLOCKNER 18092-1 packaging machines. 1-1/8" across, 1/2" high. Black, Red, Blue, or Tan.		CHIEF 24 Heavy. for heavy stock.
	22 HEIDELBERG SUCKER, KLUGE new style. Delivery gripper will not tear this.		82 RYOBI Ryobi-item,		RCS MIEHLE CS, feeders. For 3121 heavy stock or sheet metal. 1-7/8" high, 1-1/4" across. Fits 1/2" OD tube or 1/2" pipe.
	23 RUBBER SUCTION TIP 5/8" across - fits inserting and gathering machines. Sheridan, McCain, Phillipsburg. Various compounds available. Submit sample.		83 HEIDELBERG GTO offset presses.		RCS MIEHLE CS 3123 and other feeders. For cardboard 1" high, 1-1/4" across. Fits 1/2" OD tube.
	23a DEXTER RGA 717 raised inside pattern for light stock. Submit sample.		86 KLOCKNER 18092 packaging machines. 1-1/2" across, 3/4" high. Black, Red, Blue or Tan.		RTF MIEHLE TF 1999 and other feeders. For cardboard or sheet metal. 1-7/16" high, 1-9/16" across. Fits 3/4" OD tube or 1/2" pipe.
	55 MF MIEHLE FEEDERS MF 3968 and ATF Superchief pickup suckers.		88 HAMADA CK 02-77 printing presses		RTF MIEHLE TF 1648 and other feeders. For heavy cardboard or sheet metal. 2-1/8" high, 2-1/2" across. Fits 3/4" OD tube or 1/2" pipe. Gum rubber or Neo.

Dimensions

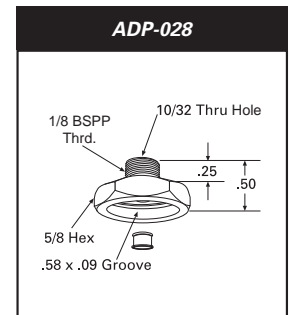
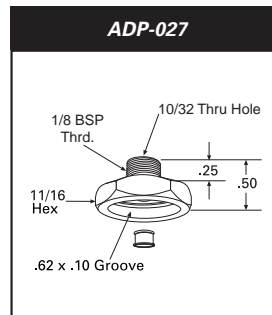
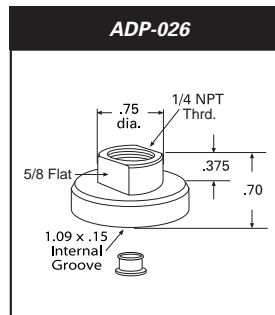
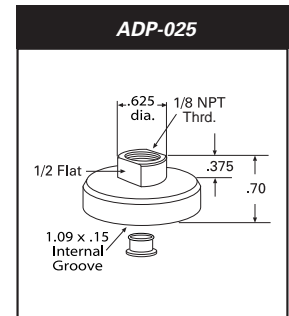
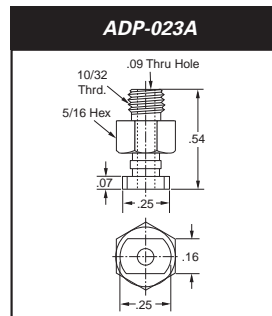
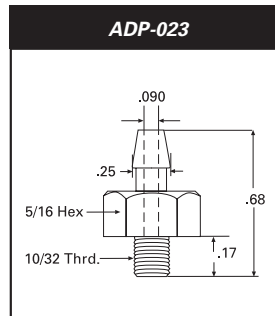
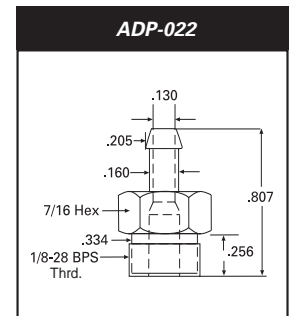
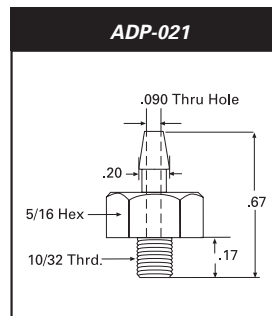
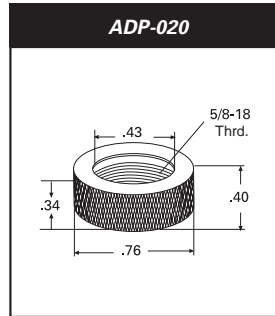
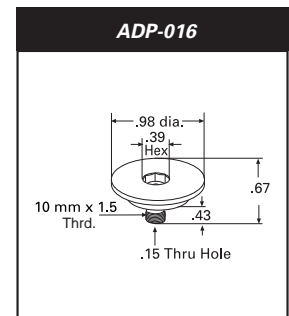
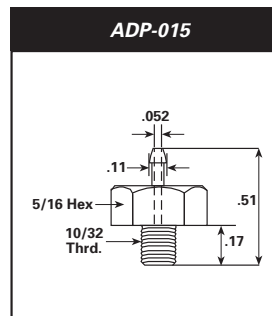
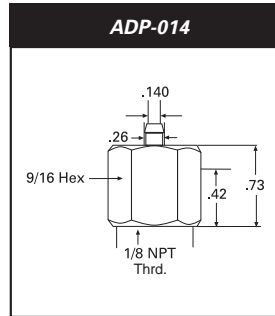
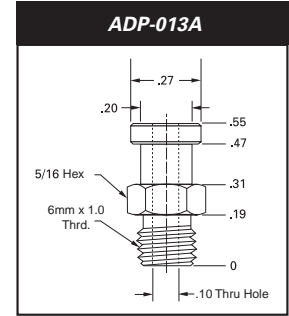
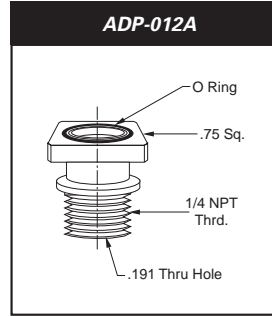
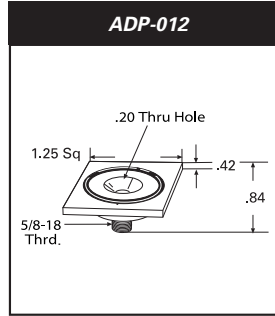
Part No.	A	B	B1	C	D	D1	E C'Bore	F Hole	G Cleats	H Flange
1	0.20	0.59	0.09		0.53	0.31		0.16	NO	0.08
1a	0.26 x 0.62	0.60	0.11		0.55	0.37		0.14	NO	0.11
2	0.59	0.62	0.09	0.25	0.56	0.37		0.17	NO	0.11
3	1.00	0.62	0.12	0.37	0.56	0.36		0.27	NO	0.08
4	1.00	0.31		0.19	0.56			0.30	NO	0.07
5	1.00	0.31		0.21	0.53			0.29	NO	0.05
6a	1.00	0.37		0.18	0.44			0.24	YES	
7	1.00	0.37		0.23	0.62			0.24	YES	0.10
8	1.00	0.31		0.21	0.58			0.29	NO	0.06
9	0.62	0.56		0.16	0.30			0.19	NO	
10	1.00	0.52		0.23	0.34			0.20	NO	
11	1.06	0.81		0.19	0.44			0.25	YES	
12	1.06	0.75		0.19	0.56			0.22	NO	0.12
13a	1.00	1.00		0.25	0.65		0.39	0.27	NO	
14	1.00	0.38		0.24	0.62			0.27	NO	0.08
15	1.00	0.38		0.24	0.62			0.27	NO	0.08
15a	1.00	0.38		0.19	0.43			0.24	NO	
16	0.62	0.20		0.06	0.50		0.28	0.18	NO	
22	0.87	0.20		0.20	0.37			0.25	NO	
23	0.62	0.56		0.25	0.25			0.09	NO	
23a	0.65	0.62		0.31	0.28			0.09	YES	
55	1.31	1.00		0.31	1.25-2.00			0.25	YES	
56	1.31	1.00		0.25	0.62		0.37	0.23	YES	
57	1.50	1.12		0.25	1.00		0.53	0.25	NO	0.10
58	1.37	1.00		0.25	0.62		0.38	0.26	YES	
59	1.37	0.81		0.25	0.62			0.24	YES	
60	1.00	0.95		0.20	0.62		0.40	0.24	YES	
61	1.37	0.75		0.31	0.60			0.24	YES	0.09
62	1.25	0.37		0.25	0.64			0.24	NO	0.06
63	0.62	0.75	0.25		0.62	0.37		0.12	NO	0.12
64	0.62	0.56		0.25	0.31			0.10	NO	
66	0.75	0.26		0.12	0.37			0.27	NO	0.03
67	1.50	1.06		0.50	0.50			0.23	YES	
68	1.12	0.25		0.22	0.50			0.25	NO	
76	0.81	0.56		0.18	0.56		0.25	0.18	NO	
77	1.00	0.56		0.25	0.56		0.31	0.23	NO	
78	0.75	0.37		0.18	0.44			0.22	NO	
79	0.75	0.25		0.09	0.44			0.24	NO	0.03
80	1.12	0.25		0.12	0.69				NO	
81	1.23	0.71		0.37	0.60			0.22	YES	0.09
82	0.62	0.17		0.11	0.36			0.16	NO	
83	0.75	0.15		0.12	0.50			0.28	NO	
86	1.50	0.81		0.62	0.62			0.22	NO	0.09
88	0.625	0.375		0.125	0.390			0.25	NO	
89	0.875	0.562		0.484	0.281			0.093	NO	
90	0.875	0.890		0.125	0.484			0.25	YES	
92	0.609	0.234		0.140	0.484		0.218	0.171	NO	
93	0.625	0.390		0.140	0.484			0.187	NO	
94	0.687	0.531		0.171	0.312			0.125	NO	
95	0.687	0.718		0.171	0.312			0.125	NO	
96	1.25	1.00		0.218	0.734			0.625	NO	
97	0.906	0.812		0.125	0.515			0.25	NO	
99	0.656	0.343		0.093	0.343			0.312	NO	
101	0.828	0.406		0.281	0.593			0.125	NO	0.093
102	0.671	0.312		0.062	0.406		0.25	0.078	NO	
103	0.875	0.312		0.062	0.406		0.234	0.312	NO	
104	0.781	0.406		0.234	0.421		0.140	0.296	NO	
RVC 147B	1.031	0.687		0.234	0.484			0.234	YES	
RVC 176	0.625	0.843		0.109	0.531		0.2031	0.359	NO	
RU-125	0.81	0.18		0.04	0.44			0.17	NO	0.06
Chief 24 Lt.	1.44	0.31		0.31	1.00			0.69	NO	
Chief 24 Hvy.	1.25	0.23		0.23	0.75			0.59	NO	
RCS 3121	1.62	1.87		0.31	0.94		0.59	0.25	NO	
RCS 3123	1.25	1.00		0.24	0.66		0.40	0.25	NO	
RTF 1999	1.56	1.44		0.30	0.94		0.62	0.24	NO	
RTF 1648	2.50	2.06		0.87	1.00		0.62	0.31	NO	

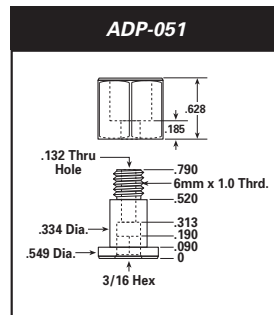
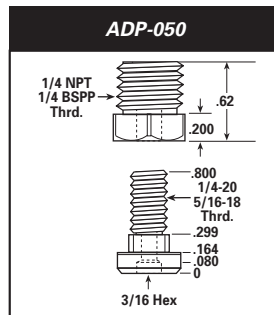
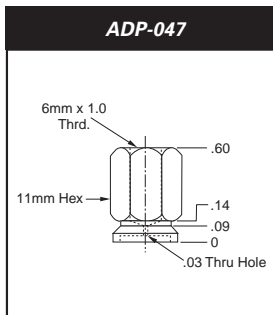
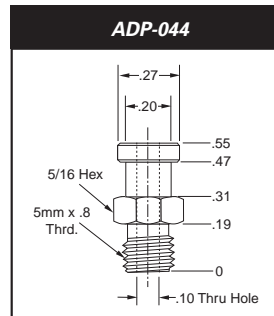
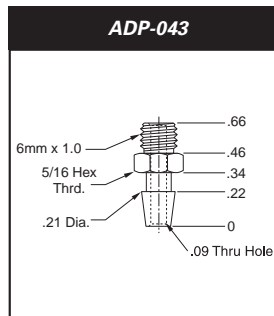
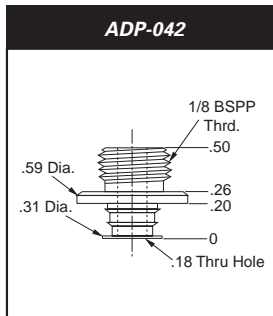
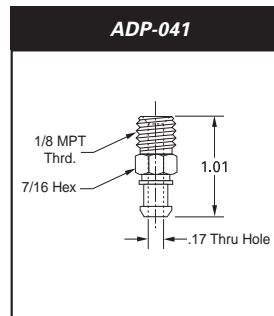
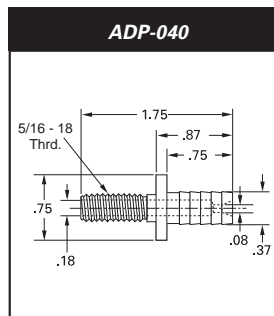
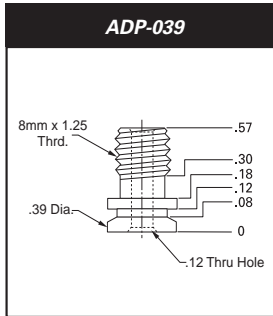
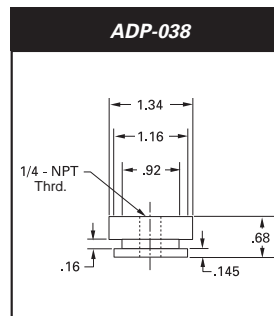
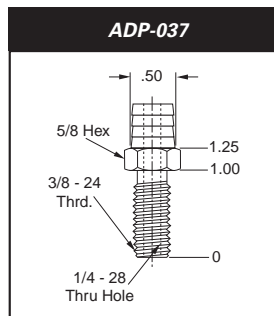
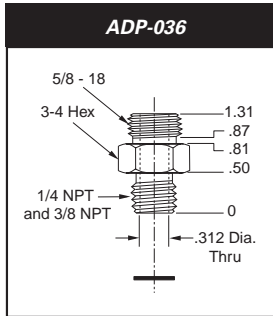
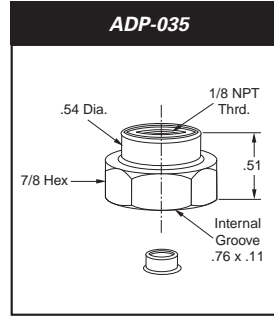
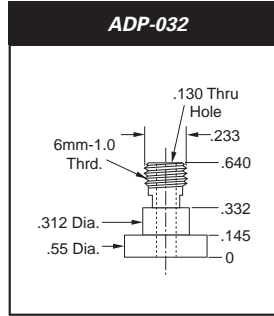
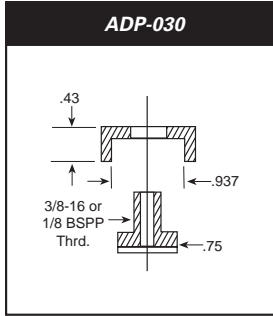
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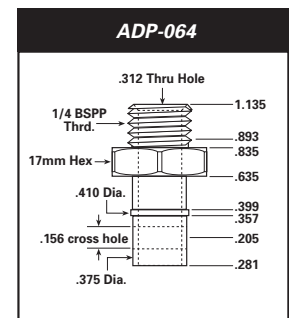
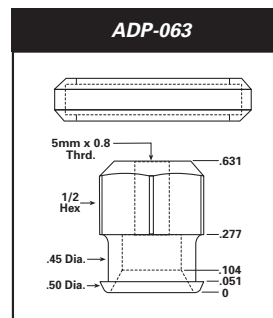
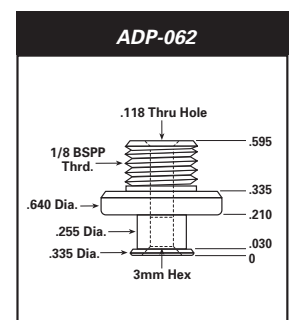
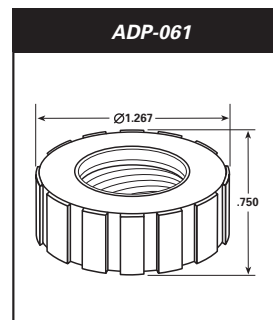
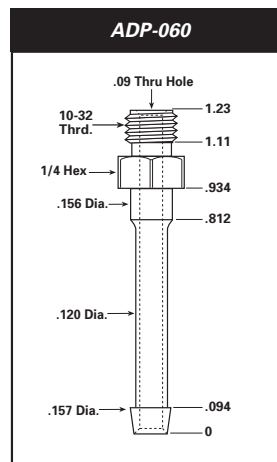
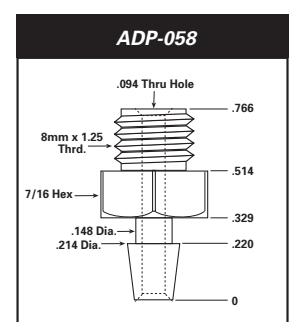
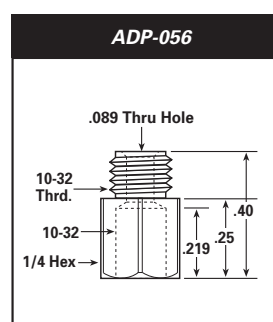
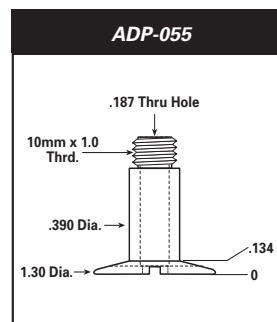
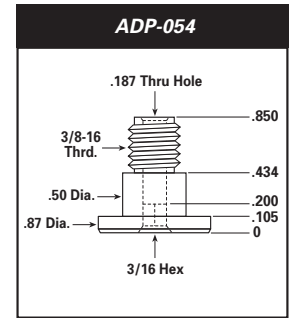
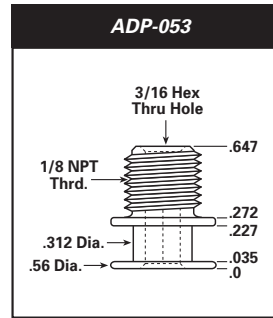
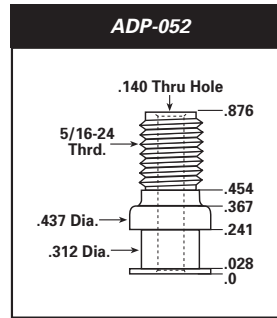
CLEATS are bottom protrusions used for maintaining larger vacuum area.

