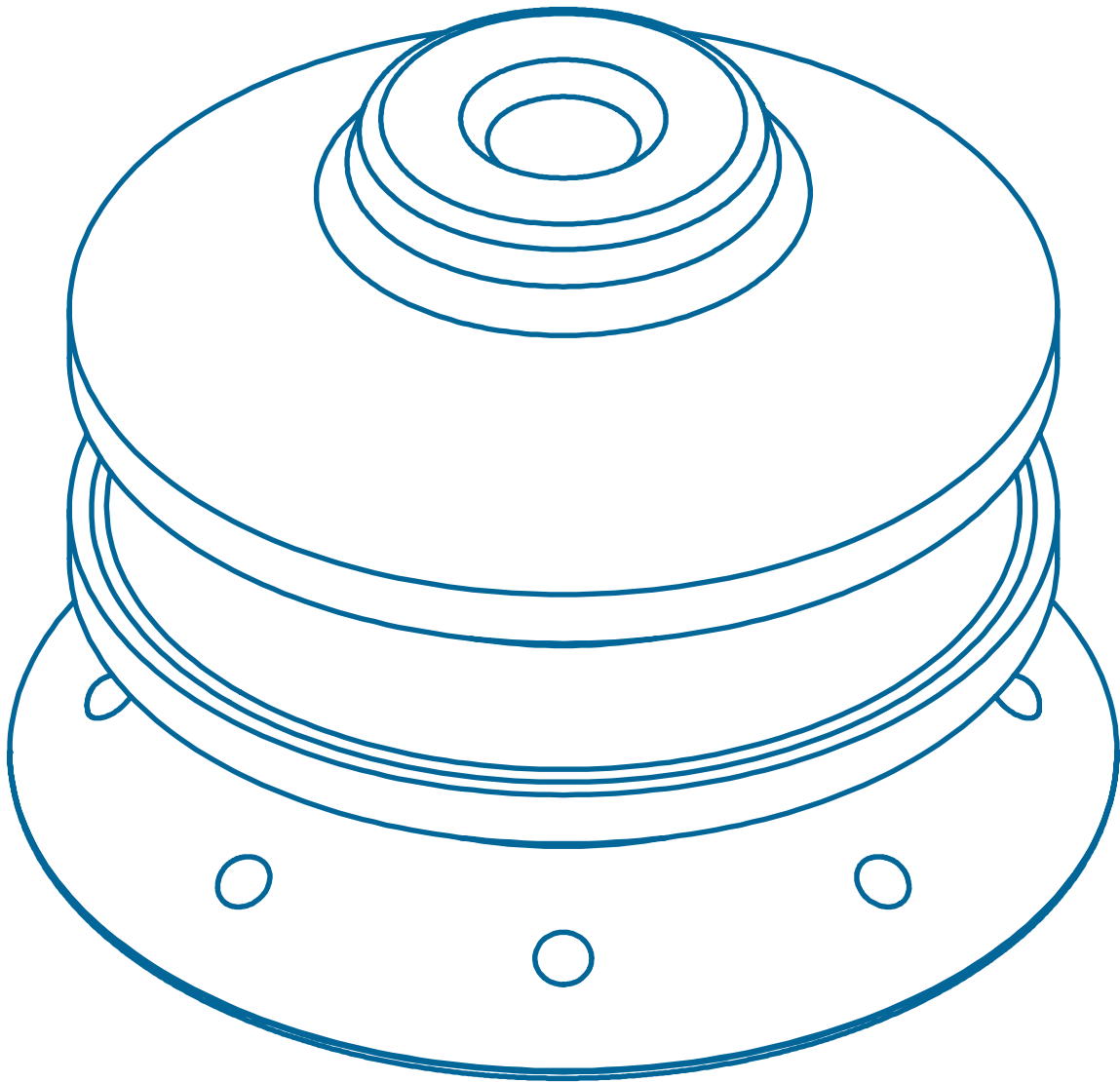
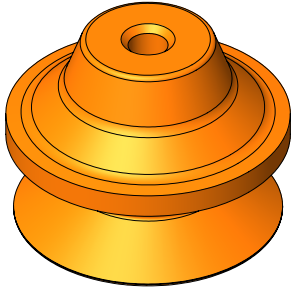


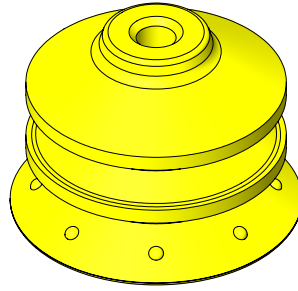
# Vacuum Cups

## Section 2

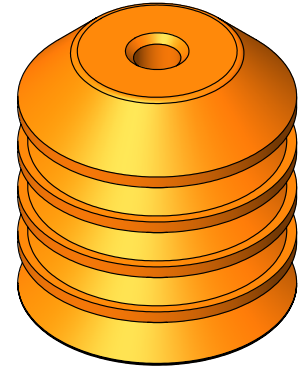




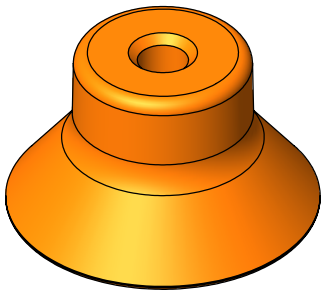
Bellows



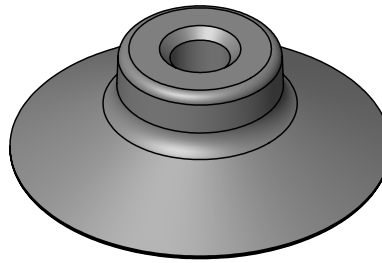
Double Bellows



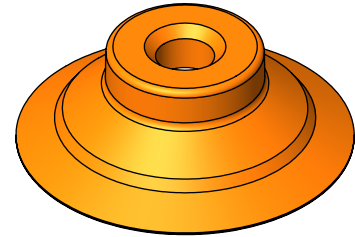
Multi-Bellows



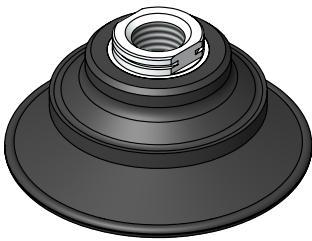
Deep



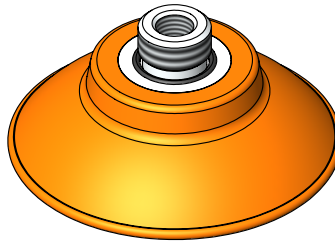
Flat



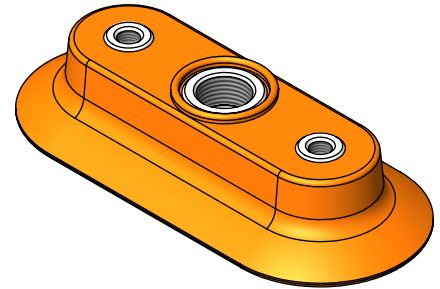
Universal



Bellows Flat

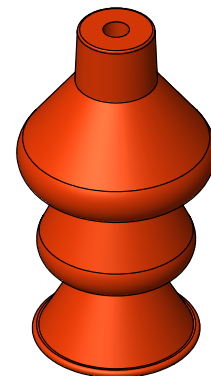


Flat-Concave



Oval

Bellows	3
Double Bellows	8
Bellows Flat	10
Multi-Bellows	12
Deep	14
Flat	16
Flat-Concave	21
Oval	24
Universal	26
Egg	29
Information	30



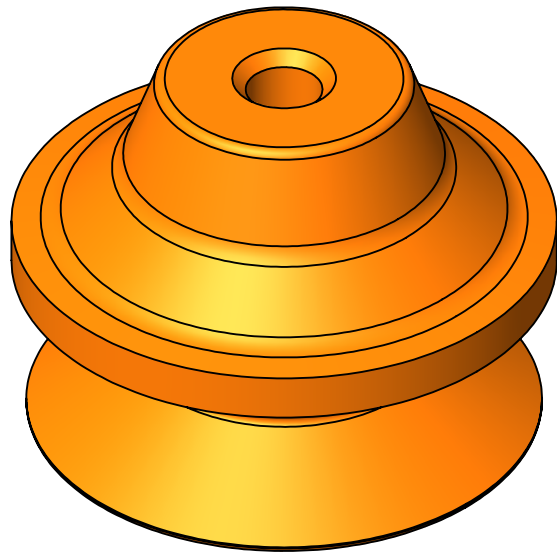
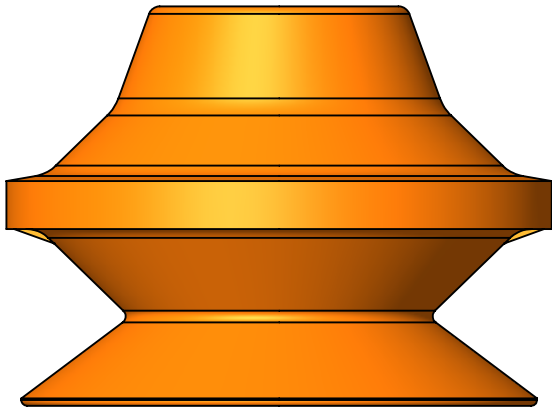
Egg

## Bellows Vacuum Cups

Bellows vacuum cups are used when it is necessary to compensate for varying workpiece heights, to handle parts with uneven (concave, convex, or textured) surfaces, or easily damaged parts. A lifting effect during evacuation can be used to help separate a top sheet from those stacked below. Bellows vacuum cups can conform to curved or uneven workpieces such as pipes, bottles, containers, cylinders, car body components, flexing cardboard boxes, etc. Bellows vacuum cups provide height compensation and a ball-joint motion through a limited angular range.

Suitable Workpiece Surface:

- Flat
- Slightly Concave
- Convex
- Compound
- Spherical
- Cylindrical
- Flexible
- Shear Loads

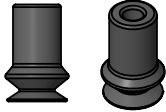


## Bellows Vacuum Cups

	Cup Size	Cup Material	Cup Fitting
XP-B	15	CS	-10M
	5	Ø 5 mm	A Ameriflex <sup>2</sup> (Blank) None
	8	Ø 8 mm	CS Conductive Silicone <sup>1</sup> See cup fittings for available threads.
	10	Ø 10 mm	D Duramax <sup>2</sup>
	15	Ø 15 mm	N Nitrile / TPV
	20	Ø 20 mm	S Silicone
		V Viton	

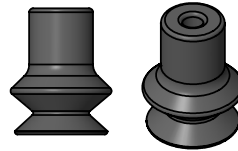
<sup>1</sup>Not available on XP-B15 or XP-B20.

<sup>2</sup>Not available on XP-B5, XP-B8, or XP-B10.



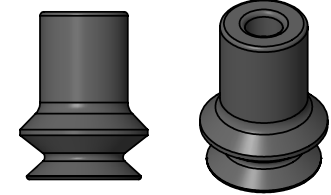
XP-B5

Cup Diameter: in [mm]	5 mm
Outer Diameter: in [mm]	0.24 [6.1]
Cup Height: in [mm]	0.37 [9.3]
Thru Hole: in [mm]	0.08 [2.0]
Stroke: in [mm]	0.06 [1.5]
Cup Weight: oz [g]	0.004 [0.11]
Internal Volume: cu in [cc]	0.01 [0.2]
Force @ 6 inHG: lb [n]	0.07 [0.3]
Force @ 18 inHG: lb [n]	0.10 [0.4]
Minimum Radius: in [mm]	0.06 [1.5]
Shear Load*: lb [n]	0.05 [0.2]



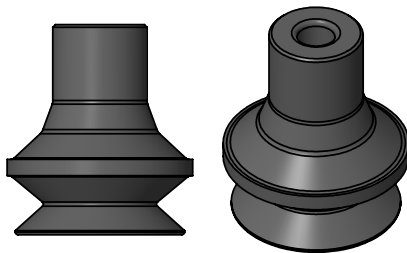
XP-B8

Cup Diameter: in [mm]	8 mm
Outer Diameter: in [mm]	0.38 [9.6]
Cup Height: in [mm]	0.47 [12.0]
Thru Hole: in [mm]	0.08 [2.0]
Stroke: in [mm]	0.13 [3.3]
Cup Weight: oz [g]	0.01 [0.3]
Internal Volume: cu in [cc]	0.01 [0.2]
Force @ 6 inHG: lb [n]	0.18 [0.8]
Force @ 18 inHG: lb [n]	0.36 [1.6]
Minimum Radius: in [mm]	0.07 [1.8]
Shear Load*: lb [n]	0.18 [0.8]



