

Vacuum Cup Material Specifications:

Cups are available in various durometers, colors and materials. If you do not see what you are looking for, please consult factory. Below is a general description of the various materials available and their characteristics.

Material	Working Temperature	Wear Resistance	Oil resistance	Durometer	Application
*Vinyl	+32°F to +125°F [0°C to +52°C]	Excellent	Fair	A20-A75 Range	general purpose material for most applications
Oil Resistant Vinyl	+32°F to +125°F [0°C to +52°C]	Good	Excellent	A40-A60 Range	excellent for oil resistant applications
Polyurethane	+32°F to +150°F [0°C to +66°C]	Good	Good	A20-A70 Range	good for chemical resistance and glass handling
Chloroprene	-40°F to +230°F [-40°C to +110°C]	Excellent	Good	A50-A60 Range	general purpose material with good oil resistance and low temperature performance
Nitrile	+32°F to +194°F [0°C to +90°C]	Good	Good	A50-A60 Range	general purpose material with good oil and abrasion resistance
Silicone-Grey	-50°F to +392°F [-46°C to +200°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations
Silicone-Translucent	-92°F to +392°F [-69°C to +200°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations
(Dual Durometer) Polyurethane	50°F to 122°F F [10°C to 50°C]	Excellent	Excellent	A30 / A60	good for chemical resistance and glass handling
Silicone-Red	-94°F to 536°F [-70°C to 280°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations
Silicone-Blue	-94°F to 536°F [-70°C to 280°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations
Natural Rubber	-40°F to 176°F [-40°C to 80°C]	Good	Poor	A40	good for non-marking situations and glass, solar panel and semiconductor/electronics handling

*Standard durometer for vinyl cups is A50 ±5 points — may vary with color. Other Materials Available - please consult factory: FDA Vinyl, Anti-Static Vinyl, FDA Silicone.

Vacuum Cup Terms and Definitions:

- Bellows:** The fold or collapsible area that allows the cup to compress like an accordion
- Convolution:** The folded area of a bellows cup that makes up 1 external “V”
- Cleats:** Bottom protrusions used for maintaining a larger vacuum area
- Durometer:** Method by which the hardness of a material is gauged
- Insert/Fitting:** Metal piece bonded or inserted into the material to allow fastening by threads or bolts
- Vacuum cup:** Cup that requires the use of an external vacuum source to adhere to a surface
- Vacuum Level:** The magnitude of suction created by a vacuum pump typically measured in inches of mercury “Hg or [mbar]
- Vacuum Flow:** The volume of free air induced by the vacuum pump per unit of time, typically measured in SCFM [L/min]
- Porosity:** Ability of air to pass through a material

Standard Atmospheric Pressure Measured at Sea Level: 1 ATM = 14.7 PSI = 29.92”Hg = 760 mmHg = 1 bar

Facts to Remember:

- 50 mmHg = 1 PSI
- 1mmHg = 1 torr (vacuum)
- 1”Hg = 25.4 mmHg
- 2”Hg = 1 PSI
- 29.92”Hg = 100 Kpa
- 14.7 PSI = 100 Kpa
- 14.7 PSI = 29.92”Hg
- 14.7 PSI = 760 mmHg

Conversion Chart – Vacuum vs. Pressure				
% Vacuum	“Hg	mmHg	bar	PSI
10	3	76.92	-0.1	-1.47
20	6	153.85	-0.2	-2.94
30	9	230.77	-0.3	-4.41
40	12	307.69	-0.4	-5.88
50	15	384.62	-0.5	-7.35
60	18	461.54	-0.6	-8.82
70	21	538.46	-0.7	-10.29
80	24	615.38	-0.8	-11.76
90	27	692.31	-0.9	-13.23
100	30	769.23	-1.0	-14.70