Cup Adapters/Filters





Cup Adapters/Filters (continued)





Valves

Many cups can be fitted with a vacuum valve. The valve stops the creation of a vacuum until the workpiece is contacted.



Fittings & Adaptors

Barbed Fittings & Adaptors allow easy connection to your vacuum system.



Swivel Joints

Swivel Joints provide up to a 30° pivot in any direction. This feature allows the vacuum cup to compensate for application on uneven surfaces.



Level Compensators

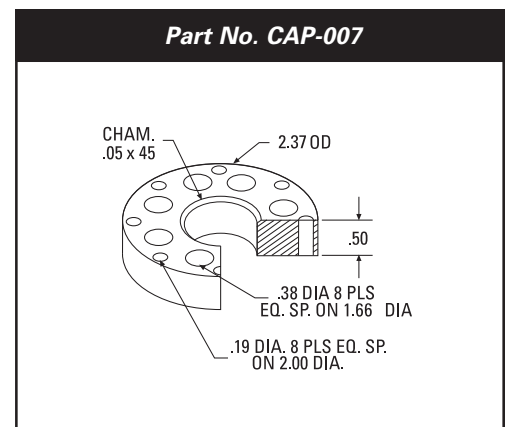
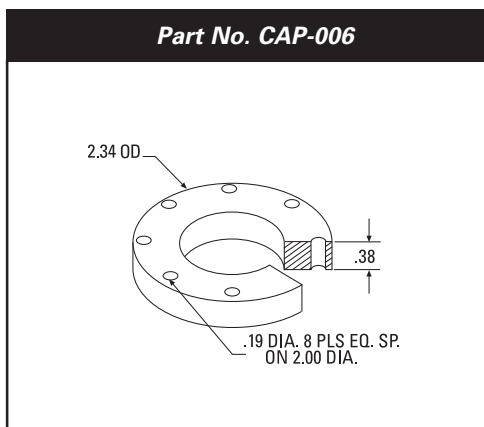
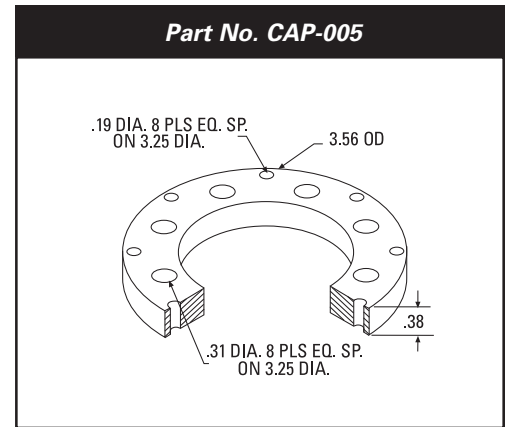
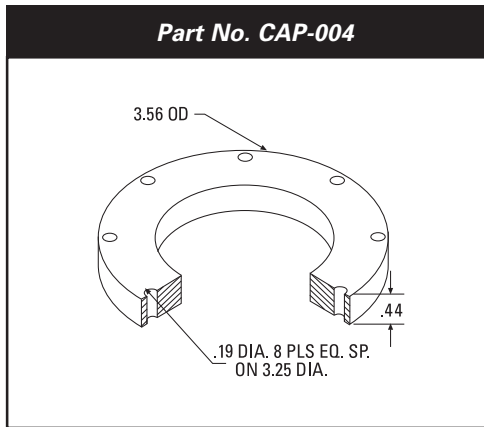
Level Compensators come in a variety of stock sizes and can also be custom made to your specifications. A variety of screw adaptors are available to custom fit most any application.

- Compensate for an uneven load.
- Reduce shock to the workpiece.

Tightening Discs –

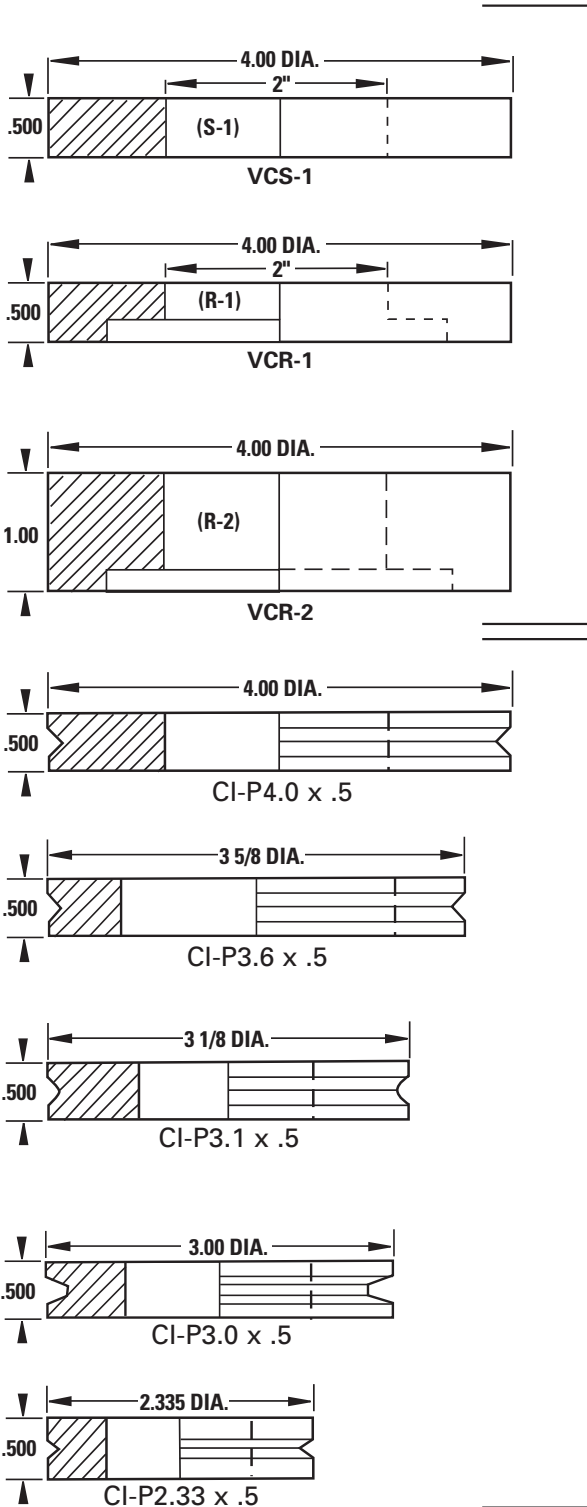
Copper Discs and Rings

Material and inside diameter to be specified.



A full line of Tightening Discs to be used on:
 • Haskin Strand • National Instruments • Pneumatic Scale • Resina • Swanmatic.
 Available in long-wearing polyurethane and vinyl.

Resina and Pneumatic



Can be used on Resina equipment

(See Gripper Blocks listed on page 35)

Pneumatic type Tightening Disc

Note:
Material and inside diameter to be specified.

Resina



Available in Vinyl or Polyurethane A30 through A80 Durometer.

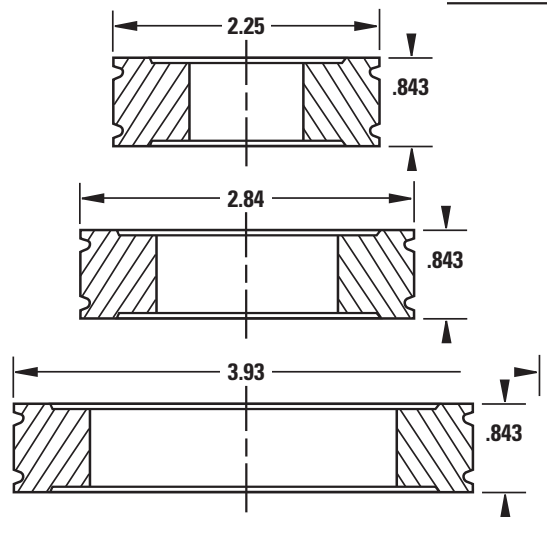
Pneumatic



Tightening Discs –

Horix and National Instrument Discs

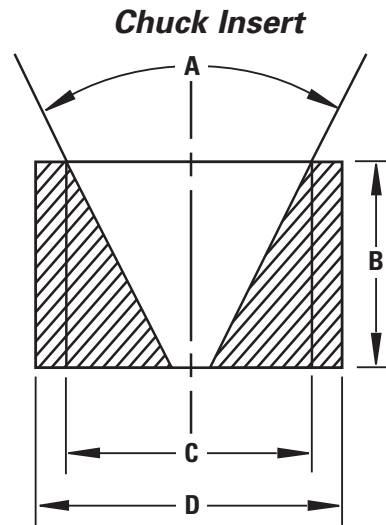
Horix



Horix type Tightening Disc

Note:
Material and inside diameter to be specified.

National Instrument



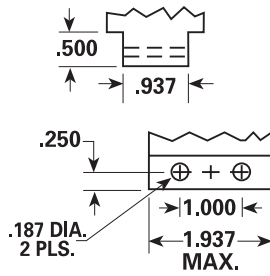
National Instrument type Tightening Disc

Part No.	A	B	C	D
N1	66°	0.68	0.86	0.93
N2	64°	0.75	1.05	1.24
N2 1/2	62°	0.87	1.25	1.48
N3	56°	1.00	1.46	1.67
N4	70°	1.00	1.73	1.98
N5	80°	0.93	2.11	2.33
N6	64°	1.00	2.45	2.70
N70	123°	1.25	2.97	3.12
N75	124°	1.25	3.50	3.79
1N90	118°	1.25	4.06	4.31
1N100	124°	1.25	5.31	5.56
1N110	123°	1.25	6.00	6.25

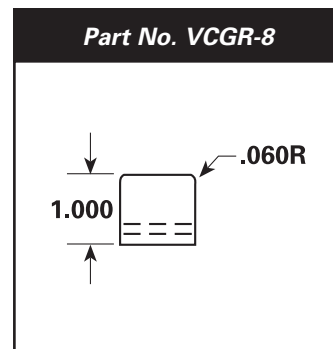
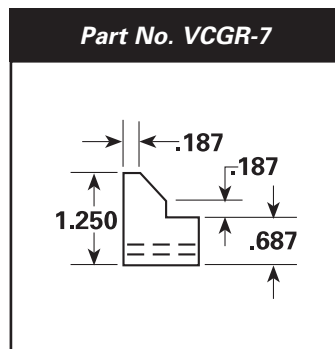
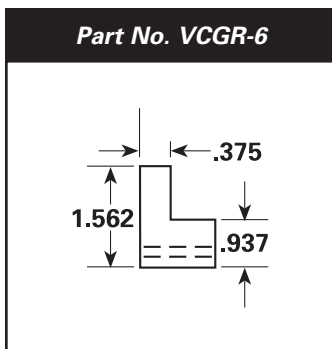
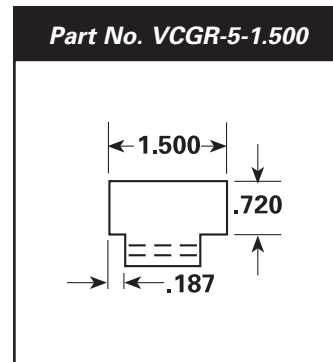
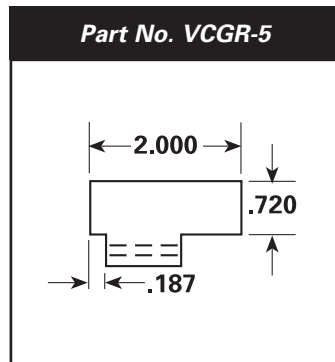
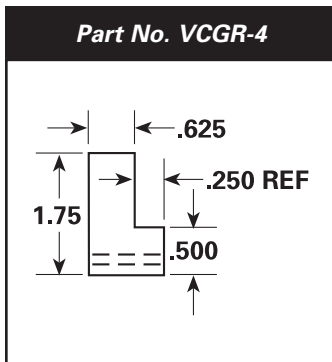
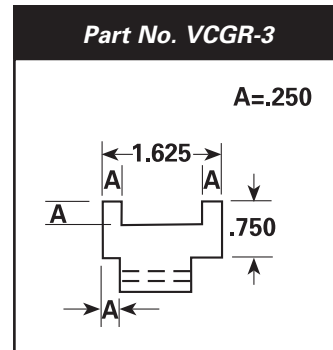
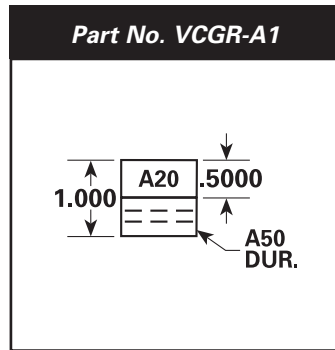
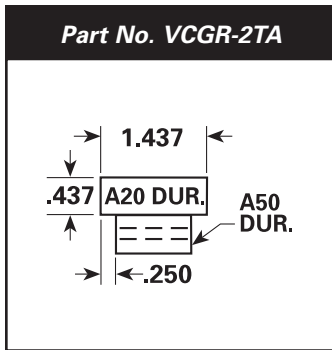
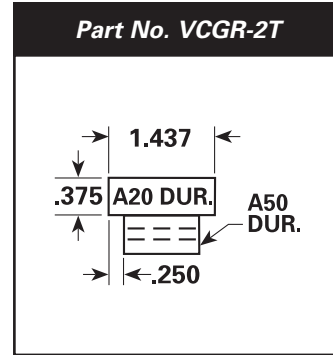
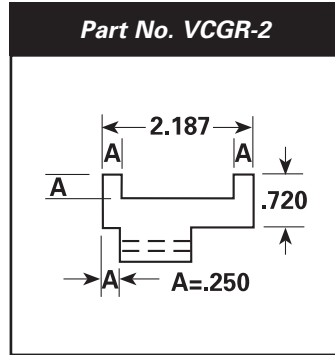
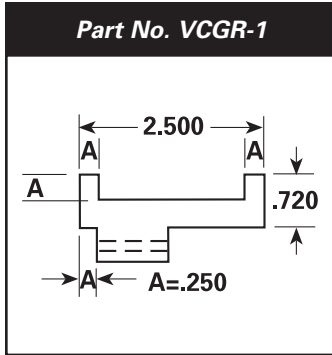
A dimension is degrees

Gripper Rubbers

NOTE:
DIMENSIONS SHOWN ARE
COMMON TO ALL GRIPPERS

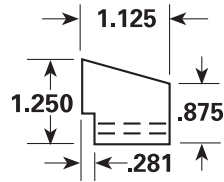


Available in Polyurethane
or Vinyl. All sizes not
available in vinyl.