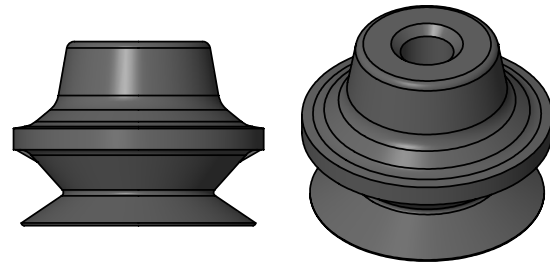
XP-B10

Cup Diameter: in [mm]	10 mm
Outer Diameter: in [mm]	0.48 [12.2]
Cup Height: in [mm]	0.63 [16.0]
Thru Hole: in [mm]	0.14 [3.7]
Stroke: in [mm]	0.18 [4.5]
Cup Weight: oz [g]	0.03 [0.9]
Internal Volume: cu in [cc]	0.03 [0.5]
Force @ 6 inHG: lb [n]	0.3 [1.3]
Force @ 18 inHG: lb [n]	0.8 [3.6]
Minimum Radius: in [mm]	0.16 [4.1]
Shear Load*: lb [n]	0.4 [1.7]



XP-B15

Cup Diameter: in [mm]	15 mm
Outer Diameter: in [mm]	0.70 [17.7]
Cup Height: in [mm]	0.79 [20.0]
Thru Hole: in [mm]	0.14 [3.7]
Stroke: in [mm]	0.26 [6.6]
Cup Weight: oz [g]	0.04 [1.1]
Internal Volume: cu in [cc]	0.07 [1.2]
Force @ 6 inHG: lb [n]	0.70 [3.1]
Force @ 18 inHG: lb [n]	1.30 [5.8]
Minimum Radius: in [mm]	0.20 [5.1]
Shear Load*: lb [n]	0.70 [3.1]



XP-B20

Cup Diameter: in [mm]	20 mm
Outer Diameter: in [mm]	0.94 [23.9]
Cup Height: in [mm]	0.69 [17.6]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.39 [9.9]
Cup Weight: oz [g]	0.08 [2.3]
Internal Volume: cu in [cc]	0.16 [2.6]
Force @ 6 inHG: lb [n]	1.30 [5.8]
Force @ 18 inHG: lb [n]	2.20 [9.8]
Minimum Radius: in [mm]	0.39 [9.9]
Shear Load*: lb [n]	1.10 [4.8]

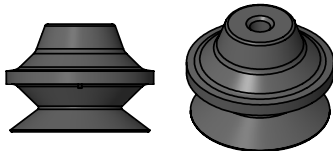
\*All figures for shear load are 18 inHG using a 0.5 coefficient of friction.

Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

## Bellows Vacuum Cups

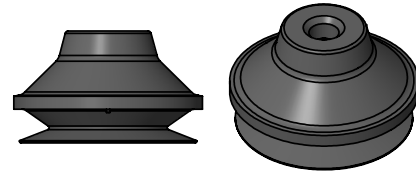
	Cup Size	Cup Material		Cup Fitting	
XP-B	50	V		-38F	
30	Ø 30 mm	A	Ameriflex	(Blank)	None
40	Ø 40 mm	D	Duramax	See cup fittings for available threads.	
50	Ø 50 mm	N	Nitrile / TPV		
65	Ø 65 mm	S	Silicone <sup>1</sup>		
		V	Viton <sup>1</sup>		

<sup>1</sup>Not available on XP-B65.



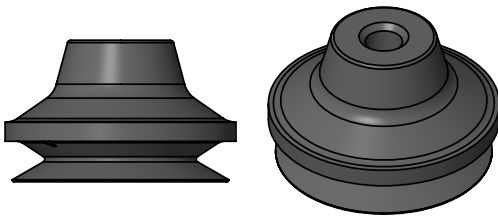
**XP-B30**

Cup Diameter: in [mm]	30 mm
Outer Diameter: in [mm]	1.42 [36.1]
Cup Height: in [mm]	1.04 [26.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.59 [14.9]
Cup Weight: oz [g]	0.25 [7.1]
Internal Volume: cu in [cc]	0.61 [10.0]
Force @ 6 inHG: lb [n]	2.70 [12.0]
Force @ 18 inHG: lb [n]	4.90 [21.8]
Minimum Radius: in [mm]	0.59 [15.0]
Shear Load*: lb [n]	2.50 [11.1]



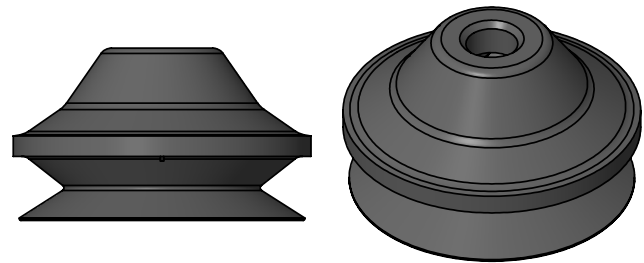
**XP-B40**

Cup Diameter: in [mm]	40 mm
Outer Diameter: in [mm]	1.82 [46.2]
Cup Height: in [mm]	1.08 [27.4]
Thru Hole: in [mm]	0.29 [7.4]
Stroke: in [mm]	0.59 [14.9]
Cup Weight: oz [g]	0.35 [9.9]
Internal Volume: cu in [cc]	0.90 [14.7]
Force @ 6 inHG: lb [n]	4.90 [21.8]
Force @ 18 inHG: lb [n]	8.80 [39.1]
Minimum Radius: in [mm]	0.79 [20.1]
Shear Load*: lb [n]	4.40 [19.5]



**XP-B50**

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	2.23 [56.6]
Cup Height: in [mm]	1.36 [34.7]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.79 [20.0]
Cup Weight: oz [g]	0.66 [18.8]
Internal Volume: cu in [cc]	2.00 [32.8]
Force @ 6 inHG: lb [n]	7.40 [32.9]
Force @ 18 inHG: lb [n]	14.60 [64.9]
Minimum Radius: in [mm]	0.98 [24.9]
Shear Load*: lb [n]	7.30 [32.4]



**XP-B65**

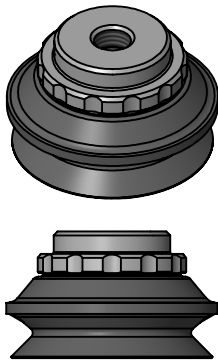
Cup Diameter: in [mm]	65 mm
Outer Diameter: in [mm]	2.87 [72.9]
Cup Height: in [mm]	1.66 [42.2]
Thru Hole: in [mm]	0.50 [12.7]
Stroke: in [mm]	0.90 [22.9]
Cup Weight: oz [g]	1.30 [36.9]
Internal Volume: cu in [cc]	3.90 [63.9]
Force @ 6 inHG: lb [n]	13.30 [59.2]
Force @ 18 inHG: lb [n]	26.30 [117.0]
Minimum Radius: in [mm]	1.22 [31.0]
Shear Load*: lb [n]	13.1 [58.3]

<sup>\*</sup>All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

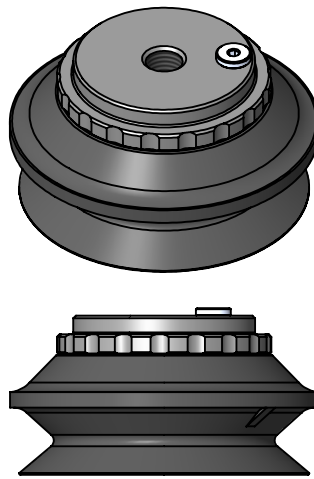
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

### Bellows Vacuum Cups

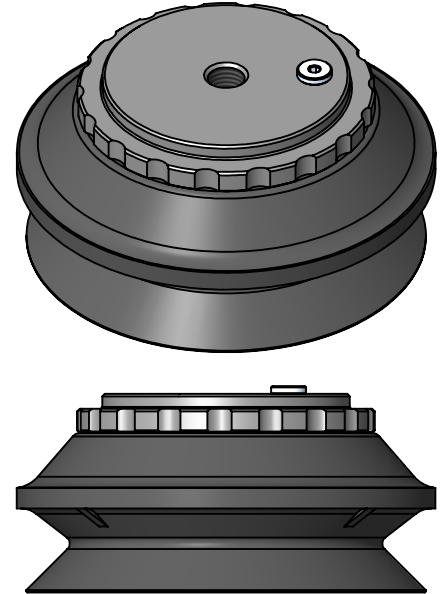
	Cup Size	Cup Material		Cup Fitting	
XP-B	75	S		-12F	
75	Ø 75 mm	N	Nitrile / TPV	(Blank)	None
110	Ø 110 mm	S	Silicone	See cup fittings for available threads.	
150	Ø 150 mm	V	Viton		



XP-B75



XP-B110



XP-B150

Cup Diameter: in [mm]	75 mm
Outer Diameter: in [mm]	3.30 [83.8]
Cup Height*: in [mm]	1.98 [50.3]
Stroke: in [mm]	0.79 [20.0]
Cup Weight: oz [g]	1.80 [51.0]
Internal Volume: cu in [cc]	6.70 [110.0]
Force @ 6 inHG: lb [n]	16.00 [71.2]
Force @ 18 inHG: lb [n]	37.00 [164.0]
Minimum Radius: in [mm]	1.60 [40.6]
Shear Load*: lb [n]	19.00 [84.5]

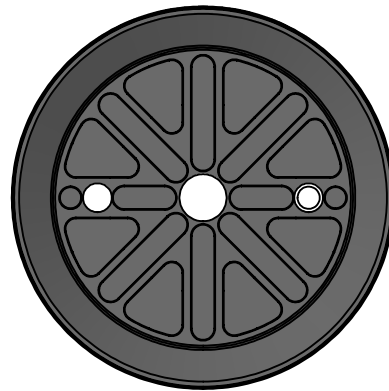
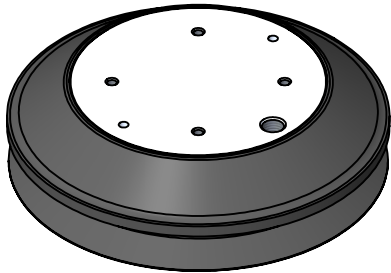
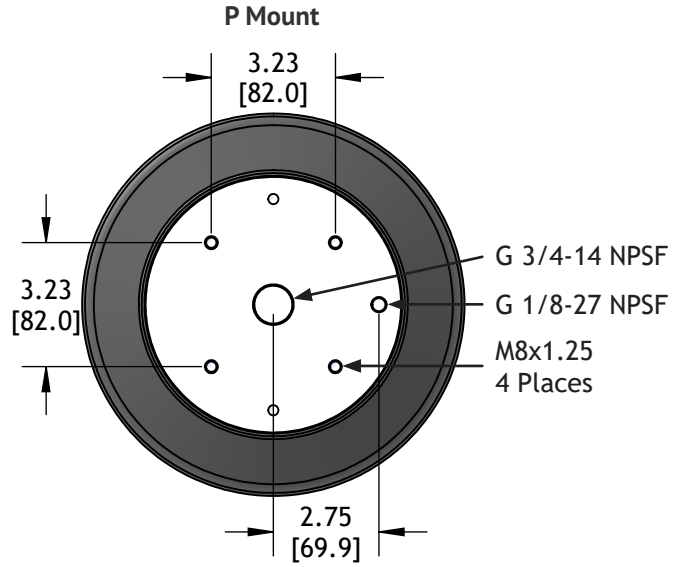
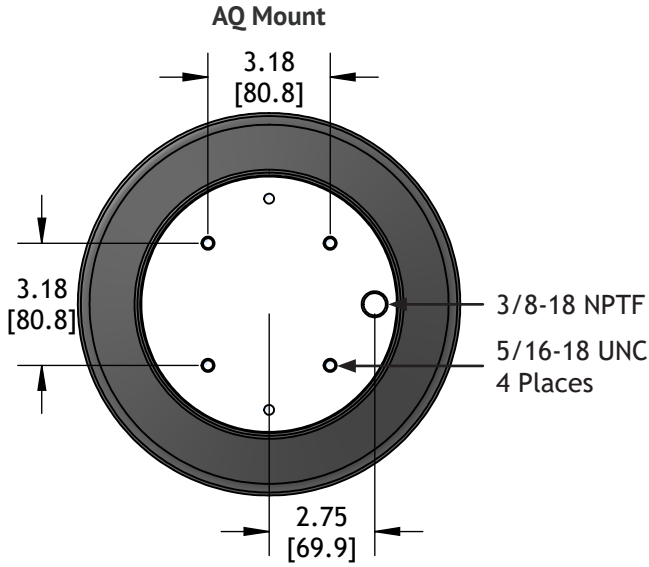
Cup Diameter: in [mm]	110 mm
Outer Diameter: in [mm]	4.82 [122.4]
Cup Height*: in [mm]	2.49 [63.1]
Stroke: in [mm]	1.32 [33.2]
Cup Weight: oz [g]	5.10 [145.0]
Internal Volume: cu in [cc]	19.00 [311.0]
Force @ 6 inHG: lb [n]	30.00 [133.0]
Force @ 18 inHG: lb [n]	77.00 [342.0]
Minimum Radius: in [mm]	2.40 [61.0]
Shear Load*: lb [n]	39.00 [173.5]

Cup Diameter: in [mm]	150 mm
Outer Diameter: in [mm]	6.54 [166.1]
Cup Height*: in [mm]	3.10 [78.8]
Stroke: in [mm]	1.75 [44.4]
Cup Weight: oz [g]	13.00 [369.0]
Internal Volume: cu in [cc]	40.00 [656.0]
Force @ 6 inHG: lb [n]	66.00 [294.0]
Force @ 18 inHG: lb [n]	154.00 [685.0]
Minimum Radius: in [mm]	3.00 [76.2]
Shear Load*: lb [n]	77.00 [342.0]

\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.  
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

### Bellows Vacuum Cups

Cup Material		Mount	
XP-B250	S	AQ	
N	Nitrile / TPV	AQ	Quad Mount, Side Port
S	Silicone	P	Quad Mount, Centered Port



**XP-B250**

Cup Diameter: in [mm]	250 mm
Outer Diameter: in [mm]	9.96 [253.0]
Cup Height: in [mm]	2.56 [65.0]
Stroke: in [mm]	1.44 [36.6]
Cup Weight: oz [g]	3.57 [1.62]
Internal Volume: cu in [cc]	85.40 [1400.0]
Force @ 18 inHG: lb [n]	450.00 [2002.0]
Minimum Radius: in [mm]	10.00 [254.0]
Shear Load*: lb [n]	225.00 [1001.0]

\*All figures for shear load are 18 inHG using a 0.5 coefficient of friction.  
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

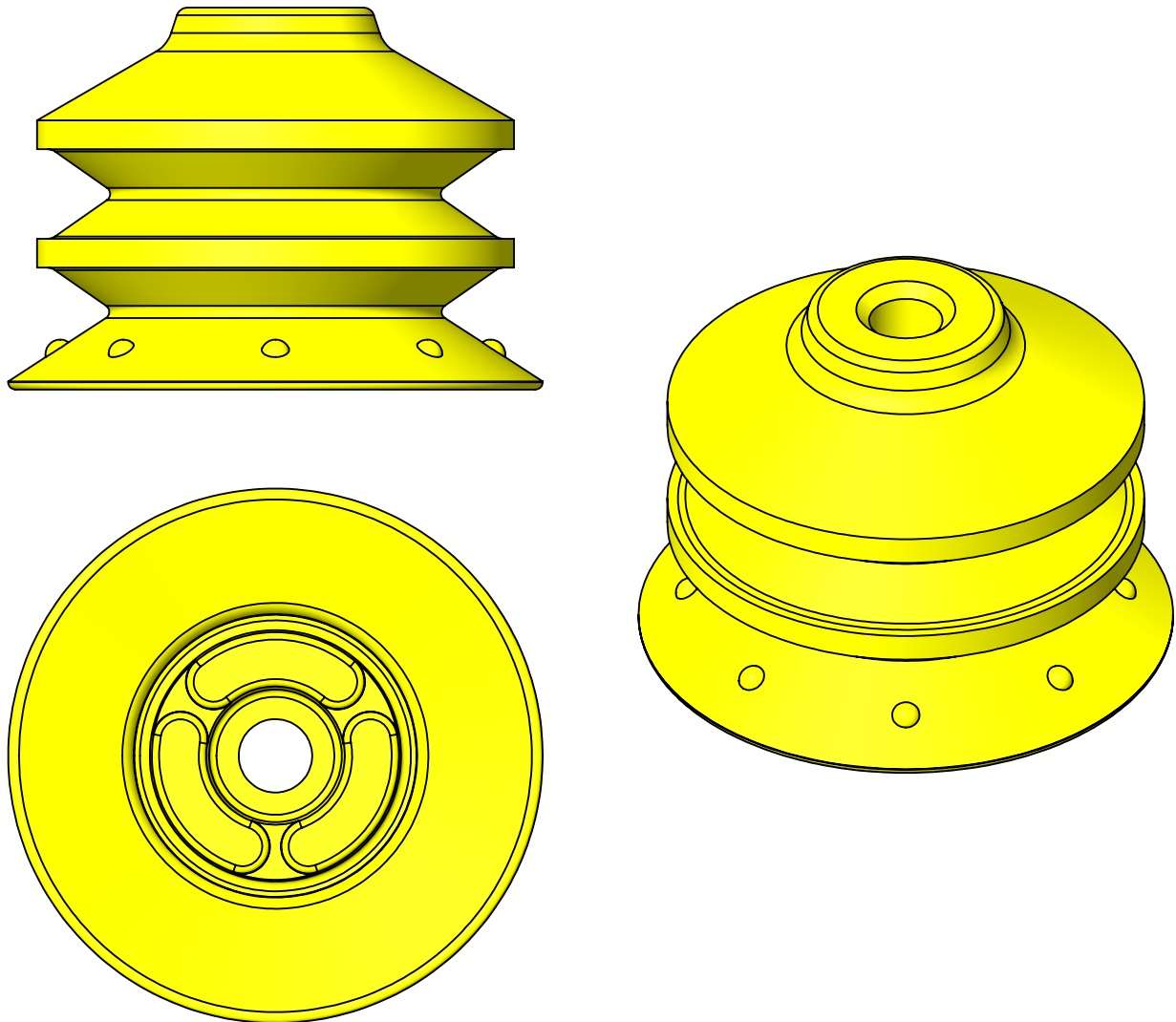
## Double-Bellows Vacuum Cups

Double-bellows vacuum cups provide a longer stroke than single-bellows vacuum cups for greater ability to compensate for varying workpiece heights. This increased ability to compensate for varying heights does come at the cost of stability.

Our double-bellows vacuum cups include bottom cleats to help stabilize the cup when collapsed against a workpiece. The added traction surface increases the ability to withstand lateral shear loads. The cleats also help prevent flexible workpieces from deforming into the center of the cup when subjected to deep vacuum.

Suitable Workpiece Surface:

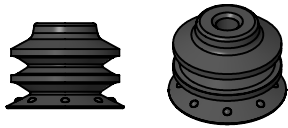
- Flat
- Slightly Concave
- Convex
- Compound
- Spherical
- Cylindrical
- Flexible
- Shear Loads





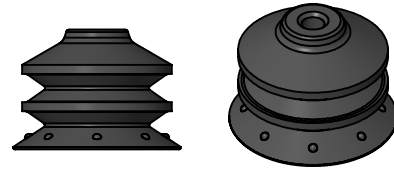
## Double-Bellows Vacuum Cups

Cup Size		Cup Material		Cup Fitting	
XP-2B	65	A	A	-18MS	
25	Ø 25 mm	A	Ameriflex	(Blank)	None
35	Ø 35 mm	D	Duramax	See cup fittings for available threads.	
50	Ø 50 mm	N	Nitrile / TPV		
65	Ø 65 mm				



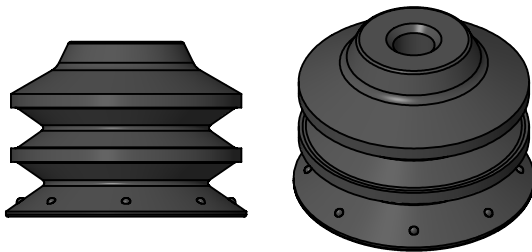
XP-2B25

Cup Diameter: in [mm]	25 mm
Outer Diameter: in [mm]	1.02 [25.9]
Cup Height: in [mm]	0.74 [18.8]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.38 [9.7]
Cup Weight: oz [g]	0.11 [3.1]
Internal Volume: cu in [cc]	0.18 [3.0]
Force @ 6 inHG: lb [n]	2.02 [9.0]
Force @ 18 inHG: lb [n]	3.15 [14.0]
Minimum Radius: in [mm]	0.31 [7.9]



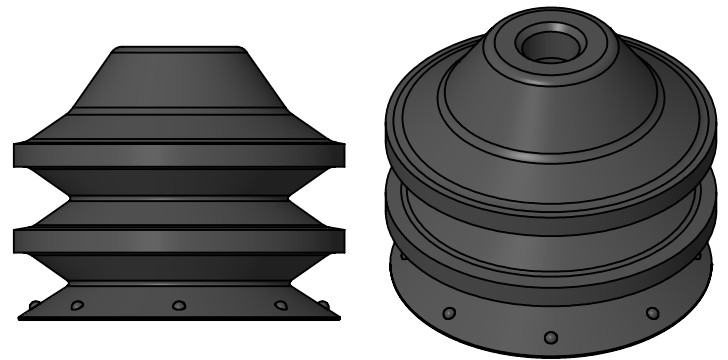
XP-2B35

Cup Diameter: in [mm]	35 mm
Outer Diameter: in [mm]	1.46 [37.0]
Cup Height: in [mm]	1.04 [26.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.59 [15.0]
Cup Weight: oz [g]	0.28 [7.9]
Internal Volume: cu in [cc]	0.61 [10.0]
Force @ 6 inHG: lb [n]	3.37 [15.0]
Force @ 18 inHG: lb [n]	5.62 [25.0]
Minimum Radius: in [mm]	0.39 [9.9]



XP-2B50

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	2.09 [53.0]
Cup Height: in [mm]	1.52 [38.6]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.82 [20.8]
Cup Weight: oz [g]	0.85 [24.1]
Internal Volume: cu in [cc]	1.83 [30.0]
Force @ 6 inHG: lb [n]	8.32 [37.0]
Force @ 18 inHG: lb [n]	13.30 [59.2]
Minimum Radius: in [mm]	1.26 [32.0]



XP-2B65

Cup Diameter: in [mm]	65 mm
Outer Diameter: in [mm]	2.87 [72.9]
Cup Height: in [mm]	2.37 [60.3]
Thru Hole: in [mm]	0.50 [12.7]
Stroke: in [mm]	1.30 [33.0]
Cup Weight: oz [g]	2.20 [63.0]
Internal Volume: cu in [cc]	5.85 [95.9]
Force @ 6 inHG: lb [n]	8.40 [37.4]
Force @ 18 inHG: lb [n]	21.00 [93.4]
Minimum Radius: in [mm]	1.22 [31.0]

\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

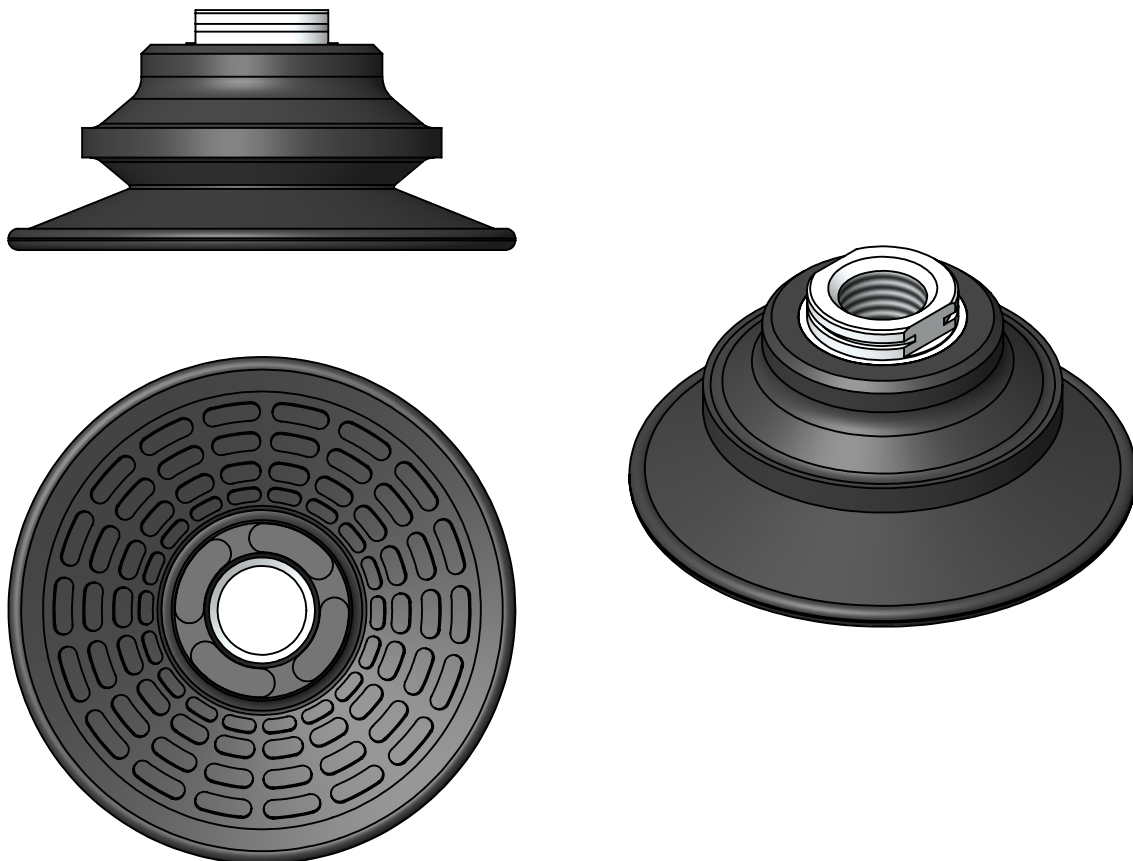
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

## Bellows Flat Vacuum Cups

The Bellows flat style vacuum cups combine the versatility of a Bellows cup with a large anti-skid tread pattern to provide maximum holding power and high resistance to shear loads even when lubrication is present. BF Cups are ideal for feeding sheet metal blanks to stamping presses or other robotic applications where it is necessary to resist loads caused by rapid acceleration and deceleration. Mounting bellows flat vacuum cups using the 22 mm wrench flats is quick and easy.