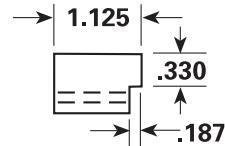


Gripper Rubbers *(continued)*

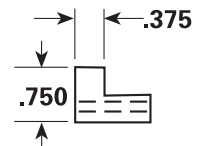
Part No. VCGR-9



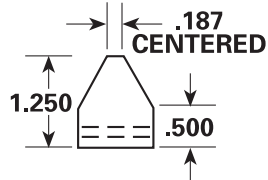
Part No. VCGR-10



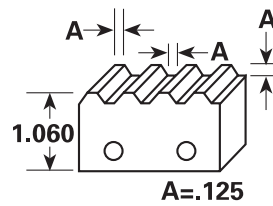
Part No. VCGR-11



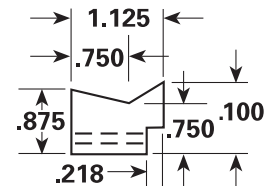
Part No. VCGR-12



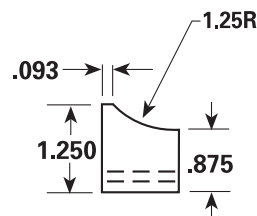
Part No. VCGR-13



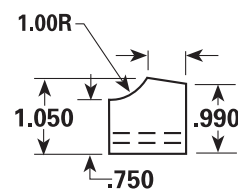
Part No. VCGR-14



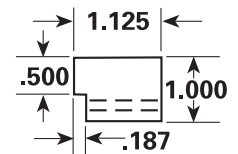
Part No. VCGR-15



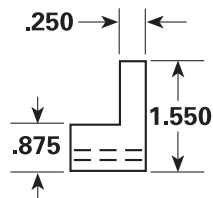
Part No. VCGR-16



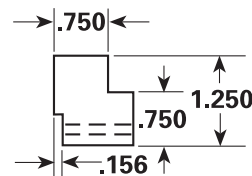
Part No. VCGR-17



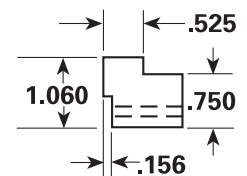
Part No. VCGR-17A



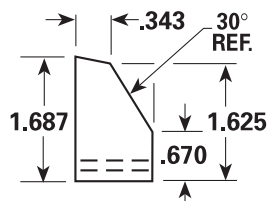
Part No. VCGR-18



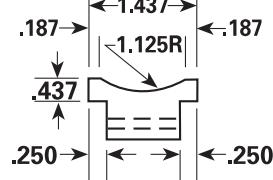
Part No. VCGR-19



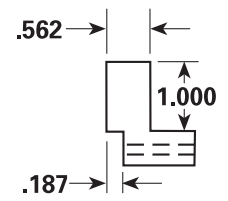
Part No. VCGR-20



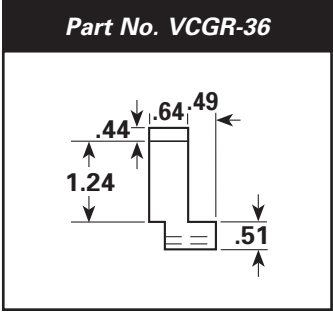
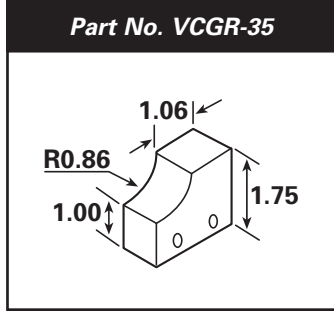
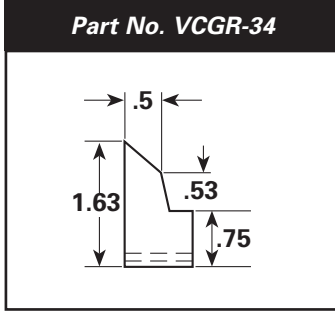
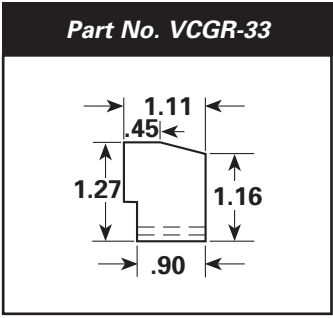
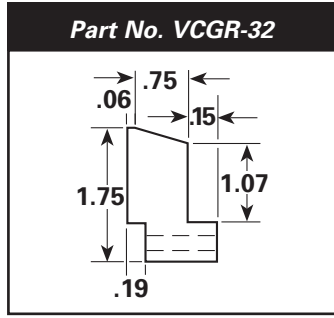
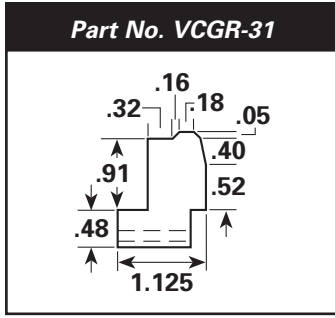
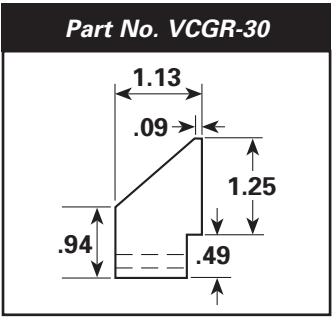
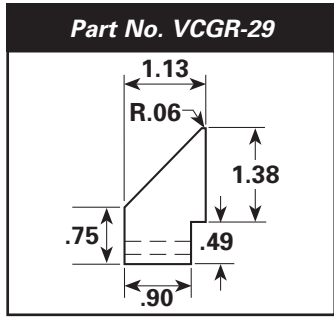
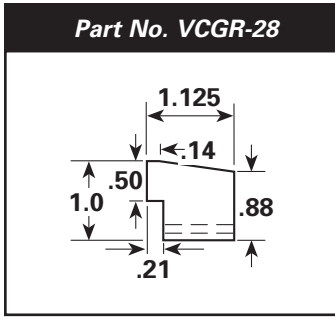
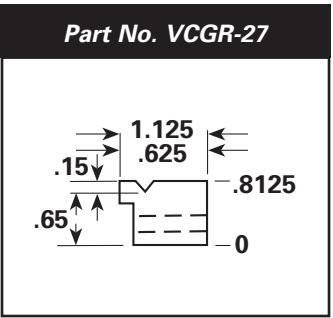
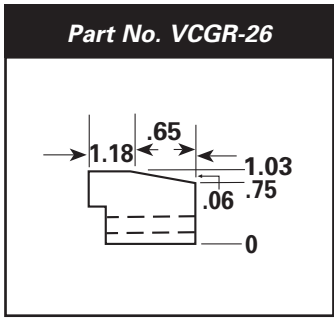
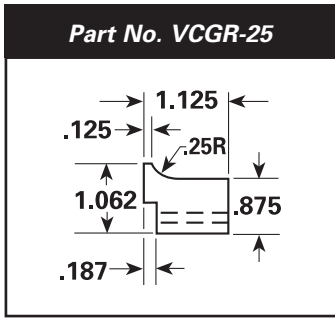
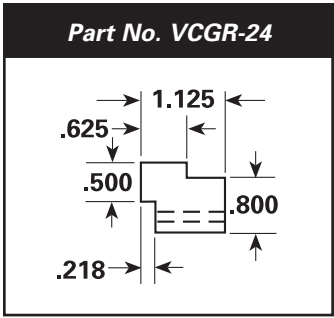
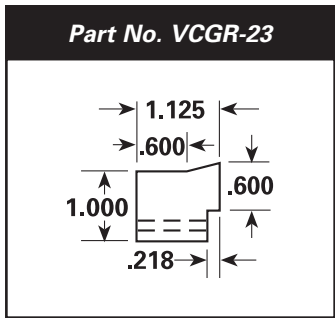
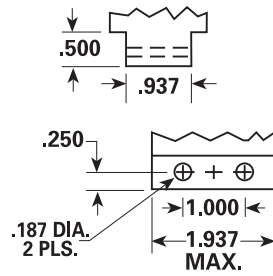
Part No. VCGR-21



Part No. VCGR-22



NOTE:
DIMENSIONS SHOWN ARE
COMMON TO ALL GRIPPERS

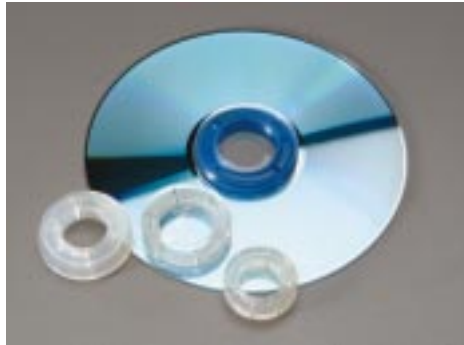


Custom Molded Vacuum Cups

Egg / Golf Ball Cups



CD Cups



Bakery Cups



Windshield Cups



Vi-Cas can custom produce vacuum cups to your specifications. Unique shapes are not a problem. Low volume (prototypes) or high volume. Call with your requirements.

Rollers

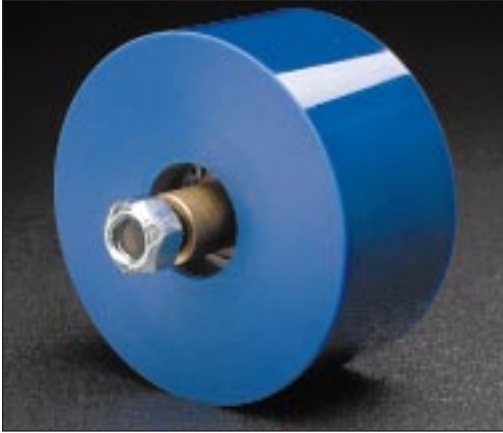


Vi-Cas can recoat your worn rollers with long-lasting polyurethane for a fraction of the cost of new.

- Quick turn-around
- Silicone for high temperature applications
- A-20 thru D-60 Durometers
- New rollers to your specs

Rollers *(continued)*

Solid Rollers - Stud Mount



Diameter (Inches)	Width (Inches)	Bearings (2)	Part Number
8	2	1/2" ID	8x2SRB
6	2	1/2" ID	6x2SRB
4	2	1/2" ID	4x2SRB
4	1	1/2" ID	4x1SRB
3	2	1/2" ID	3x2SRB
2.5	2	1/2" ID	2.5x2SRB
2	2	1/2" ID	2x2SRB
1.5	1.25	1/2" ID	1.5x1.25SRB

Finned Rollers - Stud Mount



Diameter (Inches)	Width (Inches)	Bearings (2)	Part Number
6	2	1/2" ID	6x2FRB
4	2	1/2" ID	4x2FRB
2.5	2	1/2" ID	2.5x2FRB
2.5	1	1/2" ID	2.5x1FRB
1.5	1.12	1/2" ID	1.5x1.12FRB
2	2	1/2" ID	2x2FRB

- Mounting stud with spacer is also offered.

- Rollers are made from long-lasting polyurethane, 20A thru 90A Durometers.

- Vi-Cas offers a complete line of Vacuum Cups, Cup Adapters, Level Compensators and Swivel Joints.

- Vi-Cas can recoat your worn rollers with long-lasting Polyurethane.

- Specials can be quoted to your specifications.

- Quick Turn-Around.

- Silicone for high temperature applications.

- Vi-Cas also manufactures accessories for material handling, package machinery and printing equipment.

Custom Rollers - Stud Mount



Diameter (Inches)	Width (Inches)	Bearings (2)	Part Number
4	2	1/2" ID	4x2CRB
4	2	1/2" ID	4x2HRB
2.5	2	1/2" ID	2.5x2CRB
2.5	1.125	1/2" ID	2.5x1 1/4 CRB
2	1.125	1/2" ID	2x1 1/4 CRB

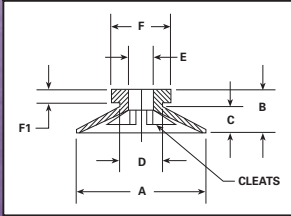
Drive Rollers - Shaft Mount



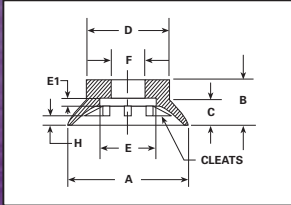
Diameter (Inches)	Width (Inches)	Bore	Part Number
6	2	1	6x2DR
4	1	1	4x1DR

Parts Index – cups by number

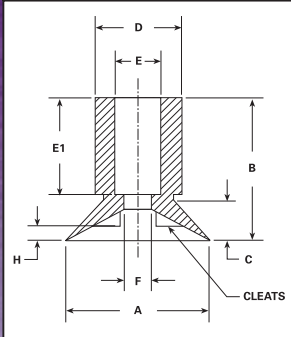
Style A page 8,9



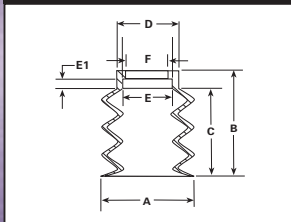
Style B page 10-12



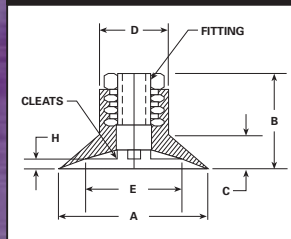
Style C page 13-17



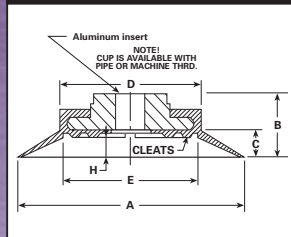
Style D page 18



Style E page 19,20



Style F page 20,21



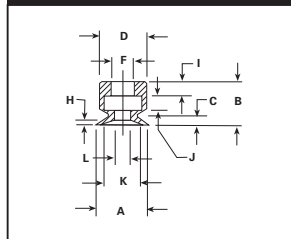
VC No.	Style	A(1)	A-2
1	C	2.62	
1P	A	0.35	
2	C	1.28	
2A	C	1.31	
2A1	A	1.31	
2C	C	1.29	
2C1	B	1.26	
2D	C	1.25	
2D1	C	0.97	
2D2	C	1.19	
2E	C	1.36	
2E1	C	1.37	
2E2	A	1.35	
2E3	C	1.00	
2E4	C	0.75	
2E5	C	0.77	
2EA	E	1.34	
2EB	C	1.31	
2EF	A	1.25	
2EH	C	1.31	
2F	C	1.02	
3	C	1.86	
3A	C	1.86	
4	C,E	2.50	
4.1x3.5	SPCL*	3.51	4.06
5	B	2.09	
5A	B,E	2.10	
5A1	E	2.10	
5B	A	2.10	
6	B	1.12	
6A	A	1.17	
7	C	1.64	
7-1	C	1.63	
7A	C	1.64	
7B	C	1.52	
7C	C	1.60	
8	B	1.51	
9	A	1.14	
9A	A	1.14	
9A1	A	1.14	
9B	A	1.14	
9C	A	1.04	
9D	A	1.19	
10	B,E	1.04	
10A	B,E	1.04	
11	B	1.18	
12	B	1.40	
13	C,E	2.45	
13A	C,E	2.48	
14	C	1.03	
15	C,E	3.45	
15A	E	3.42	
16	C	0.77	
16A	SPCL*	0.75	
17	C	0.85	
18	B	3.00	
18A	C	2.93	
18B	G	3.05	
18C	SPCL*	2.52	
18D	A	2.80	
19	C	1.11	
19A	C	1.05	
20	A	1.04	
21	C	0.79	
21A	C	0.83	

VC No.	Style	A(1)	A-2
22	G	0.81	
22A	G	0.78	
23	B	1.29	
23A	B	1.29	
23B	B	1.29	
24	C	0.65	
24A	C	0.67	
24B	C	0.62	
24C	SPCL*	0.65	
25	G	0.63	
26	A	0.96	
27	F	4.25	
27A	F	3.25	
27A1	F	3.25	
27A1A	F	2.25	
27A1B	F	2.00	
27A2	SPCL*	3.28	
27B	F	3.25	
28	A	1.14	
28-1	A	1.14	
29	B,F	3.25	
30	C,E	3.06	
30A	C	3.09	
30B	C	3.09	
31A	C,E	3.09	
31B	F	3.05	
32	D	1.75	
32 .62x1.87	L	0.62	1.87
32 .75x5	L	0.75	5.00
32 1x13	L	1.00	13.00
32 1.25x2.5	L	1.25	2.46
32 1.25x2.5D2	L	1.25	2.50
32 1.3x3.05	L	1.25	3.00
32 1.5x2.75	L	1.46	2.73
32 1.5x2.75D2	L	1.50	2.75
32 1.5x3.87	L	1.50	3.84
32 2x3.25L	L	2.00	3.25
32 2x3.5	L	2.00	3.50
32 2.25x3.87	L	2.18	3.84
32 2.5x6	L	2.46	5.95
32 2.5x6DP	L	2.50	6.00
32 2.75x6.5	L	2.75	6.50
32 3x1.25	SPCL*	1.25	3.00
32 3x3.25	L	3.00	3.25
32 3x7	L	3.00	7.00
32 4x5.38	SPCL*	4.00	5.38
32 4.25x5.63-1	SPCL*	4.25	5.63
32 3.5x5	L	3.45	4.93
32 3.5x10	L	3.50	10.00
32A	D	1.94	
32ABC	D	1.94	
32ABC1	J	2.50	
32B	J,K	2.80	
32B1	J	2.82	
32BM	K	2.77	
32C	J,K	2.00	
32C1	K	2.00	
32C1F	J	2.00	
32C2	K	2.02	
32C3	K	1.19	
32C4	K	2.50	
32C5	K	1.75	
32CS	I	2.02	
32D	J,K	2.00	
32D1	K	1.98	

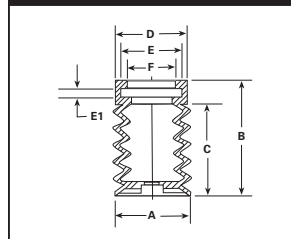
VC No.	Style	A(1)	A-2
32DS	K	2.00	
32E	D,J	2.77	
32E1	D,J	2.50	
32EP	K	1.74	
32F	J,K	2.38	
32F1	J	2.37	
32FB	J	2.42	
32G	D	2.28	
32G1	J	2.26	
32H	D	1.19	
32H2	D	1.06	
32H3	D	1.50	
32H6	D	1.37	
32H6-1	J	1.38	
32J	K	2.02	
32MP	K	1.75	
32MP1	K	1.52	
32MP1A	K	1.00	
32MP1.25	K	1.25	
32MMW	K	1.99	
32TC	D	1.88	
32UJ	D	1.88	
32W	D,J	1.79	
32W1	D	1.95	
32W2	D	2.25	
32W3	J,K	1.64	
32W4	SPCL*	1.26	
33	D	1.48	
33A	J,K	1.42	
33AD1	K	1.20	
33ATC	SPCL*	1.37	
33A1	J,K	1.40	
33A2	J,K	1.25	
33A2S	K	1.25	
33A3	J,K	0.90	
33A4	J,K	1.14	
33A4A	J	1.12	
33A5	D,J	0.87	
33A5-3	D	0.87	
33A5-4	K	0.77	
33A5EL	K	0.88	
33A5L	J	0.87	
33A5L3	K	0.88	
33A5S	K	0.77	
33A6	H	0.61	
33A6-1	H	0.39	
33A6-3	H	0.66	
33A7	K	1.25	
33A8	K	1.47	
33A9	K	0.78	
33A10	K	0.63	
33AR	J	1.37	
33B	D	1.52	
33C	D	1.41	
33D	D,J	1.50	
33D2	D	2.19	
33E1	K	1.09	
33E2	K	1.16	
33E9	K	1.39	
33F	I	0.98	
33G	K	0.86	
33G1	K	0.88	
33G2	D	1.00	
33H	K	1.19	
33I	K	1.18	2.34

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

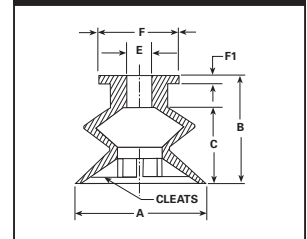
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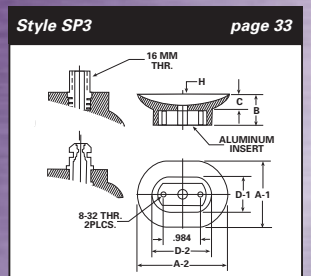
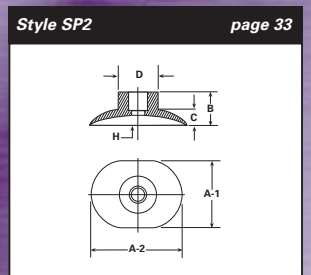
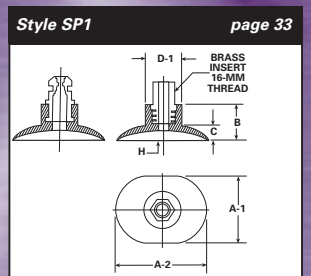
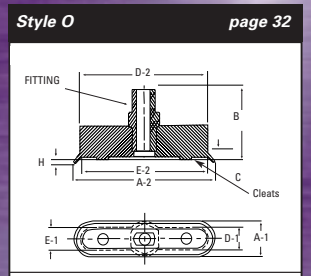
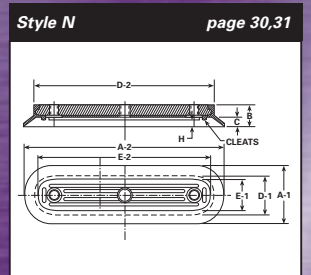
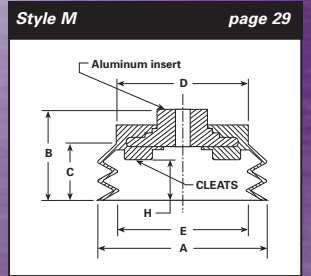
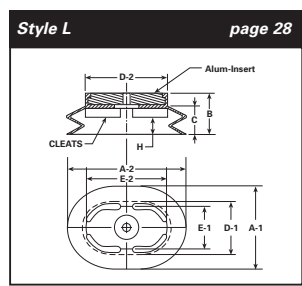
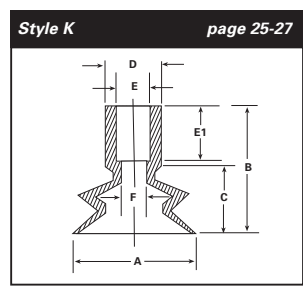
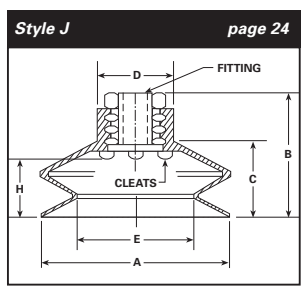


VC No.	Style	A(1)	A-2
33I-1	K	1.12	1.37
33I-2	K	0.78	0.96
33I-3	K	1.10	1.76
33J	D	1.50	
33K	K	1.20	
33L	D	1.62	
33M	D	1.59	
33N	J	1.53	
33P	SPCL*	1.28	
34	F	6.25	
34A	F	6.25	
35	F	5.50	
35J	SPCL*	0.57	1.44
35J1	SPCL*	0.57	1.45
35J3	SPCL*	0.63	1.67
36	A	1.00	
36A	A	1.00	
36B	A	1.00	
36C	A	1.00	
36D	A	1.00	
36E	B	1.07	
36F	A	1.00	
36G	A	1.00	
36H	A	1.00	
36J	A	1.03	
37	B	1.53	
37A	B,E	1.50	
37B	B,E	1.50	
37C	E	1.53	
38	F	4.75	
39	F	6.00	
40	K	1.33	
41	A	0.82	
41A	A	0.71	
41B	A	0.71	
41C	A	0.60	
41D	A	0.71	
41E	A	0.76	
41F	A	0.76	
41G	A	0.80	
42	C	1.25	
43	B	0.65	
44	SPCL*	0.69	
44A	SPCL*	0.53	
45	B	1.84	
45A	B	0.79	
46	B,E	2.04	
47	SP2	0.92	
47-14	SP1	2.46	1.51
47-31	SP1	1.87	2.18
47AV1	SP2	2.18	
47B	SP2	1.95	
47C	SP3	2.12	2.79
47E	SP3	2.12	3.26
47F	SP3	1.88	2.50
47F1	SP3	1.70	2.42
47F2	SP3	1.68	2.42
47H	SP2	1.29	2.29
47I	SP2	2.29	3.31
47L	C,SP2	1.58	
47N	C,SP2	2.65	
47N1	C,SP2	1.94	
47-O	SP3	1.95	2.65
47-O1	SP3	2.01	2.68
47-O2	SP3	1.87	2.73

VC No.	Style	A(1)	A-2
47-O3	SP3	1.92	3.09
47-O4	SP3	1.82	3.03
47PG	SP2	2.01	
47PG1	SP1,SPCL*	1.53	
47PG2	SPCL*	3.00	
47PS	SPCL*	1.44	2.25
47S	SP2	1.73	2.41
47SG	SP3	1.98	3.37
47T	SP1	1.91	3.32
47U	SP3	2.00	
47U1	SPCL*	2.02	
47W	SP3	2.07	3.06
47Y	SP1	1.87	2.81
47Y1	SP1	1.73	2.78
47Y2	SP1	0.93	1.75
47Y3	SP3	1.54	2.50
47Z1	SP3	1.70	2.70
47Z2	SP3	1.39	2.53
48	A	0.78	
49	C,E	2.47	
49A	C	1.56	
49A1	C	1.56	
49B	C	1.56	
49C	C	2.55	
49D	C	2.55	
50	C	1.56	
50A	A	1.57	
51	C	1.64	
51A	B	1.42	
52	C	1.97	
53	C	1.06	
54	B	1.93	
54-1	B	1.90	
54A	B	1.78	
54B	B	1.57	
54C	B	1.25	
54E	B	2.07	
54E1	B	2.07	
54E2	B	2.01	
54F	B	1.62	
54G	B	2.09	
54H	A	2.13	
54HA	B	2.15	
54HD	B	1.71	
54J	B	1.51	
54K	B	1.63	
55	O	1.50	2.39
55F	A	1.50	2.39
55AU	SP3	1.48	2.37
57	A	1.53	
57A	A	1.32	
57B	A	1.29	
57C	A	1.31	
57D	A	1.25	
58	C	1.98	
58A	C	1.98	
59	B,E	2.00	
59A	E	2.00	
59B	E	2.00	
59C	E	1.83	
59D	A	2.50	
59E	E	1.50	
59F	E	1.50	
59G	B	1.01	
59G1	C	1.01	

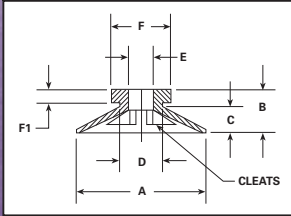
VC No.	Style	A(1)	A-2
59H	B	1.37	
59J	C	1.22	
59L	E	2.32	
60	C	1.32	
60A	B	1.37	
61	C	0.60	
62	B	2.65	
63	F	4.75	
64	C	1.28	
65	C	1.32	
66	C	1.01	
66A	C	0.83	
66B	B	0.75	
66C	C	0.62	
67	B	1.32	
68	A	0.37	
69	C	0.52	0.39
69A	A	0.19	0.74
69B	A	0.19	1.00
70	E, F, SPCL*	2.51	
70A	B	2.50	
70B	B	2.67	
71	F	5.31	
72	E, F	3.18	
72A	E	2.50	
73	F	4.31	
73A	N	4.00	9.00
73A2	F	3.12	
74	N	3.50	7.50
74A	N	3.50	7.50
75	N	3.90	8.75
76	F	5.00	
77	F	4.12	
78	F	3.06	
79	C	0.84	
79A	C	0.73	
80	F	3.50	
81	N	2.06	4.00
81B	SPCL*	1.29	4.38
81C	SPCL*	0.84	3.13
82	N	3.12	6.00
83	N	1.56	4.09
84	B	0.84	
86	E,F	2.09	
87	B	1.50	
87	O	0.75	1.48
88	B,E	1.21	
89	O	1.15	2.78
89A	O	1.47	2.96
90 1.25x11.64	N	1.25	11.64
90 1.5x2.12	SPCL*	1.50	2.13
90 1.5X8	N	1.50	8.00
90 1.5x10	N	1.50	10.00
90 1.62x4	N	1.62	4.00
90 1.87x16	N	1.88	16.00
90 1.75x16	N	1.75	16.00
90 2.2x7.5	N	2.20	7.50
90 2.25x3	N	2.25	3.00
90 2.25x5.25	N	2.29	5.26
90 2.375x4.25	N	2.38	4.25
90 2.5x5	N	2.50	5.00
90 2.5x3.75	N	2.50	3.75
90 2.36x5.12	SPCL*	2.36	5.12
90 2.68x3.5	N	2.68	3.50
90 2.68x5.75	N	2.68	5.75

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

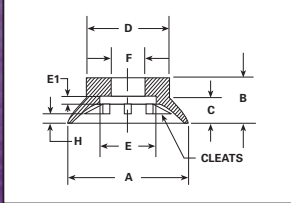


Parts Index – cups by number *(continued)*

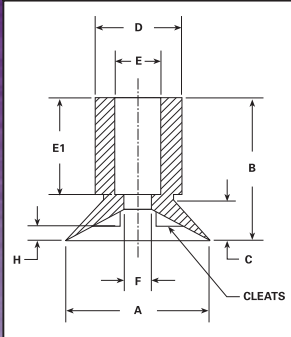
Style A page 8,9



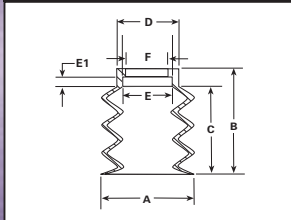
Style B page 10-12



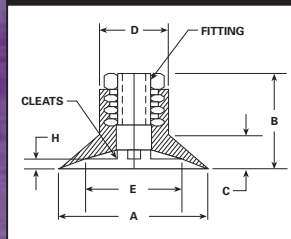
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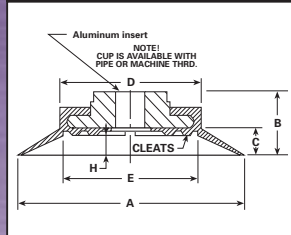
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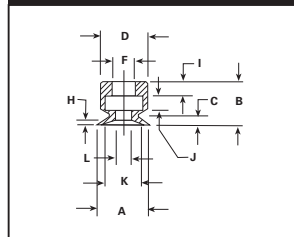
VC No.	Style	A(1)	A-2
90 2.68x6.62	N	2.68	6.62
90 2.75x3.5	N	2.21	3.48
90 2.75x4.75	N	2.75	4.75
90 3x8	N	3.00	8.00
90 3x10	N	3.00	10.00
90 3x12	N	3.00	12.00
90 3x13	N	3.00	13.00
90 3.25x15.5	N	3.25	15.50
90 3.5x7.5	N	3.25	7.50
90 3.5x11	N	3.50	11.00
90 3.5x14	N	3.50	14.00
90 4x8	N	4.00	8.00
90 4x14	N	4.00	14.00
90 5x3.25	N	3.25	5.00
90 5x12	N	4.96	12.00
90 5x14	N	5.00	14.00
90 5.375x3.625	N	3.63	5.38
90 6x6	N	6.00	6.00
90 6x8.5	N	6.00	8.50
90 6x10	N	6.00	10.00
90 6x10DP	N	6.00	10.00
90 6x12DP	N	6.00	12.00
90 6x14DP	N	6.00	14.00
90 6x90BRD	N	6.00	9.00
90 7x12	N	7.00	12.00
90 8x15	N	8.00	15.00
90 8x20DP	N	8.00	20.00
90 8.5x10DP	N	8.50	10.00
90 9.5x10.5	N	9.50	10.50
90 9.75x14	SPCL*	9.85	14.14
90 10.75x13	N	10.75	13.00
90 12x12	N	12.00	12.00
90 20x10	N	2.00	10.00
91	B,E	2.32	
91A	B,E	2.20	
91B	B	2.37	
92	B,E	3.07	
92A	B	3.09	
93	F	5.87	
94	F	7.00	
95	F	11.00	
95A	F	10.50	
95B	F	14.0	
95C	F	12.00	
95D	F	10.50	
95E	F	14.68	
95F	F	11.80	
96	F	8.50	
96A	F	8.12	
96B	F	8.50	
96C	F	7.20	
97	C	1.43	
98	A	0.62	0.98
98A	C	0.65	0.98
99	B,E,F	2.00	
100	A	1.65	
100A	A	1.65	
100B	A	1.67	
100B1	A	1.67	
100B2	A	1.18	2.00
100C	A	1.65	
100C1	A	1.67	
100E	A	1.65	
100F	A	1.51	
100G	B	1.62	

VC No.	Style	A(1)	A-2
100H	B	1.60	
100J	B	1.57	
100S	C,E	1.70	
100S1	C	1.67	
101	C	2.40	
103	F	4.00	
103A	F	3.09	
103C	E	3.00	
103D	F	5.00	
104 3.75	M	3.75	
104 4.33	M	4.33	
104 4.5	M	4.50	
104 5.5	SPCL*	4.53	4.25
104 5.6	M	5.60	
104 6.0	M	6.00	
104 6.4	M	6.43	
104 7.0	M	7.00	
104 7.0-1	M	7.00	
104 7.5	M	7.37	
104 7.94	M	7.94	
104 8.5	M	8.50	
104 8.5-2	M	8.50	
104 9.5	M	9.50	
104 10	M	10.00	
104 12.5	M	12.50	
104A	D	3.97	
104PC	SPCL*	4.49	
105	A	1.49	
105A	A	1.17	
106	B,E	2.50	
106A	B,E	2.03	
106B	B	2.73	
106C	B,E	3.00	
106PG	B	2.50	
107	B,E	1.11	
108	B	0.78	
109	B	5.18	
110	C	1.23	
110A	C	1.00	
110B	C	1.16	
111	B	1.75	
112	B	5.03	
113	C	1.01	
114	B	3.37	
115	B	3.40	
116	B	2.62	
117	B	6.50	
118	C	1.11	
119	G	0.77	
119A	C	0.77	
119B	C	0.78	
120	A	1.06	
121	A	1.18	
121A	B	1.18	
121B	B	1.18	
121C	A	1.62	
122	C	0.62	
122A	C	0.60	
122B	C	0.53	
123	C	0.56	
123A	A	0.57	
123A1	A	0.57	
123B	A	0.57	
124	K	1.02	
124A	I	1.00	

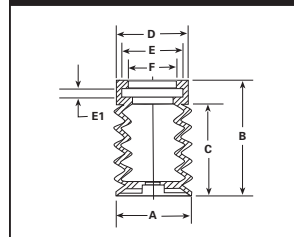
VC No.	Style	A(1)	A-2
124A3	K	1.03	
124B	K	1.00	
124C	K	0.78	
124D	K	0.75	
124D3	K	0.75	
124F1	K	1.03	
125	N	2.50	5.50
125A	N	1.43	
126	C	1.39	
127	C	1.50	
127A	C	1.66	
127B	C	1.25	
127C	C	1.18	
128	K	0.98	
128A	K	1.00	
129	L	3.25	7.87
130	M	3.31	
130A	M	2.73	
130A5	M	2.75	
130B	M	2.21	
130C	K	2.63	
130D	M	2.36	
130D2	M	3.36	
130E	M	1.97	
130F	M	2.25	
130G	M	3.31	
130H	SPCL*	3.38	
130SB	M	3.31	
130SQ	SPCL*	3.05	
131	C	1.38	
132	B	1.35	
133	B	0.67	
133A	B	1.18	
133B	C	1.62	
133E	K	1.14	
134	H	1.38	
134A	H	1.34	
134B	K	0.98	
134B2	K	1.10	
135A	C	0.78	
135B	C	0.39	
135C	C	0.62	
136	C	0.68	
136A	C	0.81	
136B	C	1.10	
136C	C	1.10	
137	J,K	2.36	
137B	K	2.26	
137C	J	2.42	
138	G	1.15	
138A	B	1.18	
139	C	0.75	
140	C	1.18	
140A	C	0.75	
141	A	1.01	
142	A	1.85	
143	C	1.50	
144	A	1.85	
144A	A	1.75	
144A1	A	1.62	
144B	A	1.85	
144C	A	1.35	
144C1	A	1.25	
144F	A	2.46	
145	C,SPCL*	1.06	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

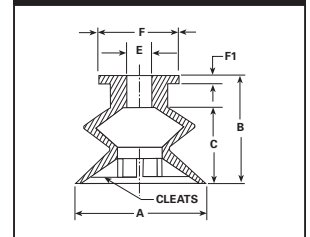
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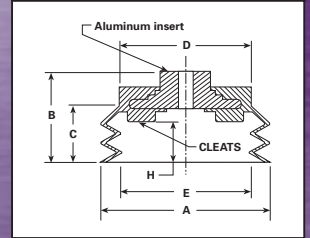


VC No.	Style	A(1)	A-2
146	B	1.40	
146A	B	1.42	
147	C	1.04	
147A	C	1.01	
147B	C	1.03	
147C	C	0.98	
147E	C	1.00	
148	B	1.00	
149	B	2.00	
149A	B	1.81	
150	B	1.82	
151	B	0.81	
152	C	1.20	
153	B,E	2.90	
153A	B	2.90	
154	SPCL*	6.03	
155	A	3.35	
156	B	3.28	
157	C	0.50	
157A	C	0.50	
157B	C	0.62	
157C	C	0.43	
158	B	0.71	
158A	B	0.75	
158B	C	0.79	
158C	B	0.53	
158D	B	0.38	
158F	B	0.54	
158G	C	0.73	
159	B	1.00	
159A	C	1.01	
160	C	1.06	
160C	C	1.06	
161	C	0.36	
161A	C	0.29	
161C	C	0.36	
162	B	1.98	
162A	B	1.75	
162B	B	1.98	
163	B	1.62	
164	B	0.35	
164A	B	0.37	
165	B	0.87	
165A	B	0.37	
166	A	1.40	
167	C	1.40	
167A	C	0.25	
167B	C	0.56	
167C	C	0.56	
167C1	A	0.56	
168	B,E	2.00	
169	C	0.34	
169A	C	0.32	
169C	C	0.32	
169D	C	0.33	
170	A	0.79	
171	B	2.43	
172	B	0.53	
173	C	0.40	
174	K	1.42	
175	J,K	3.25	
175A	K	3.37	
175B	J	3.38	
176	H	0.64	
176A	K	0.64	