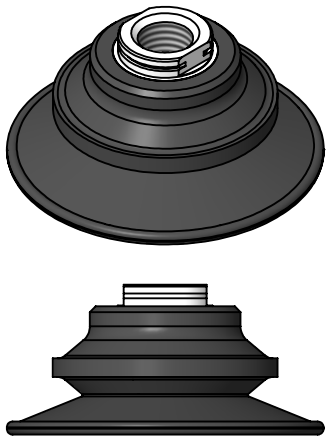
Suitable Workpiece Surface:

- Flat
- Slightly Concave
- Convex
- Compound
- Shear Loads



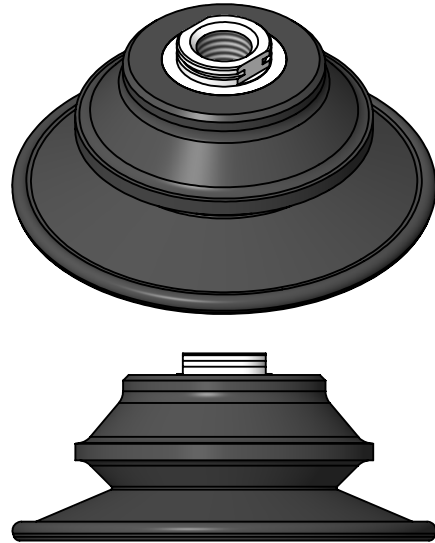
### Bellows Flat Vacuum Cups

Cup Size		Cup Material		Fitting	
XP-BF	80	N		-38F	
80	Ø 80 mm	N	Nitrile / TPV	-38F	3/8 NPSF Female
100	Ø 100 mm				



**XP-BF80**

Cup Diameter: in [mm]	80 mm
Outer Diameter: in [mm]	3.30 [83.8]
Cup Height: in [mm]*	1.56 [39.7]
Stroke: in [mm]	0.58 [14.7]
Cup Weight: oz [g]	1.70 [48.2]
Internal Volume: cu in [cc]	1.80 [29.5]
Force @ 6 inHG: lb [n]	17.00 [75.6]
Force @ 18 inHG: lb [n]	42.00 [187.0]
Minimum Radius: in [mm]	2.80 [71.1]
Shear Load <sup>2</sup> : lb [n]	45.00 [200.0]



**XP-BF100**

Cup Diameter: in [mm]	100 mm
Outer Diameter: in [mm]	4.41 [112.1]
Cup Height: in [mm]*	1.95 [49.6]
Stroke: in [mm]	0.95 [24.1]
Cup Weight: oz [g]	2.40 [68.0]
Internal Volume: cu in [cc]	4.90 [80.3]
Force @ 6 inHG: lb [n]	28.00 [125.0]
Force @ 18 inHG: lb [n]	78.00 [347.0]
Minimum Radius: in [mm]	3.60 [91.5]
Shear Load <sup>2</sup> : lb [n]	53.00 [236.0]

<sup>2</sup>All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

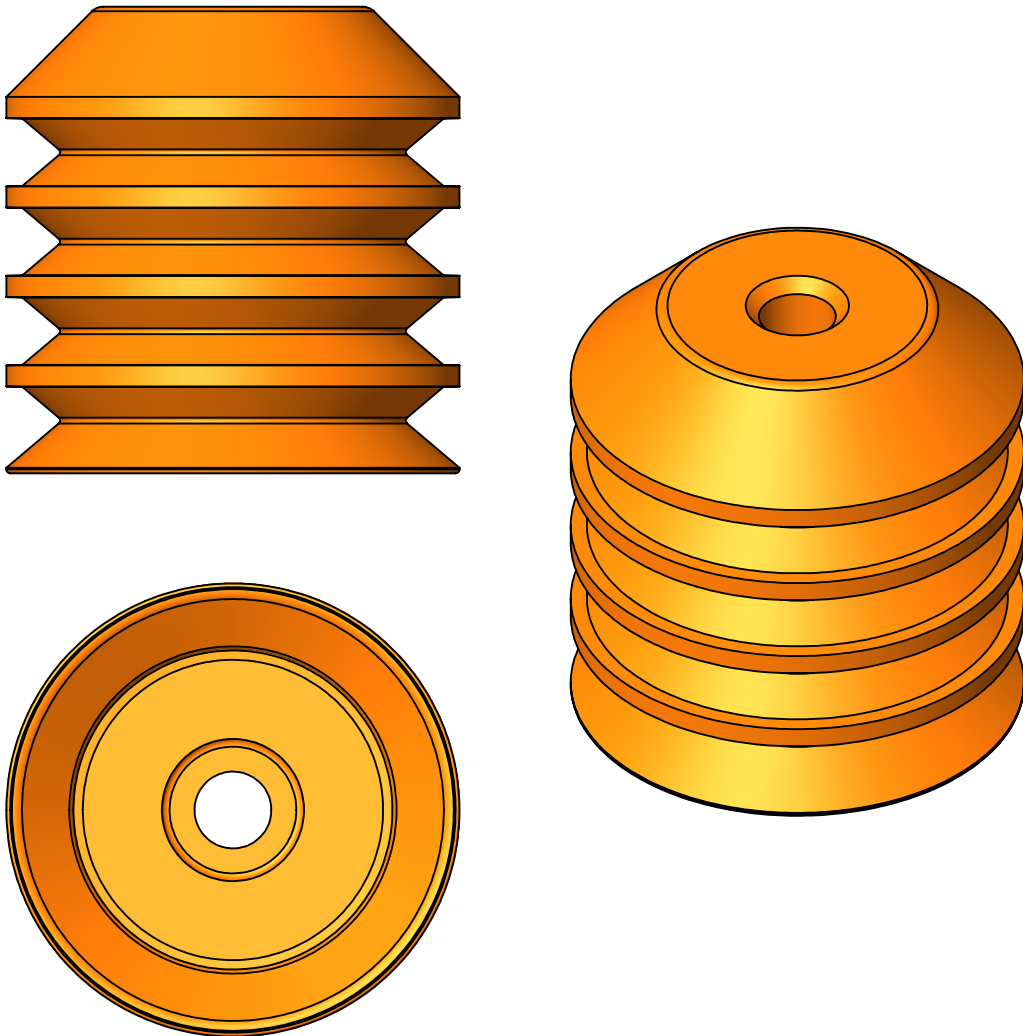
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

## Multi-Bellows Vacuum Cups

Multi-bellows vacuum cups are made with shallow-fold bellows plus a thin, shallow sealing lip that allows it to conform to flexible packaging and other thin workpieces. The shallow-fold bellows cannot withstand deep vacuum unless it is fully collapsed. Do not try to use the bellows movement to lift a workpiece or the cup can collapse radially inward. Our multi-bellows vacuum cups include both internal and external stiffening ring features to reduce the possibility of radial collapse where other brands do not. The stiffening ring also provides stability when the cup is fully collapsed.

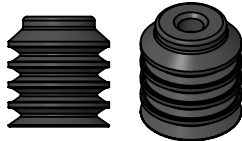
Suitable Workpiece Surface:

- Flat
- Convex
- Compound
- Cylindrical
- Flexible
- Plastic Film



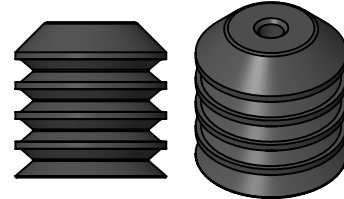
### Multi-Bellows Vacuum Cups

XP-BL	Cup Size	Cup Material	Cup Fitting
	30	A	-G14F
20	Ø 20 mm	A Ameriflex	(Blank) None
30	Ø 30 mm	D Duramax	See cup fittings for available threads.
40	Ø 40 mm	N Nitrile / TPV	
50	Ø 50 mm	S Silicone	



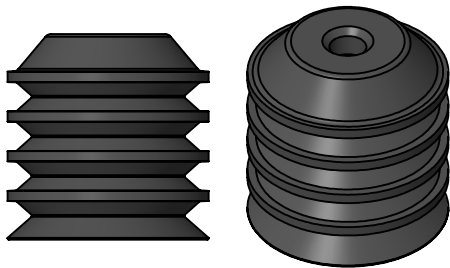
XP-BL20

Cup Diameter: in [mm]	20 mm
Outer Diameter: in [mm]	0.79 [20.0]
Cup Height: in [mm]	0.86 [21.8]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.51 [13.0]
Cup Weight: oz [g]	0.07 [2.0]
Internal Volume: cu in [cc]	0.24 [3.9]
Force @ 6 inHG: lb [n]	0.70 [3.1]
Force @ 18 inHG: lb [n]	1.40 [6.2]
Minimum Radius: in [mm]	0.16 [4.1]



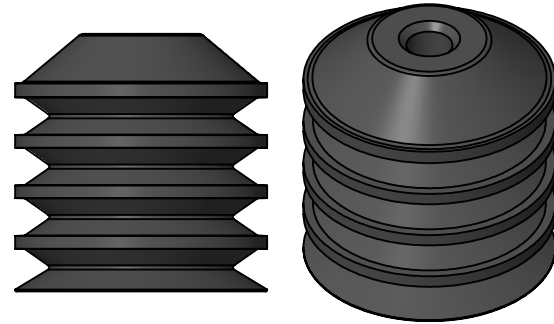
XP-BL30

Cup Diameter: in [mm]	30 mm
Outer Diameter: in [mm]	1.18 [30.0]
Cup Height: in [mm]	1.22 [30.9]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.79 [20.1]
Cup Weight: oz [g]	0.21 [6.0]
Internal Volume: cu in [cc]	0.80 [13.1]
Force @ 6 inHG: lb [n]	1.40 [6.2]
Force @ 18 inHG: lb [n]	3.60 [16.0]
Minimum Radius: in [mm]	0.31 [7.9]



XP-BL40

Cup Diameter: in [mm]	40 mm
Outer Diameter: in [mm]	1.57 [39.9]
Cup Height: in [mm]	1.61 [40.8]
Thru Hole: in [mm]	0.29 [7.4]
Stroke: in [mm]	0.98 [24.9]
Cup Weight: oz [g]	0.43 [12.2]
Internal Volume: cu in [cc]	1.6 [26.2]
Force @ 6 inHG: lb [n]	2.50 [11.1]
Force @ 18 inHG: lb [n]	4.90 [21.8]
Minimum Radius: in [mm]	0.60 [15.2]