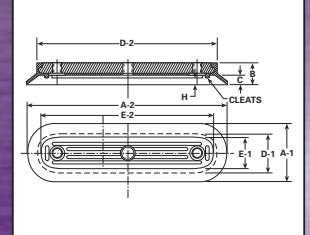
VC No.	Style	A(1)	A-2
177	B	1.17	
177A	B	1.00	
177B	C	1.39	
177C	C	1.39	
178	C	0.84	
179	C	0.64	
179A	C	0.66	
180	K	1.31	
181	B	2.75	
181A	SPCL*	2.57	
181B	SPCL*	3.07	
182	D	0.97	
183 1.56x4	N	1.56	4.00
183 2x4	N	2.00	4.00
183 2x4R	N	2.00	3.54
183 2x5	N	2.00	5.00
183 2x6	N	2.00	6.00
183 2x6R	N	2.00	5.59
183 2x7	N	2.00	7.00
184	A	1.00	
185	B	2.46	
186	B	1.12	
187	SPCL*	1.38	
188	N	1.00	4.50
188A	N	1.50	2.87
188A TALL	N	1.50	2.87
188B	N	1.00	4.50
188B1	L	1.00	4.50
188B2	N	1.00	5.00
188C1	SPCL*	0.75	2.88
188D	N	1.00	2.50
188E	N	0.87	4.50
188F	N	0.87	3.87
188G	N	0.75	2.38
188G1	N	0.75	6.00
188H	O	0.75	1.63
188JC	N	1.00	5.00
189	O	0.87	1.73
189A	O	0.50	2.00
189B	O	0.50	1.50
189C	O	0.50	1.00
189D	N	0.75	1.75
189D1	N	0.86	1.75
189F	SPCL*	0.39	1.17
189H	O	0.71	
190	C	0.56	
190A	C	0.56	
191	C	0.46	
192	I	1.00	
193	B	1.09	
194	B	2.87	
195	B	2.00	
196	K	1.11	
196A	K	0.92	
196B	K	0.92	
196C	K	0.67	
196D	K	1.08	
197	B	0.85	
198	B	4.00	
198A	B	2.29	
199	A	0.69	1.00
200	SPCL*	1.75	3.25
201A	SPCL*	2.00	
201B	SPCL*	3.88	
201C	SPCL*	1.10	

VC No.	Style	A(1)	A-2
202	H	1.47	
203	F	3.93	
203A	F	3.90	
204	C,E	3.50	
204-1	E	3.50	
204A	C,E	2.51	
204A1	E	2.51	
204B	C,E	2.03	
204C	C,E	1.75	
204D	C,E	1.50	
204E	E	1.25	
204F	C,E	1.00	
205	B	1.37	
206	B	0.42	
207	B	0.62	
207A	B	1.12	
207B	B	0.81	
207C	B	0.50	
207D	B	0.40	
207D1	B	1.00	
208	F	4.00	
209	C	1.12	
209A	K	1.13	
210	B	1.53	
211	C	0.45	
212	E	3.08	
212-5J	SPCL*	0.76	1.01
213	N	3.44	7.68
214	F	2.37	
214A	F	3.17	
214C	E	1.60	
214D	E	1.22	
214E	E	1.02	
216	F	3.12	
216A	F	2.00	
216B	F	2.00	
216C	F	3.13	
217A	J	2.21	
218	C	1.00	
219	F	3.56	
220	C	0.50	
221	SPCL*	10.87	15.25
224	C	1.13	
225A	C	1.44	
225B	B	1.32	
225C	SPCL*	0.95	
225D	SPCL*	1.65	
225E	SPCL*	1.63	
225F	SPCL*	2.27	
225G	SPCL*	0.81	
225-3	SPCL*	1.22	
226	SPCL*	2.64	
227	SPCL*	3.18	
228	B	0.79	
229	SPCL*	0.63	
230	B	0.93	
230A	B	0.75	
231	G	0.89	
232	F	2.12	
233	C	1.59	
234	C	0.35	
235	SPCL*	4.50	5.56
236	C	1.21	
237	C	2.77	
238	SPCL*	0.84	1.31

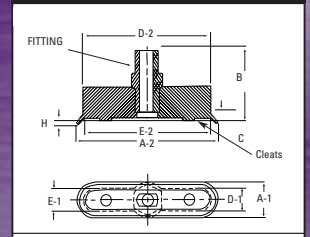
Style M page 29



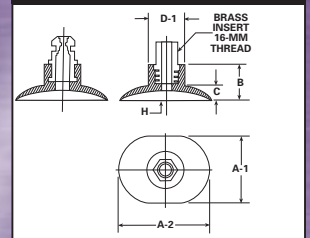
Style N page 30,31



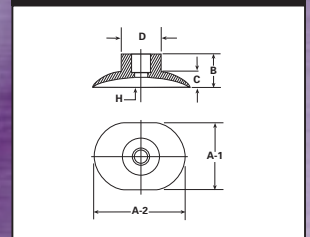
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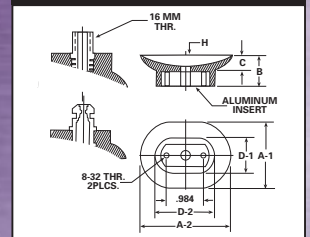
Style SP1 page 33



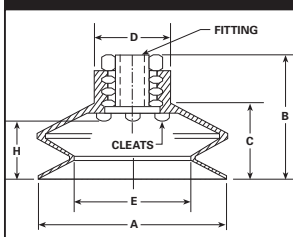
Style SP2 page 33



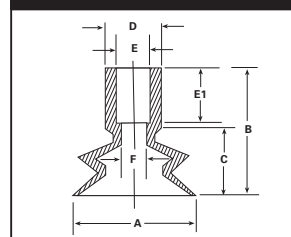
Style SP3 page 33



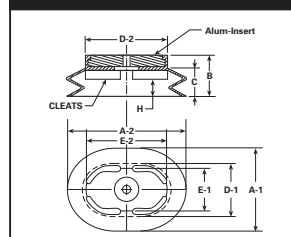
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Style K page 25-27



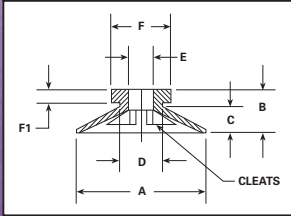
Style L page 28



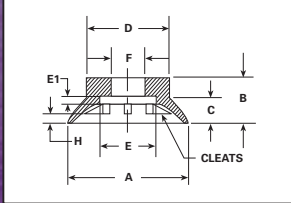
*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

Parts Index – cups by number *(continued)*

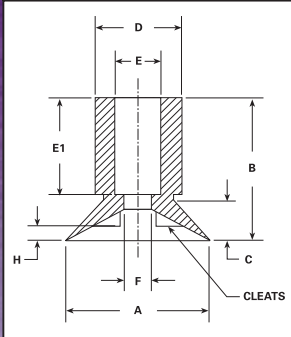
Style A page 8,9



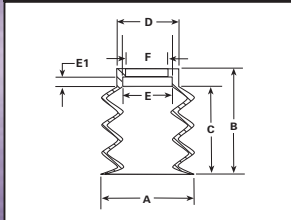
Style B page 10-12



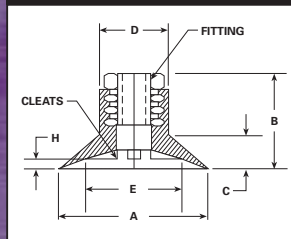
Style C page 13-17



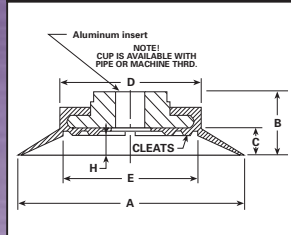
Style D page 18



Style E page 19,20



Style F page 20,21



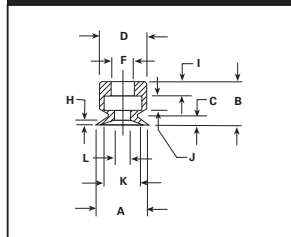
VC No.	Style	A(1)	A-2
238A	SPCL*	0.84	1.32
238A1	SPCL*	0.96	
238A2	SPCL*	0.95	
238A3	SPCL*	0.95	
239	C	1.20	1.89
239B	SPCL*	1.00	1.75
240	SPCL*	6.80	
241	F	4.50	
242	C	2.34	
243	SPCL*	1.12	
244	C	3.84	
245	F	3.21	
245B	F	2.90	
245C	F	2.10	
245D	F	3.87	
246	C	0.84	
248	B	0.67	
249	C	0.70	
250	C	1.08	
251	C	0.50	
252	K	0.98	0.75
254	C	2.50	
255	SPCL*	2.89	
255A	SPCL*	1.83	
256	SPCL*	1.50	
257	B	1.43	
257A	B	0.85	
258	C	1.17	
259	F	1.64	
260	SPCL*	3.43	
260A	SPCL*	5.37	
261	K	1.50	
262	F	2.42	
263	A	0.72	
264	K	1.25	
265	C	0.41	
266	G, SPCL*	2.07	
267	H	0.87	
270	B	1.21	
271	SPCL*	2.61	
271A	SPCL*	2.62	
271B	SPCL*	3.33	
271C	SPCL*	2.59	
271D	SPCL*	2.59	
271E	SPCL*	2.56	
271F	SPCL*	1.96	
271G	SPCL*	3.25	
271H	SPCL*	1.97	
271I	SPCL*	1.97	
271J	SPCL*	1.90	
271K	SPCL*	1.97	
272	A	1.64	
272A	E	1.65	
273	K	0.85	
274	K	1.75	
274A	K	1.73	
275	C	0.78	
276	C	0.39	
276A	C	0.59	
276B	C	0.98	
276C	C	0.79	
277	K	0.43	
278	SPCL*	5.48	
279	B	0.85	
279A	B	0.83	

VC No.	Style	A(1)	A-2
279B	B	0.72	
279C	B	0.79	
279D	A	1.06	
280	SPCL*	0.66	0.97
280A	SPCL*	0.56	0.94
280B	SPCL*	0.56	0.94
283	SPCL*	0.58	
283A	SPCL*	0.31	
283A02	SPCL*	0.31	
283B	SPCL*	0.58	
283C	SPCL*	1.05	
283D	SPCL*	0.42	
283E	SPCL*	0.60	
283F	SPCL*	0.54	
284	B	3.57	
286	B	0.71	
287	C	0.53	
288	N	2.75	5.85
289	J	1.18	
290	J	1.56	
291	SPCL*	4.68	
291A	SPCL*	3.23	
291C	SPCL*	6.40	
291D	SPCL*	3.35	
292	B	1.33	
293	C	0.79	
294	J	1.37	
294A	K	1.37	
294C	J	1.00	
295	F	6.31	
297	G	0.91	
298	D	2.75	
299	A	1.40	
300	K	1.33	
301A	SPCL*	0.80	
301B	C	1.18	
303	B	2.73	
304	H	0.65	
304A	H	0.56	
304B	SPCL*	0.73	
304C	H, SPCL*	0.72	
306	C	0.59	
307	B	1.58	
310	K	0.72	
311	C	0.93	
312	C	0.69	
312J	SPCL*	1.19	1.63
313	G	1.18	
313A	C	0.75	
313B	C	1.19	
313C	SPCL*	1.50	
313D	G	0.78	
313E	G	1.18	
313F	SPCL*	1.26	
313G	SPCL*	0.98	
314	I	0.67	
315	K	0.79	
316A	C	1.75	
316B	C	1.16	
316C	C	0.60	
316D	C	0.70	
317	A	1.16	
318	SPCL*	2.31	
319	SPCL*	0.75	1.25
320	D	1.81	

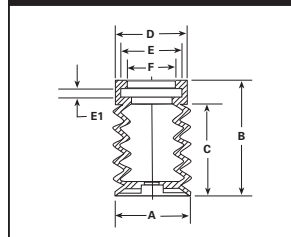
VC No.	Style	A(1)	A-2
321	D	2.87	
321B4	D	2.00	
322A	J	1.50	
322C	J	1.75	
322D	J	2.00	
322E	M	3.00	
322F	M	3.50	
323	B	1.10	
324A	SPCL*	0.61	
324B	I	0.82	
325	B	2.57	
326-4.375x15.875	SPCL*	4.38	15.88
327	C	1.24	
328	E	3.00	
329	A	0.61	
329J	SPCL*	1.02	1.27
330	SPCL*	0.89	
331	SPCL*	1.12	
331-4	K	1.00	1.00
331-5	K	0.74	1.37
332	SPCL*	3.50	10.50
333	K	1.02	
334	SPCL*	1.13	
334A	SPCL*	1.03	
335	SPCL*	4.57	
335A	SPCL*	2.77	
336A	SPCL*	0.37	
336B	SPCL*	0.42	
337	G	1.19	
338 2.718x6	N	2.72	6.00
339	SPCL*	0.43	
340	F	8.00	
340J	SPCL*	1.02	1.03
341	SPCL*	1.56	
342	C	1.18	
344	SPCL*	0.92	
345	SPCL*	9.50	
346A	SPCL*	3.85	
346C	SPCL*	6.58	
347	SPCL*	0.26	0.54
349	G	0.77	
350	SPCL*	0.72	
351	C	0.63	
352	SPCL*	0.76	
353	E	1.66	
353A	E	2.50	
354	C	1.09	
355	C	2.69	
356	K	0.94	
357	SPCL*	4.12	
358	SPCL*	1.19	
359	K	0.98	
360	C	1.38	
361	C	0.93	
363	SPCL*	3.47	
364	D	1.00	
365	C	2.00	
366	SPCL*	11.38	
367	SPCL*	0.78	
368	E	2.09	
368A	E	1.48	
369	C	1.09	
370	K	1.56	
372	C	0.84	
373	C	1.69	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

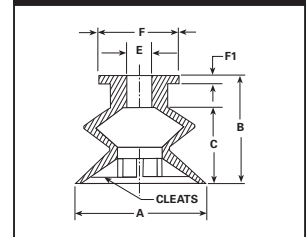
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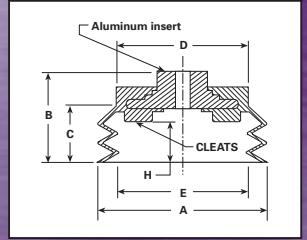


VC No.	Style	A(1)	A-2
374A	SPCL*	1.08	
374B	SPCL*	1.42	
375	SPCL*	0.82	
376	K	1.20	
378	A	3.78	
379	C	0.59	
380	F	1.95	
381	A	0.80	
381A	A	1.13	
382	SPCL*	0.98	
383A	SPCL*	0.59	1.77
383B	SPCL*	0.81	2.38
383C	SPCL*	1.43	3.56
384	SPCL*	0.62	
385	A	2.58	
387	G	1.64	
388	K	1.03	
389	G	0.39	
390	SPCL*	2.05	
391	N	0.71	1.63
627-4	SPCL*	1.80	
830A	SPCL*	2.74	
#1	SP2	0.92	2.85
#1A	SP2	1.93	2.81
#2	SP1	1.70	2.50
#10	SP3	1.21	2.04
#10A	SP3	1.53	2.12
B1	J,K	1.20	
B1A	J,K	1.38	
B1A2	K	1.15	
B1A4	K	3.00	
B1C	K	1.20	
B1D	I	1.21	
B1F	I	1.20	
B1P	D	1.25	
B1PA	D	1.27	
B1PA1	D	1.75	
B1Q	K	1.25	
B2	I,K	0.75	
B2 0.64	K	0.76	
B2A1	K	0.76	
B3	K	0.52	
B3-1	K	0.52	
B3-1A	H	0.52	
B3-2	K	0.51	
B3.4	K	0.19	
B3.5	K	0.13	
B3A	I	0.57	
B3F	I	0.51	
B3F1	I	0.50	
B4	K	0.61	1.67
B4A	K	1.19	
B4AC	K	1.20	
B5-2	K	0.19	
B5-3	K	0.19	
B6	K	0.25	
B6-2	K	0.25	
B6.4	K	0.25	
B6.5	K	0.25	
B7	K	0.28	
B7-1	K	0.27	
B8	K	0.31	
B8.1	K	0.35	
B9	K	0.39	
B9.5	H	0.39	

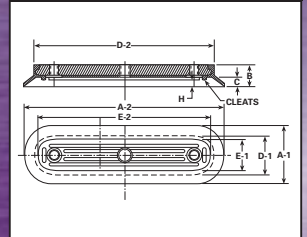
VC No.	Style	A(1)	A-2
B9.5A	K	0.40	
B10	K	0.41	
B10-1	K	0.41	
B10-2	K	0.38	
B10-3	K	0.44	
B10-4	K	0.43	
B10.5	K	0.43	
B10-6	K	0.39	
B14.5	H	0.60	
B15	K	0.61	
B15-1	K	0.63	
B15-2	K	0.63	
B18	K	0.78	
B18-1	K	0.80	
B19	K	0.78	
B19A	K	0.60	
B20	K	0.80	
B20.5	K	0.79	
B20-1	K	0.72	
B20-2	K	0.84	
B20F	J	0.87	
B20P	I	0.87	
B20P1	H	0.88	
B21	K	0.80	
B25	D	0.94	
B28	K	1.09	
B30	K	1.33	
B30	J	1.35	
B30-1	I	1.34	
B30-2	I	1.37	
B30A	K	2.73	
B30P	I	1.30	
B32	J	1.26	
B33H1	K	1.14	1.34
B40	J	1.65	
B40P	I	1.70	
B50	K	2.12	
B50	J	2.10	
B50P	I	2.10	
B50P1	I	2.10	
B53	K	2.13	
B75	M	3.09	
B85	J	3.37	
B110	M	4.62	
B111	J	4.45	
BH30	B	1.17	
BH40	B	1.57	
BH50	B	2.00	
BH50-2	B	1.95	
BH60F	B	2.31	
BH89	B	3.52	
BH115	F	4.62	
BL11	I	0.43	
BL20	I	0.79	
BL30	I	1.21	
BL40	J	1.56	
BL40	K	1.59	
D15	C	0.64	
D20P	A	0.84	
D30P	A	1.26	
D50P	A	2.03	
F25	A	1.06	
MINI-.080	G	0.09	
MINI-.125	C	0.12	
MINI-.138	G	0.15	

VC No.	Style	A(1)	A-2
MINI-.148	C	0.14	
MINI-.160	C	0.15	
MINI-.199	C	0.19	
MINI-.200	A	0.20	
MINI-.210	A	0.21	
MINI-.224	B	0.32	
MINI-.24x.81	SPCL*	0.24	0.81
MINI-.246	C	0.23	
MINI-.250	A	0.23	
MINI-.255	B	0.25	
MINI-.260	B	0.26	
MINI-.299	B	0.31	
MINI-.300	A	0.29	
MINI-.310	B	0.31	
MINI-.312	B	0.29	
MINI-.330	SPCL*	0.33	
MINI-.335	C	0.33	
MINI-.350	G	0.35	
MINI-.400	B	0.40	
MINI-7x16	A	0.28	0.64
MINI-7.9	C	0.31	
MINI-U6	C	0.28	
MINI-U9.5	C	0.37	
NJ1	G	0.51	
NJ2	G	0.42	
NJ3	G	0.32	
NJ4	G	0.23	
NJ5	G	0.32	
NJ6	G	0.39	
NJ7	G	0.59	
NJ7.5	H	0.30	
NJ8	G	0.23	
NJ9	G	0.32	
NJ10	G	0.39	
NJ10.5	G	0.44	
NJ11	G	0.28	
NJ12	G	0.26	
NJ13	G	0.35	
NJ14	G	0.42	
R10	C	1.03	
R22	C	0.82	
R23	C	0.85	
R23A	C	0.86	
R24H	B	1.25	
R61	A	1.42	
R62	A	1.25	
RM10.5	G	0.40	
RM14	G	0.65	
RM15.8	H	0.63	
RM16	H	0.67	
RM30	G	1.17	
RM40	G	1.56	
TC75	F	2.95	
TC100	F	3.90	
DD2	SP1	1.68	2.71
U20	A	0.87	
U40	A	1.60	
U50	A	2.06	

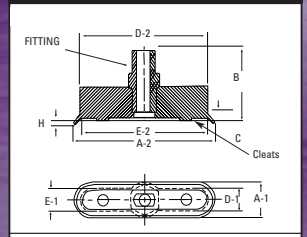
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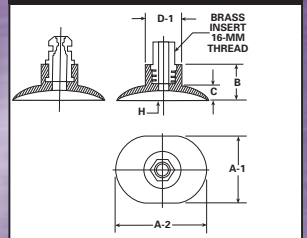
Style N page 30,31



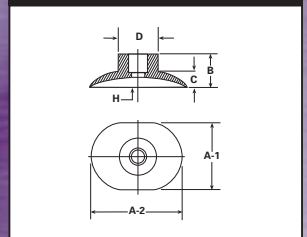
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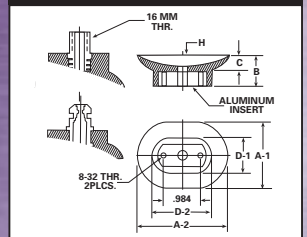
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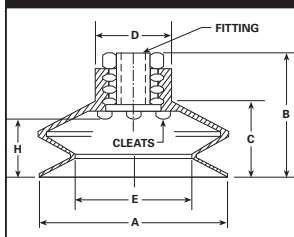
Style SP2 page 33



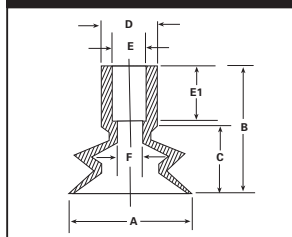
Style SP3 page 33



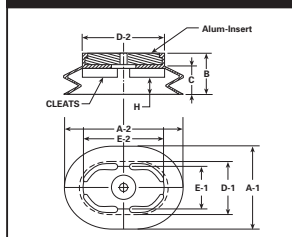
Style J page 24



Style K page 25-27



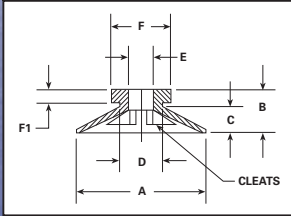
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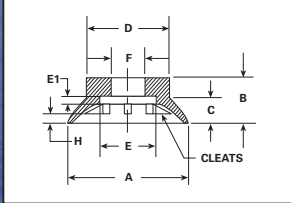
*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

Parts Index – cups by diameter

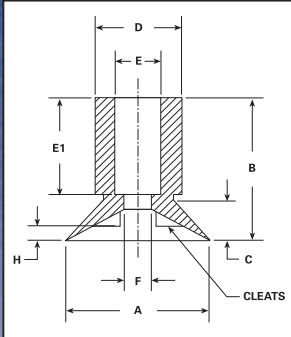
Style A page 8,9



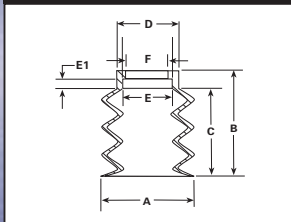
Style B page 10-12



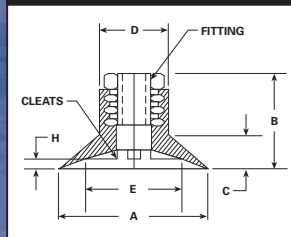
Style C page 13-17



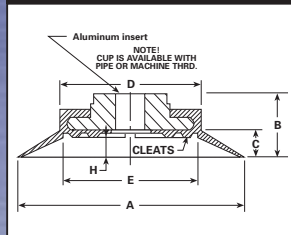
Style D page 18



Style E page 19,20



Style F page 20,21



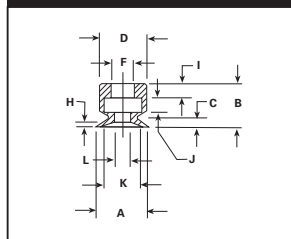
VC No.	Style	A(1)	A-2
MINI-.080	G	0.09	
MINI-.125	C	0.12	
B3.5	K	0.13	
MINI-.148	C	0.14	
MINI-.138	G	0.15	
MINI-.160	C	0.15	
69A	A	0.19	0.74
69B	A	0.19	1.00
MINI-.199	C	0.19	
B3.4	K	0.19	
B5-2	K	0.19	
B5-3	K	0.19	
MINI-.200	A	0.20	
MINI-.210	A	0.21	
MINI-.250	A	0.23	
NJ4	G	0.23	
NJ8	G	0.23	
MINI-.246	C	0.23	
MINI-.24x.81	SPCL*	0.24	0.81
167A	C	0.25	
B6	K	0.25	
B6-2	K	0.25	
B6.4	K	0.25	
B6.5	K	0.25	
MINI-.255	B	0.25	
347	SPCL*	0.26	0.54
MINI-.260	B	0.26	
NJ12	G	0.26	
B7	K	0.28	
MINI-7x16	A	0.28	
MINI-U6	C	0.28	
NJ11	G	0.28	
161A	C	0.29	
MINI-.300	A	0.29	
MINI-.312	B	0.29	
NJ7.5	H	0.30	
283A	SPCL*	0.31	
283A02	SPCL*	0.31	
B8	K	0.31	
MINI-.299	B	0.31	
MINI-.310	B	0.31	
MINI-7.9	C	0.31	
169A	C	0.32	
169C	C	0.32	
MINI-.224	B	0.32	
NJ3	G	0.32	
NJ5	G	0.32	
NJ9	G	0.32	
169D	C	0.33	
MINI-.330	SPCL*	0.33	
MINI-.335	C	0.33	
169	C	0.34	
1P	A	0.35	
164	B	0.35	
234	C	0.35	
B8.1	K	0.35	
NJ13	G	0.35	
MINI-.350	G	0.35	
161	C	0.36	
161C	C	0.36	
68	A	0.37	
164A	B	0.37	
165A	B	0.37	
336A	SPCL*	0.37	
MINI-U9.5	C	0.37	

VC No.	Style	A(1)	A-2
158D	B	0.38	
B10-2	K	0.38	
33A61	H	0.39	
135B	C	0.39	
189F	SPCL*	0.39	1.17
276	C	0.39	
389	G	0.39	
B9	K	0.39	
B9.5	H	0.39	
B10-6	K	0.39	
NJ6	G	0.39	
NJ10	G	0.39	
167	C	0.40	
173	C	0.40	
207D	B	0.40	
B9.5A	K	0.40	
MINI-.400	B	0.40	
RM-10.5	G	0.40	
265	C	0.41	
B10	K	0.41	
B10-1	K	0.41	
206	B	0.42	
283D	SPCL*	0.42	
336B	SPCL*	0.42	
NJ1	G	0.42	
NJ14	G	0.42	
157C	C	0.43	
277	K	0.43	
339	SPCL*	0.43	
B10-4	K	0.43	
B10.5	K	0.43	
BL11	I	0.43	
B10-3	K	0.44	
NJ10.5	G	0.44	
211	C	0.45	
191	C	0.46	
157	C	0.50	
157A	C	0.50	
189A	O	0.50	2.00
189B	O	0.50	1.50
189C	O	0.50	1.00
191A	C	0.50	
191B	C	0.50	
207C	B	0.50	
220	C	0.50	
251	C	0.50	
B3F1	I	0.50	
B3F	I	0.51	
NJ2	G	0.51	
69	C	0.52	0.39
B3	K	0.52	
B3-1	K	0.52	
B3-1A	H	0.52	
44A	SPCL*	0.53	
122B	C	0.53	
158C	B	0.53	
172	B	0.53	
287	C	0.53	
158F	B	0.54	
283F	SPCL*	0.54	
123	C	0.56	
167B	C	0.56	
167C	C	0.56	
167C1	A	0.56	
190	C	0.56	

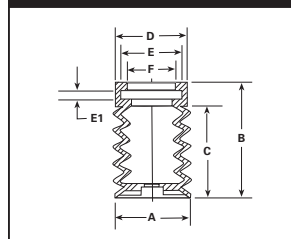
VC No.	Style	A(1)	A-2
190A	C	0.56	
280A	SPCL*	0.56	0.94
280B	SPCL*	0.56	0.94
304A	H	0.56	
35J	SPCL*	0.57	1.44
35J1	SPCL*	0.57	1.45
123A	A	0.57	
123A1	A	0.57	
123B	A	0.57	
B3A	I	0.57	
283	SPCL*	0.58	
283B	SPCL*	0.58	
276A	C	0.59	
306	C	0.59	
379	C	0.59	
383A	SPCL*	0.59	1.77
NJ7	G	0.59	
41C	A	0.60	
61	C	0.60	
122A	C	0.60	
283E	SPCL*	0.60	
316C	C	0.60	
B14.5	H	0.60	
B19-A	K	0.60	
33A6	H	0.61	
324A	SPCL*	0.61	
329	A	0.61	
B4	K	0.61	1.67
B15	K	0.61	
24B	C	0.62	
32.62x1.87	L	0.62	1.87
66C	C	0.62	
98	A	0.62	0.98
122	C	0.62	
135	C	0.62	
157B	C	0.62	
207	B	0.62	
384	SPCL*	0.62	
25	G	0.63	
33A10	K	0.63	
35J3	SPCL*	0.63	1.67
229	SPCL*	0.63	
351	C	0.63	
B151	K	0.63	
B152	K	0.63	
RM-15.8	H	0.63	
176	H	0.64	
176A	K	0.64	
179	C	0.64	
D15	C	0.64	
24	C	0.65	
24C	SPCL*	0.65	
43	B	0.65	
98A	C	0.65	0.98
304	H	0.65	
RM-14	G	0.65	
33A6-3	H	0.66	
179A	C	0.66	
280	SPCL*	0.66	0.97
24A	C	0.67	
133	B	0.67	
196C	K	0.67	
248	B	0.67	
314	I	0.67	
RM-16	H	0.67	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

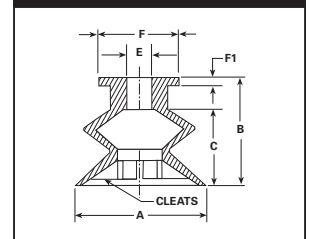
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Style I page 23

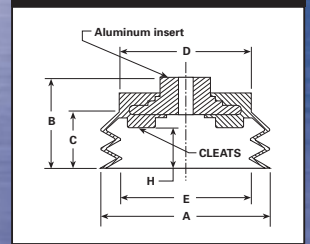


VC No.	Style	A(1)	A-2
136	C	0.68	
44	SPCL*	0.69	
199	A	0.69	1.00
312	C	0.69	
249	C	0.70	
316D	C	0.70	
41A	A	0.71	
41B	A	0.71	
41D	A	0.71	
158	B	0.71	
189H	O	0.71	
286	B	0.71	
391	N	0.71	1.63
263	A	0.72	
279B	B	0.72	
304C	H, SPCL*	0.72	
310	K	0.72	
350	SPCL*	0.72	
B20-1	K	0.72	
33A5	J	0.73	
79A	C	0.73	
158G	C	0.73	
304B	SPCL*	0.73	
331-5	K	0.74	1.37
2E4	C	0.75	
16A	SPCL*	0.75	
32.75x5	L	0.75	5.00
66B	B	0.75	
87	O	0.75	1.48
124D	K	0.75	
124D-3	K	0.75	
139	C	0.75	
140A	C	0.75	
158A	B	0.75	
188C	SPCL*	0.75	2.88
188C1	L	0.75	2.87
188G	N	0.75	2.38
188G1	N	0.75	6.00
188H	N	0.75	1.63
189D	N	0.75	1.75
230A	B	0.75	
313A	C	0.75	
319	SPCL*	0.75	1.25
B2	I, K	0.75	
41E	A	0.76	
41F	A	0.76	
212-5J	SPCL*	0.76	1.01
352	SPCL*	0.76	
B2.64	K	0.76	
B2A1	K	0.76	
2E5	C	0.77	
16	C	0.77	
33A5	K	0.77	
33A5S	K	0.77	
119	G	0.77	
119A	C	0.77	
349	G	0.77	
22A	G	0.78	
331-2	K	0.78	0.96
48	A	0.78	
108	B	0.78	
119B	C	0.78	
124C	K	0.78	
135A	C	0.78	
275	C	0.78	

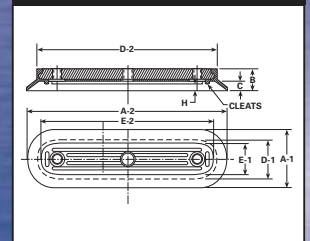
VC No.	Style	A(1)	A-2
313D	G	0.78	
339A	K	0.78	
367	SPCL*	0.78	
B18	K	0.78	
B19	K	0.78	
21	C	0.79	
45A	B	0.79	
158B	C	0.79	
170	A	0.79	
228	B	0.79	
276C	C	0.79	
279C	B	0.79	
293	C	0.79	
315	K	0.79	
B20.5	K	0.79	
BL20	I	0.79	
41G	A	0.80	
301A	SPCL*	0.80	
381	A	0.80	
B18-1	K	0.80	
B20	K	0.80	
B21	K	0.80	
22	G	0.81	
136A	C	0.81	
151	B	0.81	
207B	B	0.81	
225G	SPCL*	0.81	
383B	SPCL*	0.81	2.38
41	A	0.82	
375	SPCL*	0.82	
324B	I	0.82	
R22	C	0.82	
21A	C	0.83	
66A	C	0.83	
279A	B	0.83	
79	C	0.84	
81C	SPCL*	0.84	3.13
84	B	0.84	
178	C	0.84	
238	SPCL*	0.84	1.31
238A	SPCL*	0.84	1.32
246	C	0.84	
372	C	0.84	
B20	K	0.84	
D20P	A	0.84	
17	C	0.85	
197	B	0.85	
257A	B	0.85	
273	K	0.85	
279	B	0.85	
R23	C	0.85	
33G	K	0.86	
189D1	N	0.86	1.75
R23A	C	0.86	
33A5-3	D	0.87	
33A5-4	D	0.87	
33AL5	J	0.87	
165	B	0.87	
188E	N	0.87	4.50
188F	N	0.87	3.87
189	O	0.87	1.73
267	H	0.87	
B20F	J	0.87	
B20P	I	0.87	
U20	A	0.87	

VC No.	Style	A(1)	A-2
33A5EL	K	0.88	
33A5L3	K	0.88	
33G1	K	0.88	
B20P1	H	0.88	
231	G	0.89	
330	SPCL*	0.89	
33A3	J, K	0.90	
297	G	0.91	
#1	SP2	0.92	2.85
47	SP2	0.92	
196B	K	0.92	
344	SPCL*	0.92	
47-Y-2	SP1	0.93	1.75
230	B	0.93	
311	C	0.93	
356	K	0.94	
B25	D	0.94	
225C	SPCL*	0.95	
238A2	SPCL*	0.95	
238A3	SPCL*	0.95	
26	A	0.96	
238A1	SPCL*	0.96	
2D1	C	0.97	
182	D	0.97	
33F	I	0.98	
128	K	0.98	
134B	K	0.98	
147C	C	0.98	
252	K	0.98	0.75
276B	C	0.98	
313G	SPCL*	0.98	
359	K	0.98	
382	SPCL*	0.98	
2E3	C	1.00	
32 1x13	L	1.00	13.00
32MP1A	K	1.00	
33G2	D	1.00	
36	A	1.00	
36A	A	1.00	
36B	A	1.00	
36C	A	1.00	
36D	A	1.00	
36F	A	1.00	
36G	A	1.00	
36H	A	1.00	
110A	C	1.00	
124A	I	1.00	
124B	K	1.00	
128A	K	1.00	
147E	C	1.00	
148	B	1.00	
159	B	1.00	
177A	B	1.00	
184	A	1.00	
188	N	1.00	4.50
188B	N	1.00	4.50
188B1	L	1.00	4.50
188B2	N	1.00	5.00
188D	N	1.00	2.50
188JC	N	1.00	4.25
192	I	1.00	
204F	C, E	1.00	
207D1	B	1.00	
218	C	1.00	
239B	SPCL*	1.00	