XP-BL50

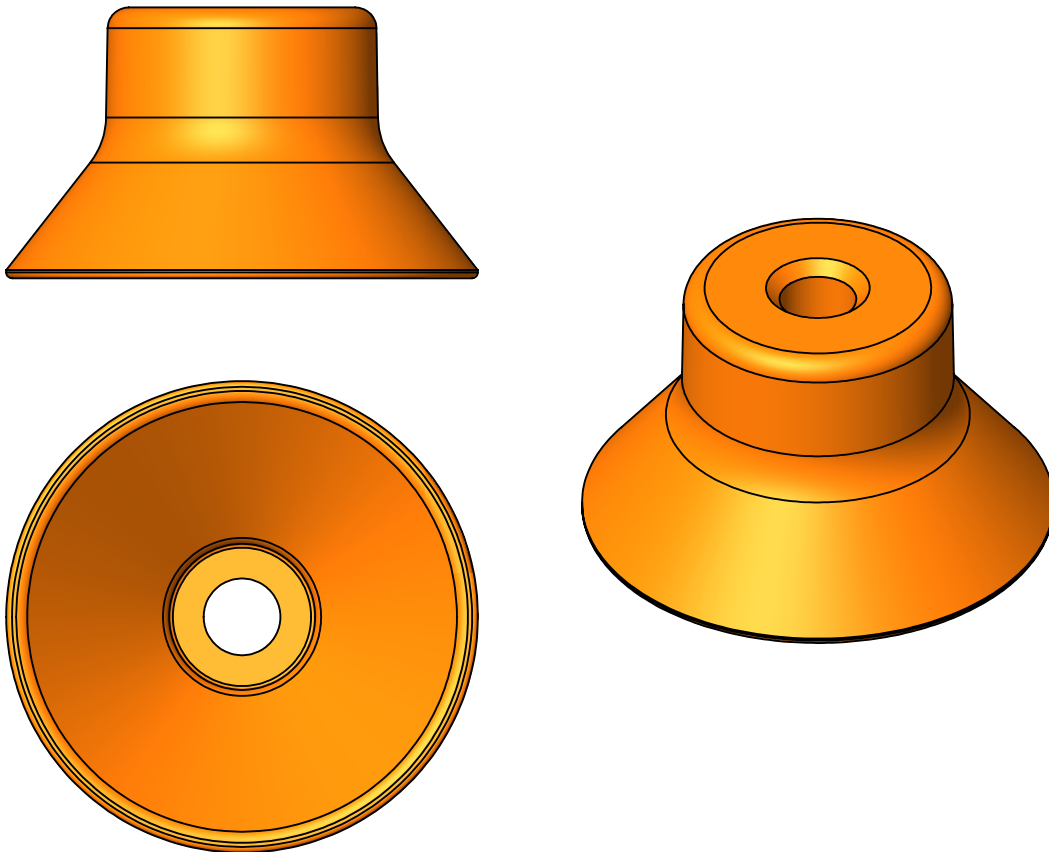
Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	1.97 [50.0]
Cup Height: in [mm]	2.01 [51.1]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	1.10 [27.9]
Cup Weight: oz [g]	0.82 [23.2]
Internal Volume: cu in [cc]	3.40 [55.7]
Force @ 6 inHG: lb [n]	3.80 [16.9]
Force @ 18 inHG: lb [n]	9.60 [42.7]
Minimum Radius: in [mm]	0.60 [15.2]

## Deep Vacuum Cups

Deep vacuum cups are used for highly curved or irregular surfaces and can even seal against corners, edges, and spherical workpiece. Deep vacuum cups are unsuitable for use on flat surfaces because the lip will be overstretched and the resultant scrubbing could leave marks on the workpiece.

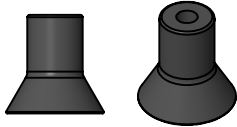
Suitable Workpiece Surface:

- Convex
- Spherical
- Cylindrical



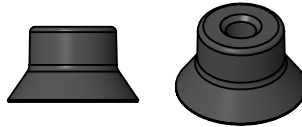
## Deep Vacuum Cups

Cup Size		Cup Material		Cup Fitting	
XP-D	15	S		-5F	
15	Ø 15 mm	N	Nitrile / TPV	(Blank)	None
20	Ø 20 mm	S	Silicone	See cup fittings for available threads.	
30	Ø 30 mm				
40	Ø 40 mm				
50	Ø 50 mm				



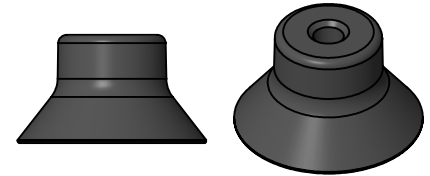
XP-D15

Cup Diameter: in [mm]	15 mm
Outer Diameter: in [mm]	0.64 [16.2]
Cup Height: in [mm]	0.64 [16.3]
Thru Hole: in [mm]	0.14 [3.6]
Stroke: in [mm]	0.12 [3.0]
Cup Weight: oz [g]	0.03 [0.9]
Internal Volume: cu in [cc]	0.06 [1.0]
Force @ 6 inHG: lb [n]	0.65 [2.8]
Force @ 18 inHG: lb [n]	1.70 [7.5]
Minimum Radius: in [mm]	0.24 [6.1]



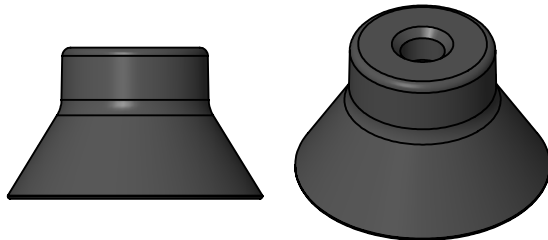
XP-D20

Cup Diameter: in [mm]	20 mm
Outer Diameter: in [mm]	0.85 [21.5]
Cup Height: in [mm]	0.49 [12.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.18 [4.6]
Cup Weight: oz [g]	0.05 [1.4]
Internal Volume: cu in [cc]	0.12 [2.0]
Force @ 6 inHG: lb [n]	1.30 [5.7]
Force @ 18 inHG: lb [n]	3.30 [14.6]
Minimum Radius: in [mm]	0.32 [8.1]



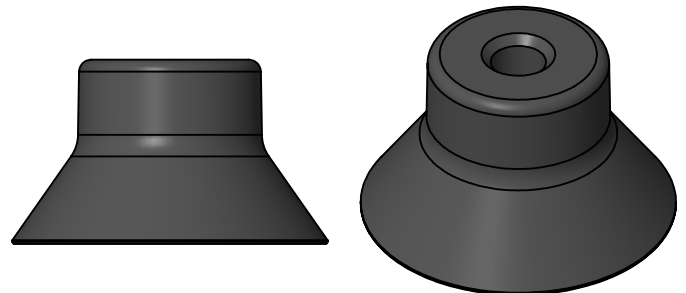
XP-D30

Cup Diameter: in [mm]	30 mm
Outer Diameter: in [mm]	1.23 [31.2]
Cup Height: in [mm]	0.71 [17.9]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.20 [5.1]
Cup Weight: oz [g]	0.11 [3.1]
Internal Volume: cu in [cc]	0.30 [5.0]
Force @ 6 inHG: lb [n]	3.10 [13.8]
Force @ 18 inHG: lb [n]	5.80 [25.8]
Minimum Radius: in [mm]	0.51 [13.0]



XP-D40

Cup Diameter: in [mm]	40 mm
Outer Diameter: in [mm]	1.66 [42.1]
Cup Height: in [mm]	0.98 [25.0]
Thru Hole: in [mm]	0.29 [7.4]
Stroke: in [mm]	0.31 [7.9]
Cup Weight: oz [g]	0.30 [8.5]
Internal Volume: cu in [cc]	0.80 [13.0]
Force @ 6 inHG: lb [n]	5.40 [24.0]
Force @ 18 inHG: lb [n]	11.30 [50.3]
Minimum Radius: in [mm]	0.65 [16.5]



XP-D50

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	2.05 [52.1]
Cup Height: in [mm]	1.20 [30.5]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.39 [9.9]
Cup Weight: oz [g]	0.54 [15.3]
Internal Volume: cu in [cc]	1.40 [23.0]
Force @ 6 inHG: lb [n]	8.10 [36.0]
Force @ 18 inHG: lb [n]	17.00 [75.6]
Minimum Radius: in [mm]	0.98 [24.9]

## Flat Vacuum Cups

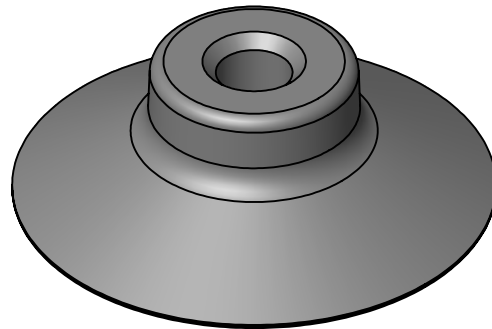
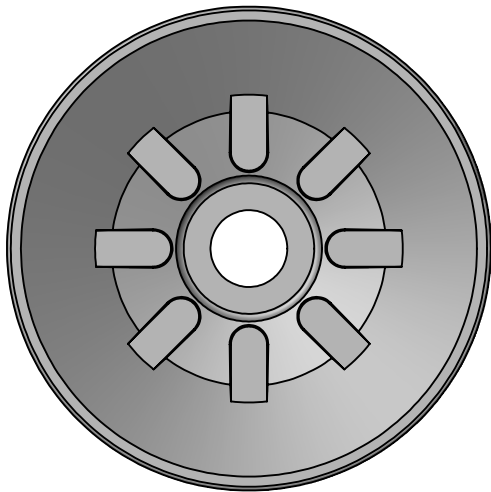
Flat vacuum cups are like universal cups except they have cleats on the bottom which serve as traction surfaces and support the workpiece being lifted to prevent or limit deformation. The cleats limit deflection and maintain a larger exposed area to vacuum for a firm grip on the workpiece.

Flat vacuum cups have high stability and traction but a very short stroke. They should be used primarily for flat workpieces or sheet goods such as cardboard, corrugated board, and dry sheet metal. Flat vacuum cups will not work well with thin workpieces such as plastic sheet goods or flexible packaging.

Flat vacuum cups have very little angular compensation ability so they should always pick up perpendicular to a flat workpiece surface.

Suitable Workpiece Surface:

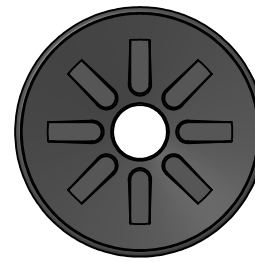
- Flat
- Shear Loads





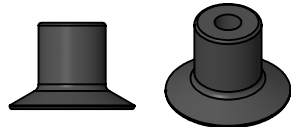
### Flat Vacuum Cups

	Cup Size	Cup Material		Cup Fitting	
XP-F	20	A		-14M	
15	Ø 15 mm	A	Ameriflex <sup>1</sup>	(Blank)	None
20	Ø 20 mm	D	Duramax <sup>1</sup>	See cup fittings for available threads.	
25	Ø 25 mm	N	Nitrile / TPV		
30	Ø 30 mm	S	Silicone		
		V	Viton		



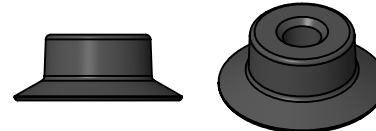
All Flat Cups have cleats.

<sup>1</sup>Not available on XP-F15.