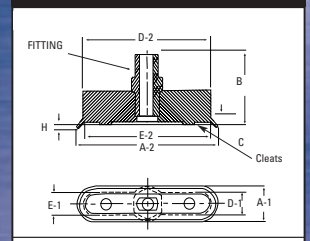
Style M page 29



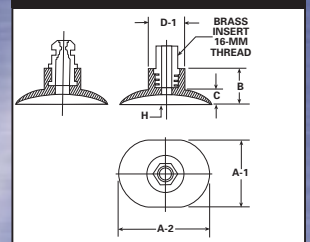
Style N page 30, 31



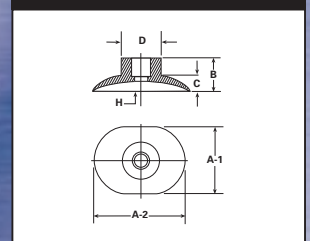
Style O page 32



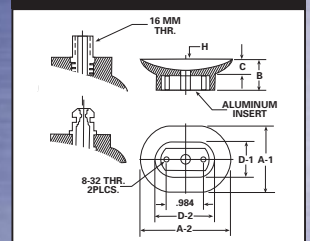
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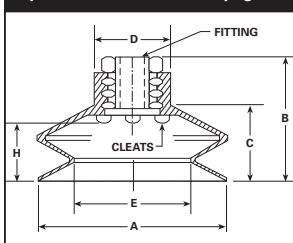
Style SP2 page 33



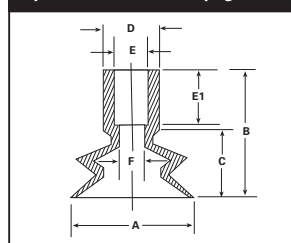
Style SP3 page 33



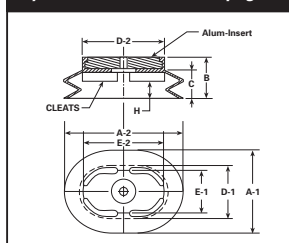
Style J page 24



Style K page 25-27

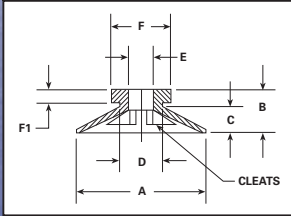


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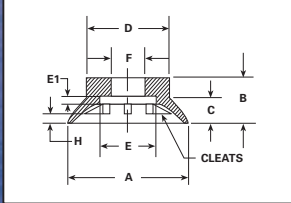


*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

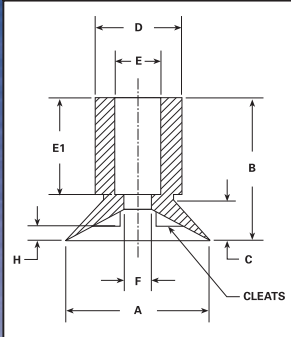
Style A page 8,9



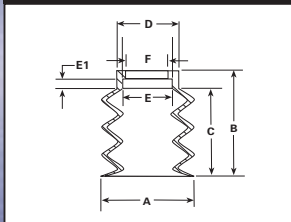
Style B page 10-12



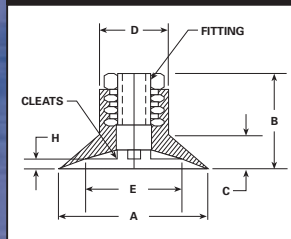
Style C page 13-17



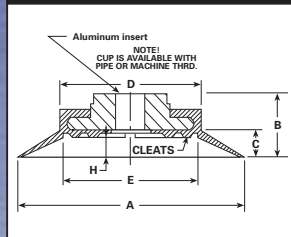
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Style E page 19,20



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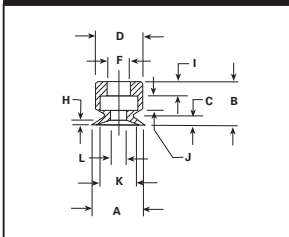
VC No.	Style	A(1)	A-2
294C	J	1.00	
331-4	K	1.00	1.00
364	D	1.00	
59G	B	1.01	
59G1	C	1.01	
66	C	1.01	
113	C	1.01	
141	A	1.01	
147A	C	1.01	
159A	C	1.01	
2F	C	1.02	
124	K	1.02	
214E	E	1.02	
329J	SPCL*	1.02	1.27
333	K	1.02	
340J	SPCL*	1.02	1.03
14	C	1.03	
36J	A	1.03	
124A3	K	1.03	
124F1	K	1.03	
147B	C	1.03	
334A	SPCL*	1.03	
388	K	1.03	
R10	C	1.03	
9C	A	1.04	
10	B,E	1.04	
10A	B,E	1.04	
20	A	1.04	
147	C	1.04	
19A	C	1.05	
283C	SPCL*	1.05	
32H2	D	1.06	
53	C	1.06	
120	A	1.06	
145	C,SPCL*	1.06	
160C	C	1.06	
160	C	1.06	
279D	B	1.06	
F25	A	1.06	
36E	B	1.07	
196D	K	1.08	
250	C	1.08	
374A	SPCL*	1.08	
33E1	K	1.09	
193	B	1.09	
369	C	1.09	
B28	K	1.09	
3313	K	1.10	1.76
134B2	K	1.10	
136B	C	1.10	
136C	C	1.10	
201C	SPCL*	1.10	
323	B	1.10	
19	C	1.11	
107	B,E	1.11	
118	C	1.11	
196	K	1.11	
6	B	1.12	
33A4A	J	1.12	
3311	K	1.12	1.37
186	B	1.12	
207A	B	1.12	
209	C	1.12	
243	SPCL*	1.12	
331	SPCL*	1.12	

VC No.	Style	A(1)	A-2
209A	K	1.13	
224	C	1.13	
334	SPCL*	1.13	
381A	A	1.13	
9	A	1.14	
9A	A	1.14	
9A1	A	1.14	
9B	A	1.14	
28	A	1.14	
33A4	J,K	1.14	
33H1	K	1.14	1.34
133E	K	1.14	
281	A	1.14	
89	O	1.15	2.78
138	G	1.15	
B1A-2	K	1.15	
33E2	K	1.16	
110B	C	1.16	
316B	C	1.16	
317	A	1.16	
6A	A	1.17	
105A	A	1.17	
177	B	1.17	
196A	K	1.17	
BH30	B	1.17	
RM-30	G	1.17	
11	B	1.18	
32-C3	K	1.18	
331	B	1.18	2.34
100B-2	A	1.18	2.00
121	A	1.18	
121A	B	1.18	
121B	B	1.18	
127C	C	1.18	
133A	B	1.18	
138A	B	1.18	
140	C	1.18	
258	C	1.18	
289	J	1.18	
301B	C	1.18	
313	G	1.18	
313E	G	1.18	
342	C	1.18	
2D2	C	1.19	
9D	A	1.19	
32C3	K	1.19	
32H	D	1.19	
33H	K	1.19	
312J	SPCL*	1.19	1.63
313B	C	1.19	
337	G	1.19	
358	SPCL*	1.19	
B4A	K	1.19	
33AD1	K	1.20	
33K	K	1.20	
152	C	1.20	
239	C	1.20	1.89
376	K	1.20	
B1	J,K	1.20	
B1C	K	1.20	
B1F	I	1.20	
B4AC	K	1.20	
#10	SP3	1.21	2.04
88	B,E	1.21	
236	C	1.21	

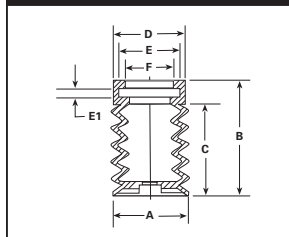
VC No.	Style	A(1)	A-2
270	B	1.21	
B1D	I	1.21	
BL30	I	1.21	
59J	C	1.22	
214D	E	1.22	
225-3	SPCL*	1.22	
110	C	1.23	
327	C	1.24	
2D	C	1.25	
2EF	A	1.25	
32 1.25x2.50	L	1.25	2.46
32 1.25x2.50D2	L	1.25	2.50
32 1.30x3.05	L	1.25	3.00
32 3x1.25	SPCL*	1.25	3.00
32MP1.25	K	1.25	
32W-4	K	1.25	
33A2	J,K	1.25	
33A2S	K	1.25	
33A7	K	1.25	
42	C	1.25	
54C	B	1.25	
57D	A	1.25	
90 1.25x11.64	N	1.25	11.64
127B	C	1.25	
144C1	A	1.25	
204E	E	1.25	
264	K	1.25	
B1P	D	1.25	
B1Q	K	1.25	
R24H	B	1.25	
R62	A	1.25	
2C1	B	1.26	
32W4	SPCL*	1.26	
313F	SPCL*	1.26	
B32	J	1.26	
D30P	A	1.26	
B1PA	D	1.27	
2	C	1.28	
33P	SPCL*	1.28	
64	C	1.28	
2C	C	1.29	
23	B	1.29	
23A	B	1.29	
23B	B	1.29	
47-H	SP2	1.29	2.29
57B	A	1.29	
81B	SPCL*	1.29	4.38
2A	C	1.31	
2A1	A	1.31	
2EB	C	1.31	
2EH	C	1.31	
57C	A	1.31	
180	K	1.31	
294A	K	1.31	
57A	A	1.32	
60	C	1.32	
65	C	1.32	
67	B	1.32	
225B	B	1.32	
40	K	1.33	
292	B	1.33	
300	K	1.33	
B30	K	1.33	
2EA	E	1.34	
B30-1	I	1.34	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

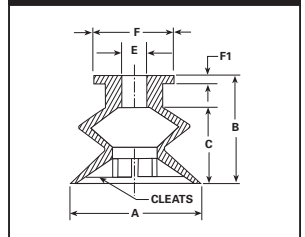
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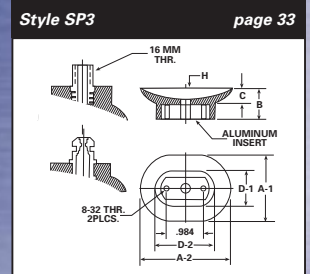
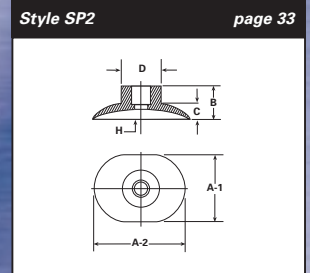
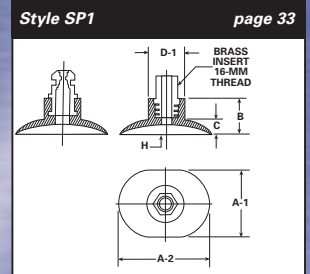
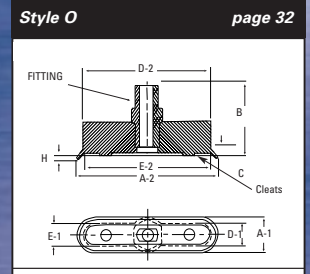
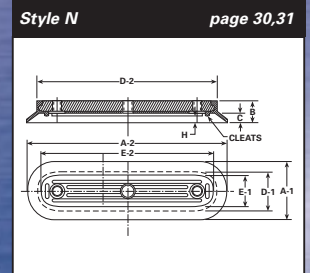
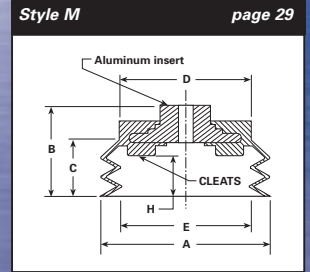
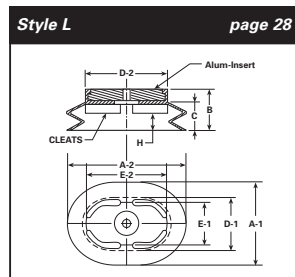
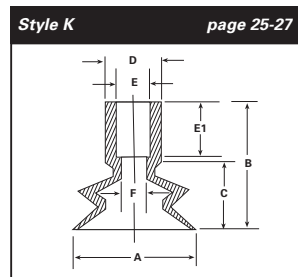
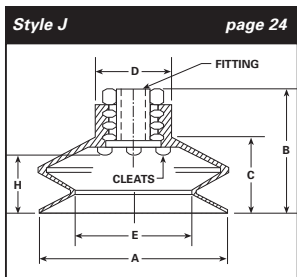


VC No.	Style	A(1)	A-2
2E2	A	1.35	
132	B	1.35	
134A	H	1.35	
144C	A	1.35	
B30	J	1.35	
2E	C	1.36	
2E1	C	1.37	
32H6	D	1.37	
33A-1	J	1.37	
33AR	J	1.37	
33ATC	SPCL*	1.37	
59H	B	1.37	
60A	B	1.37	
205	B	1.37	
294	J	1.37	
294A	J	1.37	
B30-2	I	1.37	
32H6-1	J	1.38	
131	C	1.38	
134	H	1.38	
187	SPCL*	1.38	
B1A	J,K	1.38	
33E9	K	1.39	
47-Z-2	SP3	1.39	2.53
126	C	1.39	
177B	C	1.39	
177C	C	1.39	
33A1	J,K	1.40	
12	B	1.40	
146	B	1.40	
166	A	1.40	
299	A	1.40	
33C	D	1.41	
33A	J,K	1.42	
51A	B	1.42	
146A	B	1.42	
174	K	1.42	
374B	SPCL*	1.42	
R61	A	1.42	
97	C	1.43	
125A	N	1.43	3.71
257	B	1.43	
383C	SPCL*	1.43	3.56
47PS	SPCL*	1.44	2.25
225A	C	1.44	
32-1.50x2.75	L	1.46	2.73
33A8	K	1.47	
89A	O	1.47	2.96
202	H	1.47	
33	D	1.48	
55AU	SP3	1.48	2.37
368A	E	1.48	
105	A	1.49	
32 1.5x2.75D2	L	1.50	2.75
32 1.5x3.87	L	1.50	3.84
32H3	D	1.50	
33D	D,J	1.50	
33J	D	1.50	
37A	B,E	1.50	
37B	B,E	1.50	
55	O	1.50	
55F	A	1.50	2.39
59E	E	1.50	
59F	E	1.50	
87	B	1.50	

VC No.	Style	A(1)	A-2
90 1.5x2.12	SPCL*	1.50	2.13
90 1.5x8	N	1.50	8.00
90 1.5x10	N	1.50	10.00
127	C	1.50	
143	C	1.50	
188A	N	1.50	2.87
188A TALL	N	1.50	2.87
204D	C,E	1.50	
256	SPCL*	1.50	
261	K	1.50	
313C	SPCL*	1.50	
322A	J	1.50	
8	B	1.51	
54J	B	1.51	
100F	A	1.51	
7B	C	1.52	
32MP1	K	1.52	
33B	D	1.52	
#10	SP3	1.53	2.12
33N	J	1.53	
37	B	1.53	
37C	E	1.53	
47PG1	SP1,SPCL*	1.53	
57	A	1.53	
210	B	1.53	
47-Y-3	SP3	1.54	2.50
49A	C	1.56	
49A1	C	1.56	
49B	C	1.56	
50	C	1.56	
83	N	1.56	4.09
183 1.56x4	N	1.56	4.00
290	J	1.56	
341	SPCL*	1.56	
370	K	1.56	
BL40	J	1.56	
RM-40	G	1.56	
50A	A	1.57	
54B	B	1.57	
100J	B	1.57	
BH40	B	1.57	
47L	C,SP2	1.58	
307	B	1.58	
33M	D	1.59	
233	C	1.59	
373	C	1.59	
BL40	K	1.59	
7C	C	1.60	
100H	B	1.60	
214C	E	1.60	
U40	A	1.60	
33L	D	1.62	
54F	B	1.62	
90 1.62x4.0	N	1.62	4.00
100G	B	1.62	
121C	A	1.62	
133B	C	1.62	
144A1	A	1.62	
163	B	1.62	
54K	B	1.63	
225E	SPCL*	1.63	
7	C	1.64	
7-1	C	1.63	
7A	C	1.64	
32W3	J,K	1.64	

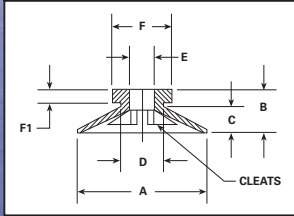
VC No.	Style	A(1)	A-2
51	C	1.64	
259	F	1.64	
272	A	1.64	
387	G	1.64	
100	A	1.65	
100A	A	1.65	
100C	A	1.65	
100E	A	1.65	
225D	SPCL*	1.65	
272A	E	1.65	
B40	J	1.65	
127A	C	1.66	
353	E	1.66	
100B	A	1.67	
100B1	A	1.67	
100C1	A	1.67	
100S1	C	1.67	
47-F-2	SP3	1.68	2.42
DD2	SP1	1.68	2.71
#2	SP1	1.70	2.50
47-F-1	SP3	1.70	2.42
47-Z-1	SP3	1.70	2.70
100S	C,E	1.70	
B40P	I	1.70	
54HD	B	1.71	
47-S	SP2	1.73	2.41
47-Y-1	SP1	1.73	2.78
274A	K	1.73	
32EP	K	1.74	
90 1.75x16	N	1.75	16.00
32	D	1.75	
32C5	K	1.75	
32MP	K	1.75	
111	B	1.75	
144A	A	1.75	
162A	B	1.75	
200	SPCL*	1.75	3.25
204C	C,E	1.75	
274	K	1.75	
316A	C	1.75	
322C	J	1.75	
B1PA1	D	1.75	
54A	B	1.78	
32W	D,J	1.79	
627-4	SPCL*	1.80	
320	D	1.81	
47-04	SP3	1.82	3.03
150	B	1.82	
59C	E	1.83	
255A	SPCL*	1.83	
45	B	1.84	
142	A	1.85	
144	A	1.85	
144B	A	1.85	
3	C	1.86	
3A	C	1.86	
47-31	SP1	1.87	3.12
47-02	SP3	1.87	2.73
47Y	SP1	1.87	2.81
32TC	D	1.88	
32UJ	D	1.88	
47F	SP3	1.88	2.50
90 1.87x16	N	1.88	16.00
81A	N	1.89	4.12
541	B	1.90	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

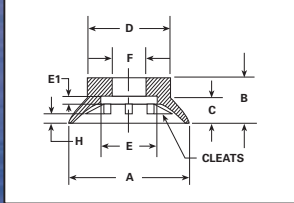


Parts Index – cups by diameter (continued)

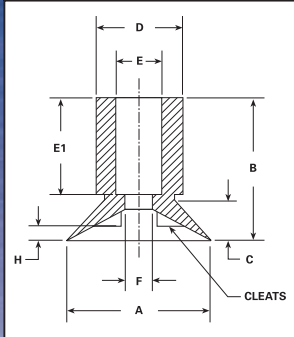
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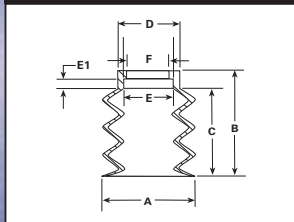
Style B page 10-12



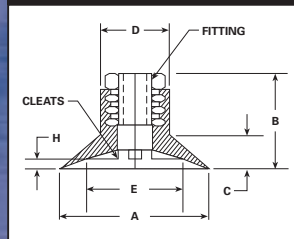
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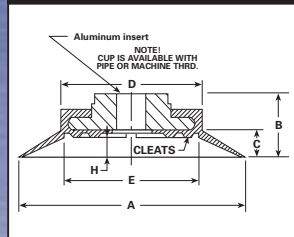
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Style E page 19,20



Style F page 20,21



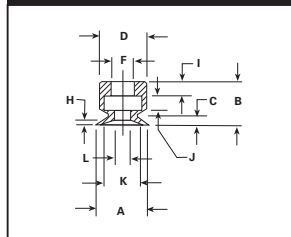
VC No.	Style	A(1)	A-2
271J	SPCL*	1.90	
47T	SP1	1.91	3.32
47N1	C,SP2	1.91	
47-O3	SP3	1.92	3.09
#1	SP2	1.93	2.81
54	B	1.93	
32A	D	1.94	
32ABC	D	1.94	
47-O	SP3	1.95	2.65
32W1	D	1.95	
47B	SP2	1.95	
380	F	1.95	
BH50-2	B	1.95	
271F	SPCL*	1.96	
52	C	1.97	
130E	M	1.97	
271H	SPCL*	1.97	
271I	SPCL*	1.97	
271K	SPCL*	1.97	
32D1	K	1.98	
47-SG	SP3	1.98	3.37
54E-2	B	1.98	
58	C	1.98	
58A	C	1.98	
162	B	1.98	
162B	B	1.98	
32MW	K	1.99	
27A1B	F	2.00	
32 2x3.25L	L	2.00	3.25
32 2x3.5	L	2.00	3.50
32C	J,K	2.00	
32C1	K	2.00	
32C1F	J	2.00	
32D	J,K	2.00	
32DS	K	2.00	
47-U	SP3	2.00	
59	B,E	2.00	
59A	E	2.00	
59B	E	2.00	
90 2x10	N	2.00	10.00
99	B,E,F	2.00	
149	B	2.00	
168	B,E	2.00	
183 2x4R	N	2.00	3.54
183 2x4	N	2.00	4.00
183 2x5	N	2.00	5.00
183 2x6R	N	2.00	5.59
183 2x6	N	2.00	6.00
183 2x7	N	2.00	7.00
195	B	2.00	
201A	SPCL*	2.00	
216A	F	2.00	
216B	F	2.00	
321B4	D	2.00	
322D	J	2.00	
BH50	B	2.00	
47-O1	SP3	2.01	2.68
47PG	SP2	2.01	
54E2	B	2.01	
32C2	K	2.02	
32CS	I	2.02	
32J	K	2.02	
47U1	SPCL*	2.02	
106A	B,E	2.03	
204B	C,E	2.03	

VC No.	Style	A(1)	A-2
D50P	A	2.03	
46	B,E	2.04	
390	SPCL*	2.05	
81	N	2.06	4.00
U50	A	2.06	
47-W	SP3	2.07	3.06
54E	B	2.07	
54E1	B	2.07	
266	G,SPCL*	2.07	
5	B	2.09	
54G	B	2.09	
86	E,F	2.09	
368	E	2.09	
5A	B,E	2.10	
5A-1	E	2.10	
5B	A	2.10	
245C	F	2.10	
B50	J	2.10	
B50P	I	2.10	
B50P1	I	2.10	
47C	SP3	2.12	2.79
47E	SP3	2.12	3.26
232	F	2.12	
B50	K	2.12	
54H	B	2.13	
B53	K	2.13	
54HA	B	2.15	
32 2.25x3.87	L	2.18	3.84
47AV1	D	2.19	
33D2	D	2.19	
90 2.2x7.5	N	2.20	7.50
91A	B,E	2.20	
201D	D	2.20	
90 2.75x3.5	N	2.21	3.48
130B	M	2.21	
217A	J	2.21	
27A1A	F	2.25	
32W2	D	2.25	
90 2.25x3.0	N	2.25	3.00
130F	M	2.25	
32G1	J	2.26	
137B	K	2.26	
225F	SPCL*	2.27	
32G	D	2.28	
47I	SP2	2.29	3.31
90 2.25x5.25	N	2.29	5.26
198A	B	2.29	
318	SPCL*	2.31	
BH60F	B	2.31	
59L	E	2.32	
91	B,E	2.33	
242	C	2.34	
90-2.36x5.12	SPCL*	2.36	5.12
130D	M	2.36	
137	J,K	2.36	
32F1	J	2.37	
91B	B	2.37	
214	F	2.37	
32F	J,K	2.38	
90 2.375x4.25	N	2.38	4.25
101	C	2.40	
32FB	J	2.42	
137C	J	2.42	
262	F	2.42	
171	B	2.43	

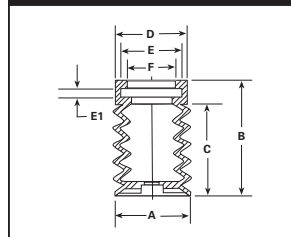
VC No.	Style	A(1)	A-2
13	C,E	2.45	
32-2.50x6.00	L	2.46	5.95
47-14	SP1	2.46	1.51
144F	A	2.46	
185	B	2.46	
49	C,E	2.47	
13A	C,E	2.48	
4	C,E	2.50	
32 2.50x6.DP	L	2.50	6.00
32ABC1	J	2.50	
32C4	K	2.50	
32E1	D,J	2.50	
59D	B	2.50	
70A	B	2.50	
72A	E	2.50	
90 2.5x3.75	N	2.50	3.75
90 2.5x5	N	2.50	5.00
106	B,E	2.50	
106PG	B	2.50	
125	N	2.50	5.50
254	C	2.50	
353A	E	2.50	
70	E,F,SPCL*	2.51	
204A	C,E	2.51	
204A1	E	2.51	
18C	SPCL*	2.52	
49C	C	2.55	
49D	C	2.55	
271E	SPCL*	2.56	
181A	SPCL*	2.57	
325	B	2.57	
385	B	2.58	
271C	SPCL*	2.59	
271D	SPCL*	2.59	
271	SPCL*	2.61	
130C	K	2.63	
1	C	2.62	
116	B	2.62	
271A	SPCL*	2.62	
226	SPCL*	2.64	
47N	C,SP2	2.65	
62	B	2.65	
70B	B	2.67	
90 2.68x3.5	N	2.68	
90 2.68x5.75	N	2.68	5.75
90 2.68x6.62	N	2.68	6.62
338 2.718x6	N	2.72	6.00
106B	B	2.73	
130A	M	2.73	
303	B	2.73	
B30A	K	2.73	
830A	SPCL*	2.74	
32 2.75x6.5	L	2.76	6.50
90 2.75x4.75	N	2.75	4.75
130A5	M	2.75	
181	B	2.75	
288	N	2.75	5.85
298	D	2.75	
32BM	K	2.77	
237	C	2.77	
32E	D,J	2.77	
335A	SPCL*	2.77	
18D	B	2.80	
32B	J,K	2.80	
32B1	J	2.82	

*SPCL = SPECIAL. Call Vi-Cas for additional information, 513-791-7741.

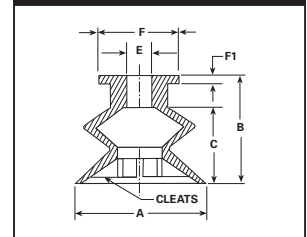
Style G page 22



Style H page 22,23



Style I page 23

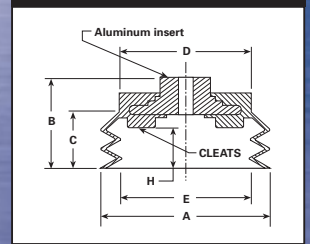


VC No.	Style	A(1)	A-2
194	B	2.87	
321	D	2.87	
255	SPCL*	2.89	
153	B,E	2.90	
153A	B	2.90	
245B	F	2.90	
18A	C	2.93	
TC75	F	2.95	
18	B	3.00	
32 3x3.25	L	3.00	3.25
32 3x7	L	3.00	7.00
47PG2	SPCL*	3.00	
90 3x8	N	3.00	8.00
90 3x10	N	3.00	10.00
90 3x12	N	3.00	12.00
90 3x13	N	3.00	13.00
103C	E	3.00	
106C	B,E	3.00	
322	M	3.00	
328	E	3.00	
B1A4	K	3.00	
18B	G	3.05	
31B	F	3.05	
103A	F	3.05	
130SQ	SPCL*	3.05	
30	C,E	3.06	
78	F	3.06	
92	B,E	3.07	
181B	SPCL*	3.07	
30	C	3.08	
212	E	3.08	
30B	C	3.09	
31A	C,E	3.09	
92A	B	3.09	
103A	F	3.09	
30A	C	3.09	
B75	M	3.09	
82	N	3.12	6.00
73A2	F	3.12	
216	F	3.12	
216C	F	3.13	
214A	F	3.17	
72	E,F	3.18	
227	SPCL*	3.18	
245	F	3.21	
291A	SPCL*	3.23	
129	L	3.25	7.87
27A	F	3.25	
27A1	F	3.25	
27B	F	3.25	
29	B,F	3.25	
90 3.25x15.5	N	3.25	15.50
90 5x3.25	N	3.25	5.00
175	J,K	3.25	
271G	SPCL*	3.25	
27A2	SPCL*	3.28	
156	B	3.28	
130	M	3.31	
130G	M	3.31	
130SB	M	3.31	
271B	SPCL*	3.33	
155	B	3.35	
291D	SPCL*	3.35	
130D2	M	3.36	
114	B	3.37	

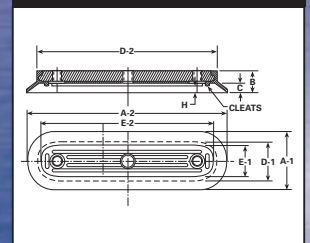
VC No.	Style	A(1)	A-2
175A	K	3.37	
B85	J	3.37	
130H	SPCL*	3.38	
175B	J	3.38	
115	B	3.40	
15A	E	3.42	
260	SPCL*	3.43	
213	N	3.44	7.68
32 3.5x5	L	3.45	4.93
15	C,E	3.45	
363	SPCL*	3.47	
32 3.5x10	L	3.50	10.00
74	N	3.50	7.50
74A	N	3.50	7.50
90 3.5x7.5	N	3.50	7.50
90 3.5x11	N	3.50	11.00
90 3.5x14	N	3.50	
80	F	3.50	
204	C,E	3.50	
204-1	E	3.50	
322F	M	3.50	
332	SPCL*	3.50	10.50
4.1x3.5	SPCL*	3.51	4.08
BH89	B	3.52	
219	F	3.56	
284	B	3.57	
90 5.375x3.625	N	3.63	5.38
104 3.75	M	3.75	
378	B	3.78	
244	C	3.84	
346A	SPCL*	3.85	
245D	F	3.87	
201B	SPCL*	3.88	
75	N	3.90	8.75
203A	F	3.90	
TC100	F	3.90	
203	F	3.93	
104A	D	3.97	
32-4x5.38	SPCL*	4.00	5.38
73A	N	4.00	9.00
90 4x8	N	4.00	8.00
90 4x14	N	4.00	14.00
103	F	4.00	
198	B	4.00	
208	F	4.00	
77	F	4.12	
357	SPCL*	4.12	
27	F	4.25	
32 4.25x5.63-1	SPCL*	4.25	5.63
73	F	4.31	
104 4.33	M	4.33	
326 4.375x15.874	SPCL*	4.38	15.88
B111	J	4.45	
104PC	SPCL*	4.49	
104 4.5	M	4.50	
235	SPCL*	4.50	5.56
241	F	4.50	
104 5.5	SPCL*	4.53	4.25
335	SPCL*	4.57	
B110	M	4.62	
BH115	F	4.62	
291	SPCL*	4.68	
38	F	4.75	
63	F	4.75	
90 5x12	N	4.96	12.00

VC No.	Style	A(1)	A-2
76	F	5.00	
90 5x14	N	5.00	14.00
103D	F	5.00	
112	B	5.03	
109	B	5.18	
71	F	5.31	
260A	SPCL*	5.37	
278	SPCL*	5.48	
35	F	5.50	
104 5.60	M	5.60	
93	F	5.87	
90 6x6	N	6.00	6.00
90 6x8.5	N	6.00	8.50
90 6x10	N	6.00	10.00
90 6x10DP	N	6.00	10.00
90 6x14DP	N	6.00	14.00
90 6x90BRD	N	6.00	9.00
90 6x1212DP	N	6.00	12.00
39	F	6.00	
104 6.0	M	6.00	
154	SPCL*	6.03	
34	F	6.25	
34A	F	6.25	
295	F	6.31	
291C	SPCL*	6.40	
104 6.4	M	6.43	
117	B	6.50	
346C	SPCL*	6.58	
240	SPCL*	6.80	
90 7x12	N	7.00	12.00
94	F	7.00	
104 7.0-1	M	7.00	
104 7.0	M	7.00	
96C	F	7.20	
104 7.5	M	7.37	
104 7.94	M	7.94	
90 8x15	N	8.00	15.00
90 8x20DP	N	8.00	20.00
340	F	8.00	
96A	F	8.12	
90 8.5x10DP	N	8.50	10.00
96	F	8.50	
96B	F	8.50	
104 8.5-2	M	8.50	
104 8.5	M	8.50	
90 9.5x10.5	N	9.50	10.50
104 9.5	M	9.50	
345	SPCL*	9.50	
90 9.75x14	SPCL*	9.85	14.14
104 10	M	10.00	
95A	F	10.50	
95D	F	10.50	
90 10.75x13	N	10.75	13.00
221	SPCL*	10.87	15.25
95	F	11.00	
366	SPCL*	11.36	
95F	F	11.80	
90 12x12	N	12.00	12.00
95C	F	12.00	
104 12.5	M	12.50	
95B	F	14.00	
95E	F	14.68	

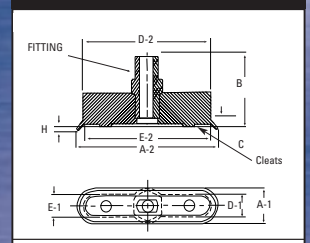
Style M page 29



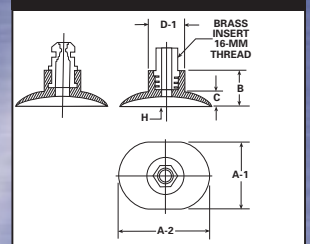
Style N page 30,31



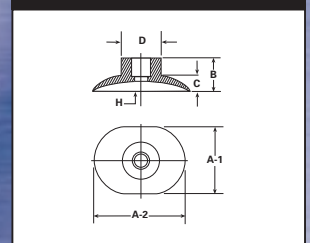
Style O page 32



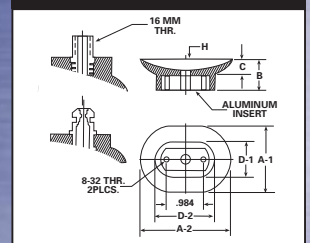
Style SP1 page 33



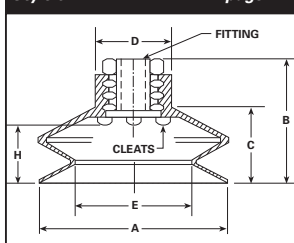
Style SP2 page 33



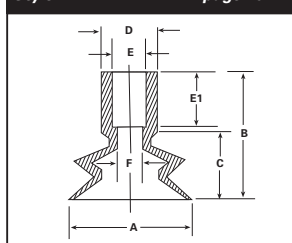
Style SP3 page 33



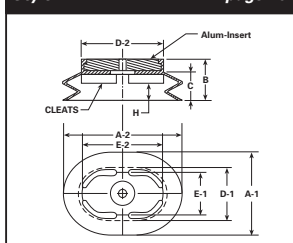
Style J page 24



Style K page 25-27



Style L page 28



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