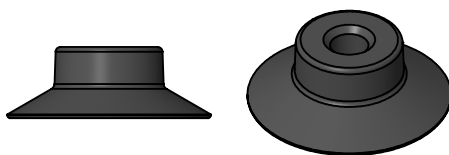
**XP-F15**

Cup Diameter: in [mm]	15 mm
Outer Diameter: in [mm]	0.65 [16.5]
Cup Height: in [mm]	0.45 [11.4]
Thru Hole: in [mm]	0.14 [3.6]
Stroke: in [mm]	0.03 [0.8]
Cup Weight: oz [g]	0.03 [0.85]
Internal Volume: cu in [cc]	0.20 [0.3]
Force @ 6 inHG: lb [n]	0.80 [3.6]
Force @ 18 inHG: lb [n]	1.90 [8.5]
Minimum Radius: in [mm]	0.51 [13.0]
Shear Load*: lb [n]	0.90 [4.0]



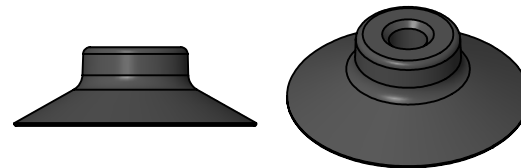
**XP-F20**

Cup Diameter: in [mm]	20 mm
Outer Diameter: in [mm]	0.87 [22.1]
Cup Height: in [mm]	0.34 [8.7]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.06 [1.5]
Cup Weight: oz [g]	0.05 [1.4]
Internal Volume: cu in [cc]	0.06 [1.0]
Force @ 6 inHG: lb [n]	1.30 [5.8]
Force @ 18 inHG: lb [n]	3.30 [14.7]
Minimum Radius: in [mm]	0.71 [7.6]
Shear Load*: lb [n]	1.70 [7.6]



**XP-F25**

Cup Diameter: in [mm]	25 mm
Outer Diameter: in [mm]	1.06 [26.9]
Cup Height: in [mm]	0.37 [9.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.06 [1.5]
Cup Weight: oz [g]	0.06 [1.7]
Internal Volume: cu in [cc]	0.07 [1.2]
Force @ 6 inHG: lb [n]	2.00 [8.9]
Force @ 18 inHG: lb [n]	4.30 [19.1]
Minimum Radius: in [mm]	0.98 [24.9]
Shear Load*: lb [n]	2.10 [9.3]



**XP-F30**

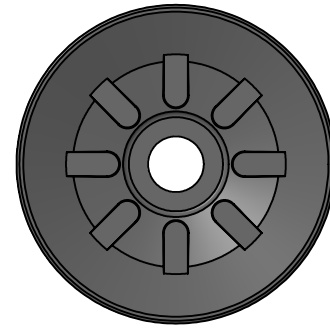
Cup Diameter: in [mm]	30 mm
Outer Diameter: in [mm]	1.26 [32.0]
Cup Height: in [mm]	0.41 [10.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.09 [2.3]
Cup Weight: oz [g]	0.08 [2.3]
Internal Volume: cu in [cc]	0.12 [2.0]
Force @ 6 inHG: lb [n]	2.70 [12.0]
Force @ 18 inHG: lb [n]	5.60 [24.9]
Minimum Radius: in [mm]	0.98 [24.9]
Shear Load*: lb [n]	2.80 [12.5]

<sup>\*</sup>All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

### Flat Vacuum Cups

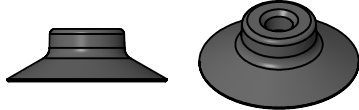
XP-F	Cup Size	Cup Material <sup>1</sup>	Cup Fitting
	50	D	-38M
40	Ø 40 mm	A Ameriflex	(Blank) None
50	Ø 50 mm	D Duramax	See cup fittings for available threads.
65	Ø 65 mm	N Nitrile / TPV	
90	Ø 90 mm <sup>2</sup>	S Silicone <sup>1</sup>	
		V Viton <sup>1</sup>	



All Flat Cups have cleats.

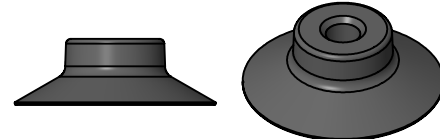
<sup>1</sup>Not available on XP-F65 or XP-F90.

<sup>2</sup>Uses 65 mm Cup Fittings.



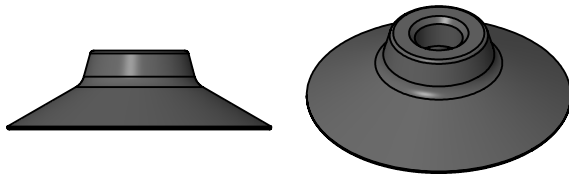
**XP-F40**

Cup Diameter: in [mm]	40 mm
Outer Diameter: in [mm]	1.66 [42.2]
Cup Height: in [mm]	0.55 [13.9]
Thru Hole: in [mm]	0.30 [7.6]
Stroke: in [mm]	0.10 [2.5]
Cup Weight: oz [g]	0.18 [5.1]
Internal Volume: cu in [cc]	0.29 [4.8]
Force @ 6 inHG: lb [n]	4.50 [20.0]
Force @ 18 inHG: lb [n]	9.00 [40.0]
Minimum Radius: in [mm]	2.05 [52.1]
Shear Load*: lb [n]	4.50 [20.0]



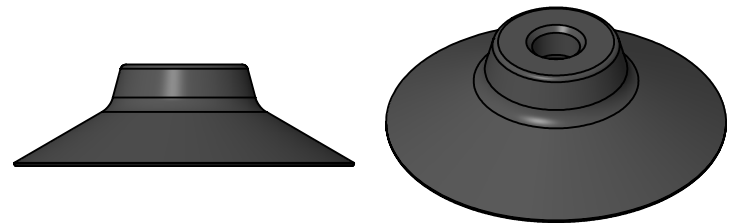
**XP-F50**

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	2.09 [53.1]
Cup Height: in [mm]	0.69 [17.5]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.12 [3.0]
Cup Weight: oz [g]	0.40 [11.3]
Internal Volume: cu in [cc]	0.61 [10.0]
Force @ 6 inHG: lb [n]	8.10 [36.0]
Force @ 18 inHG: lb [n]	16.6 [73.8]
Minimum Radius: in [mm]	2.17 [55.1]
Shear Load*: lb [n]	8.30 [36.9]



**XP-F65**

Cup Diameter: in [mm]	65 mm
Outer Diameter: in [mm]	2.75 [69.9]
Cup Height: in [mm]	0.82 [20.9]
Thru Hole: in [mm]	0.50 [12.7]
Stroke: in [mm]	0.15 [2.5]
Cup Weight: oz [g]	0.51 [14.5]
Internal Volume: cu in [cc]	1.46 [24.0]
Force @ 6 inHG: lb [n]	9.00 [40.0]
Force @ 18 inHG: lb [n]	22.00 [98.0]
Minimum Radius: in [mm]	5.50 [140.0]
Shear Load*: lb [n]	11.00 [49.0]



**XP-F90**

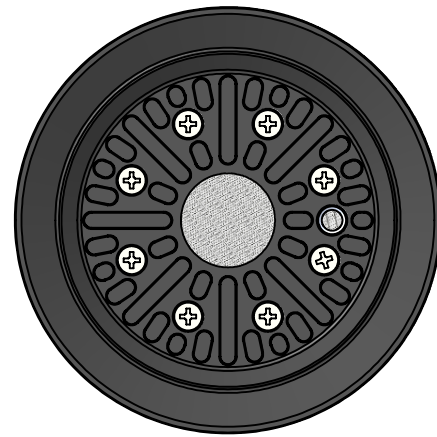
Cup Diameter: in [mm]	90 mm
Outer Diameter: in [mm]	3.54 [89.9]
Cup Height: in [mm]	1.06 [26.9]
Thru Hole: in [mm]	0.50 [12.7]
Stroke: in [mm]	0.20 [5.2]
Cup Weight: oz [g]	1.10 [31.0]
Internal Volume: cu in [cc]	2.93 [48.0]
Force @ 6 inHG: lb [n]	24.00 [106.8]
Force @ 18 inHG: lb [n]	60.00 [266.9]
Minimum Radius: in [mm]	7.20 [183.0]
Shear Load*: lb [n]	30.00 [133.4]

\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

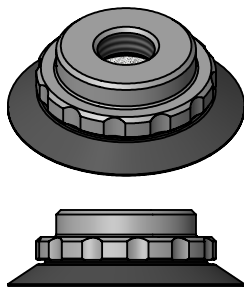
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

### Flat Vacuum Cups

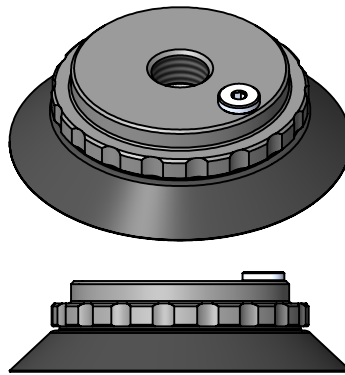
	Cup Size	Cup Material		Cup Fitting	
XP-F	110	S		-38F	
75	Ø 75 mm	A	Ameriflex	(Blank)	None
110	Ø 110 mm	N	Nitrile / TPV	See cup fittings for available threads.	
150	Ø 150 mm	S	Silicone		
		V	Viton		



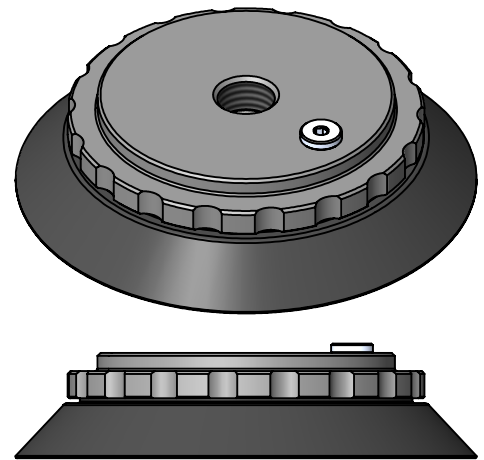
All Flat Cups have cleats.



XP-F75



XP-F110



XP-F150

Cup Diameter: in [mm]	75 mm
Outer Diameter: in [mm]	3.08 [78.2]
Cup Height*: in [mm]	0.99 [25.1]
Stroke: in [mm]	0.09 [2.3]
Cup Weight: oz [g]	1.00 [28.3]
Internal Volume: cu in [cc]	1.20 [19.7]
Force @ 6 inHG: lb [n]	18.00 [80.1]
Force @ 18 inHG: lb [n]	45.00 [20.0]
Minimum Radius: in [mm]	5.90 [150.0]
Shear Load*: lb [n]	23.00 [102.0]

Cup Diameter: in [mm]	110 mm
Outer Diameter: in [mm]	4.44 [112.8]
Cup Height*: in [mm]	1.30 [33.0]
Stroke: in [mm]	0.21 [5.3]
Cup Weight: oz [g]	3.10 [87.9]
Internal Volume: cu in [cc]	4.30 [70.5]
Force @ 6 inHG: lb [n]	32.00 [142.0]
Force @ 18 inHG: lb [n]	94.00 [418.0]
Minimum Radius: in [mm]	9.80 [249.0]
Shear Load*: lb [n]	47.00 [209.0]

Cup Diameter: in [mm]	150 mm
Outer Diameter: in [mm]	6.00 [152.4]
Cup Height*: in [mm]	1.49 [37.9]
Stroke: in [mm]	0.33 [8.4]
Cup Weight: oz [g]	7.30 [207.0]
Internal Volume: cu in [cc]	9.80 [161.0]
Force @ 6 inHG: lb [n]	67.00 [298.0]
Force @ 18 inHG: lb [n]	191.00 [850.0]
Minimum Radius: in [mm]	19.70 [500.0]
Shear Load*: lb [n]	95.00 [422.0]

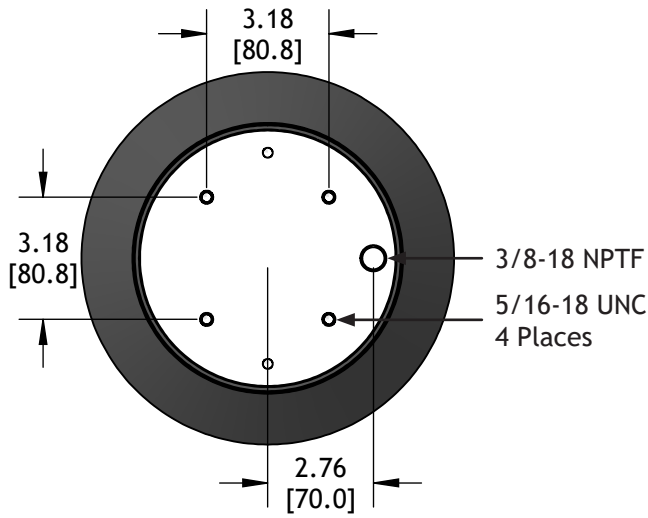
\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

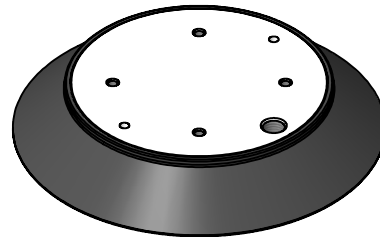
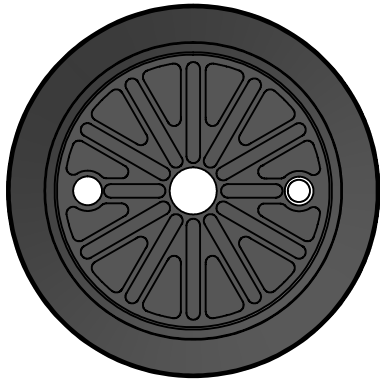
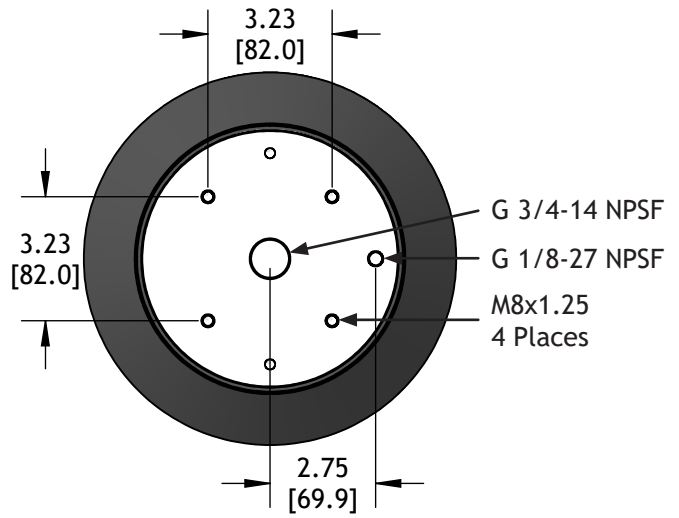
### Flat Vacuum Cups

Cup Material		Mount	
XP-F240	S	-	P
NP	Neoprene	AQ	Quad Mount, Side Port
S	Silicone	P	Quad Mount, Center Port

AQ Mount



P Mount



XP-F240

Cup Diameter: in [mm]	240 mm
Outer Diameter: in [mm]	9.70 [246.4]
Cup Height: in [mm]	1.50 [38.2]
Stroke: in [mm]	0.62 [15.7]
Cup Weight: oz [g]	2.80 [1.3]
Internal Volume: cu in [cc]	33.00 [541.0]
Force @ 18 inHG: lb [n]	450.00 [2002.0]
Minimum Radius: in [mm]	20.00 [508.0]
Shear Load*: lb [n]	225.00 [1001.0]

\*All figures for shear load are 18 inHG using a 0.5 coefficient of friction.

Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

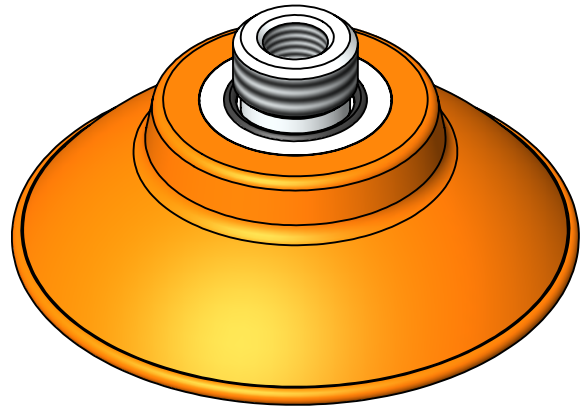
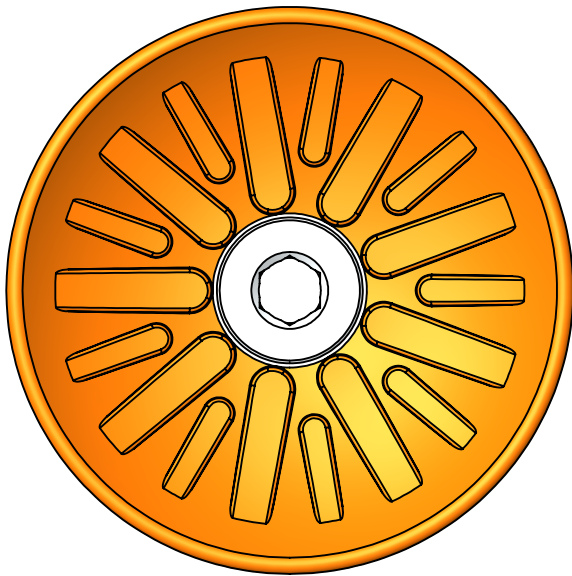
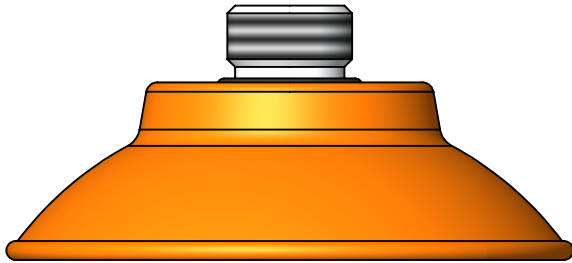
## Flat-Concave Vacuum Cups

Flat-concave vacuum cups have a dished bottom plus conforming cleats for use with flat or slightly domed or convex workpieces. The outer lip is reinforced for extra strength and extended life while the cleats provide superior traction to resist later shear loads.

Flat-concave vacuum cups have slight angular compensation ability so they should always be picked up perpendicular to a flat workpiece surface.

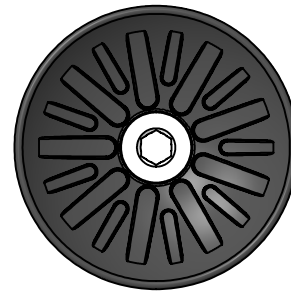
Suitable Workpiece Surface:

- Convex
- Spherical
- Shear Loads

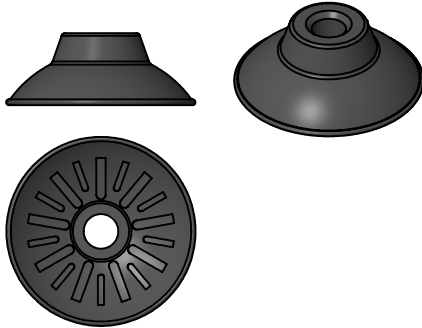


### Flat-Concave Vacuum Cups

Cup Material		Cup Fitting	
XP-FC50	A	-14F	
A	Ameriflex	(Blank)	None
N	Nitrile / TPV	See cup fittings for available threads.	



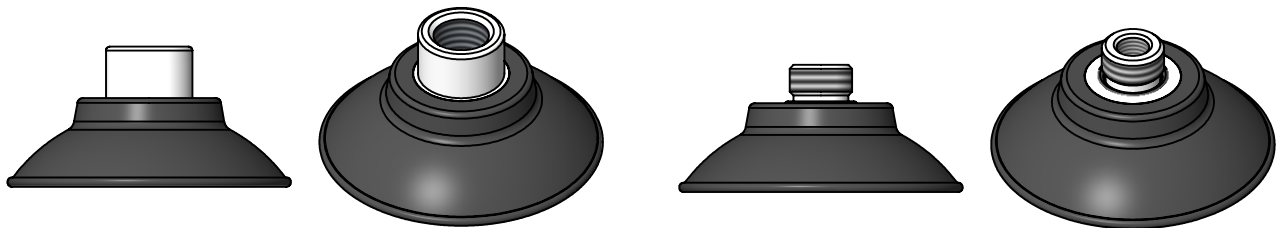
All Flat-Concave Cups have cleats.



#### XP-FC50

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	1.97 [50.0]
Cup Height: in [mm]	0.75 [19.1]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.25 [6.4]
Cup Weight: oz [g]	0.30 [7.9]
Internal Volume: cu in [cc]	0.70 [11.5]
Force @ 6 inHG: lb [n]	7.80 [34.7]
Force @ 18 inHG: lb [n]	19.00 [84.5]
Minimum Radius: in [mm]	2.09 [53.1]
Shear Load*: lb [n]	10.00 [44.5]

Cup Material		Fitting	
XP-FC75	S	-	38F
N	Nitrile / TPV	38F	3/8 NPSF Female
S	Silicone	G38M	G 3/8 Male



#### XP-FC75-38F

Cup Diameter: in [mm]	75 mm
Outer Diameter: in [mm]	2.95 [75.0]
Cup Height: in [mm]*	1.46 [37.1]
Stroke: in [mm]	0.36 [9.1]
Cup Weight: oz [g]	1.70 [48.2]
Internal Volume: cu in [cc]	1.80 [29.5]
Force @ 6 inHG: lb [n]	17.00 [75.6]
Force @ 18 inHG: lb [n]	35.00 [154.0]
Minimum Radius: in [mm]	2.80 [71.1]
Shear Load*: lb [n]	45.00 [200.0]

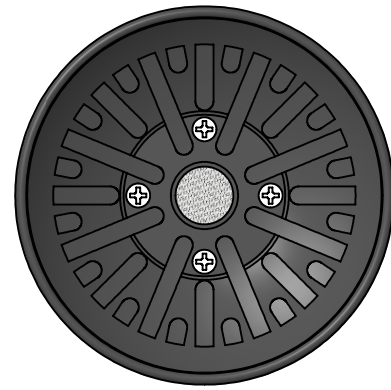
#### XP-FC75-G38M

Cup Diameter: in [mm]	75 mm
Outer Diameter: in [mm]	2.95 [75.0]
Cup Height: in [mm]	1.33 [33.7]
Stroke: in [mm]	0.36 [9.1]
Cup Weight: oz [g]	1.70 [48.2]
Internal Volume: cu in [cc]	1.80 [29.5]
Force @ 6 inHG: lb [n]	17.00 [75.6]
Force @ 18 inHG: lb [n]	35.00 [154.0]
Minimum Radius: in [mm]	2.80 [71.1]
Shear Load*: lb [n]	45.00 [200.0]

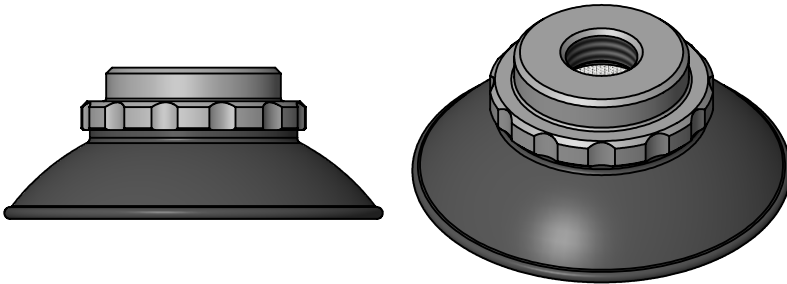
\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.  
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

### Flat-Concave Vacuum Cups

Cup Material		Cup Fitting	
XP-FC100	N	-18F	
N	Nitrile / TPV	(Blank)	None
S	Silicone	See 75 mm cup fittings for available threads.	



All Flat-Concave Cups have cleats.



#### XP-FC100

Cup Diameter: in [mm]	100 mm
Outer Diameter: in [mm]	3.94 [100.1]
Cup Height: in [mm]*	1.57 [40.0]
Stroke: in [mm]	0.48 [12.2]
Cup Weight: oz [g]	1.90 [54.0]
Internal Volume: cu in [cc]	4.90 [80.3]
Force @ 6 inHG: lb [n]	31.00 [138.0]
Force @ 18 inHG: lb [n]	64.00 [285.0]
Minimum Radius: in [mm]	4.30 [109.0]
Shear Load*: lb [n]	53.00 [236.0]

\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.

Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

## Oval Vacuum Cups

Oval vacuum cups come in two styles. Oval concave (OC) vacuum cups are like universal cups except the cup is elongated to provide a larger surface area and thus a stronger grip. Oval flat (OF) vacuum cups have bottom cleats to maintain a larger area exposed to vacuum. Because of this, the cleats reduce the stroke by almost half. They should only be used on flat or very slightly curved surfaces.

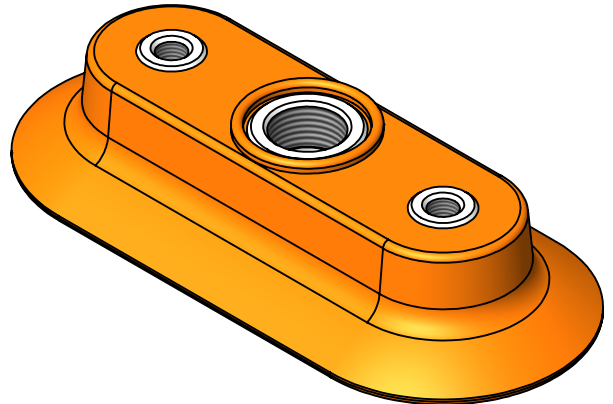
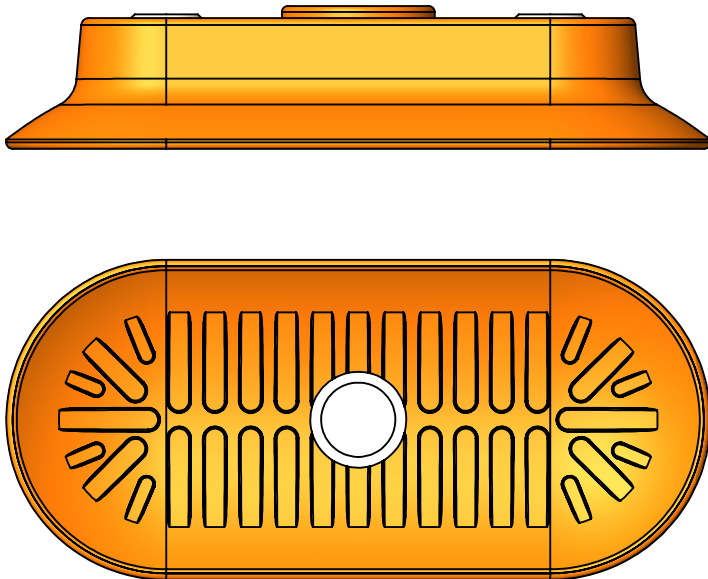
Oval vacuum cups can seal to cylindrical object but only along the cup long axis (be mindful of minimum radius). Whenever possible, use several round vacuum cups instead of oval vacuum cups as round vacuum cups are more forgiving of mounting misalignment and workpiece deflection.

OC Suitable Workpiece Surface:

- Flat
- Convex
- Cylindrical

OF Suitable Workpiece Surface:

- Flat
- Cylindrical
- Shear Loads

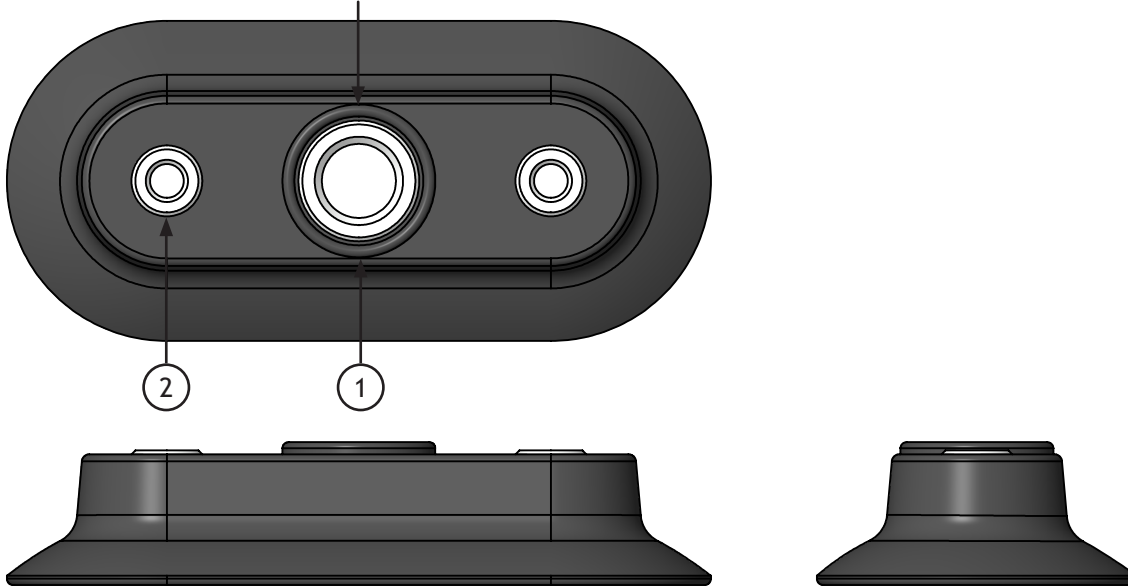




### Oval Vacuum Cups

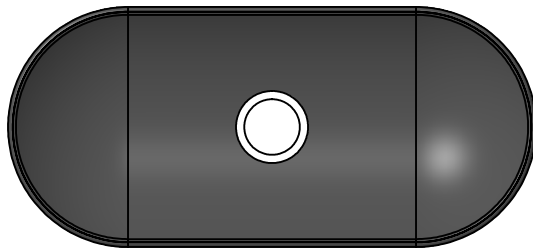
Cup Style		Cup Material		Threads	
OC		-60X140-		S	
OC	Concave	N	Nitrile / TPV	(Blank)	NPTF Threads
OF	Flat	S	Silicone	-G	G Threads

O-Ring Seal

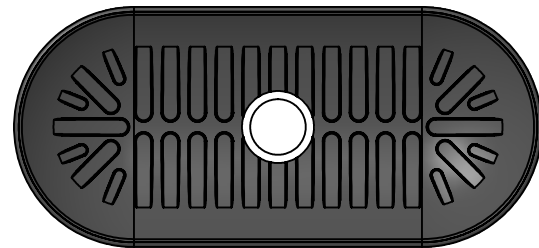


	OC	OF
Cup Dimensions: in [mm]	60 mm X 140 mm	
Cup Height: in [mm]*	1.57 [40.0]	
Stroke: in [mm]	0.29 [7.4]	0.18 [4.6]
Cup Weight: oz [g]	4.10 [116.0]	4.20 [119.0]
Internal Volume: cu in [cc]	3.20 [52.4]	3.00 [49.2]
Force @ 6 inHG: lb [n]	29.00 [129.0]	
Force @ 18 inHG: lb [n]	83.00 [369.0]	
Minimum Radius: in [mm]	1.50 [38.1]	3.00 [76.2]
Shear Load*: lb [n]	41.00 [182.0]	

Code	Function	NPTF	G
1	Vacuum Port	3/8-18 NPTF	G 3/8
2	Mounting Holes	5/16-18 UNC	M8x1.25



OC-60X140



OF-60X140

\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.  
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

## Universal Vacuum Cups

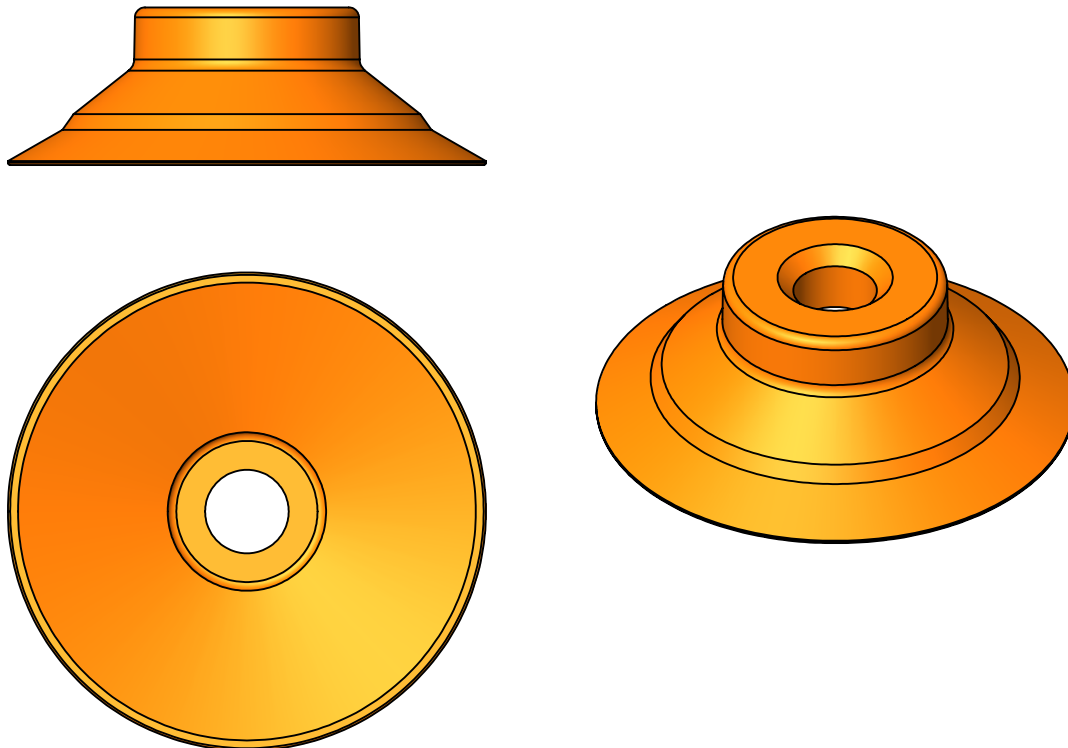
Universal vacuum cups are like flat vacuum cups except they have no bottom cleats. As a result, deflection is higher than flat vacuum cups and the cup area exposed to vacuum becomes smaller as vacuum level deepens and the cup lips flatten out. Under a heavy pull, a universal vacuum cup will “tent” up and the effective vacuum area will increase until it equals that of a flat vacuum cup, at which point, it will have similar load capacity.

Thin workpiece materials can be drawn in toward the cup center and essentially seal off vacuum from the universal vacuum cup lips so that the effective area becomes so small that the cup cannot pick up the workpiece safely.

Universal vacuum cups have very little angular compensation ability so they should always pick up perpendicular to a flat workpiece surface.

Suitable Workpiece Surface:

- Flat
- Slightly Concave
- Convex
- Compound
- Cylindrical
- Flexible

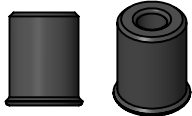


*\*All figures for shear load are 18 inHg using a 0.5 coefficient of friction.  
Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.*

## Universal Vacuum Cups

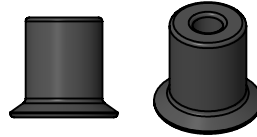
	Cup Size	Cup Material		Cup Fitting	
XP-U	8	S		-10M	
4	Ø 4 mm	N	Nitrile / TPV	(Blank)	None
6	Ø 6 mm	S	Silicone	See cup fittings for available threads.	
8	Ø 8 mm	V	Viton <sup>1</sup>		
10	Ø 10 mm				
15	Ø 15 mm				

<sup>1</sup>Only available for XP-U4 and XP-U10



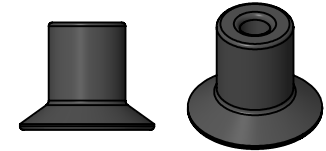
XP-U4

Cup Diameter: in [mm]	4 mm
Outer Diameter: in [mm]	0.20 [5.1]
Cup Height: in [mm]	0.24 [6.1]
Thru Hole: in [mm]	0.08 [2.0]
Stroke: in [mm]	0.008 [0.2]
Cup Weight: oz [g]	0.003 [0.09]
Internal Volume: cu in [cc]	0.002 [0.03]
Force @ 6 inHG: lb [n]	0.04 [0.2]
Force @ 18 inHG: lb [n]	0.20 [0.9]
Minimum Radius: in [mm]	0.12 [3.0]



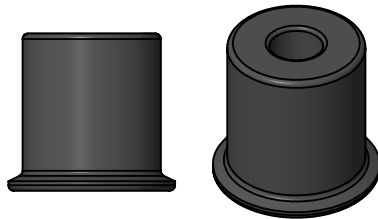
XP-U6

Cup Diameter: in [mm]	6 mm
Outer Diameter: in [mm]	0.28 [7.1]
Cup Height: in [mm]	0.26 [6.6]
Thru Hole: in [mm]	0.08 [2.0]
Stroke: in [mm]	0.012 [0.3]
Cup Weight: oz [g]	0.005 [0.14]
Internal Volume: cu in [cc]	0.003 [0.5]
Force @ 6 inHG: lb [n]	0.11 [0.5]
Force @ 18 inHG: lb [n]	0.38 [1.7]
Minimum Radius: in [mm]	0.20 [5.1]



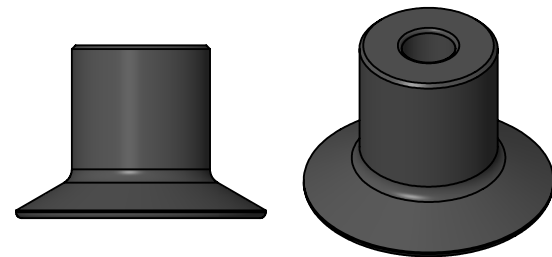
XP-U8

Cup Diameter: in [mm]	8 mm
Outer Diameter: in [mm]	0.35 [8.9]
Cup Height: in [mm]	0.28 [7.1]
Thru Hole: in [mm]	0.8 [2.0]
Stroke: in [mm]	0.02 [0.5]
Cup Weight: oz [g]	0.005 [0.14]
Internal Volume: cu in [cc]	0.006 [0.1]
Force @ 6 inHG: lb [n]	0.22 [1.0]
Force @ 18 inHG: lb [n]	0.65 [2.9]
Minimum Radius: in [mm]	0.24 [6.1]



XP-U10

Cup Diameter: in [mm]	10 mm
Outer Diameter: in [mm]	0.43 [11.0]
Cup Height: in [mm]	0.41 [10.4]
Thru Hole: in [mm]	0.14 [3.6]
Stroke: in [mm]	0.02 [0.5]
Cup Weight: oz [g]	0.03 [10.9]
Internal Volume: cu in [cc]	0.01 [0.2]
Force @ 6 inHG: lb [n]	0.34 [0.5]
Force @ 18 inHG: lb [n]	1.00 [4.5]
Minimum Radius: in [mm]	0.31 [7.9]

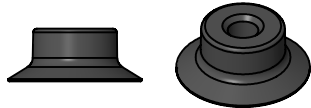


XP-U15

Cup Diameter: in [mm]	15 mm
Outer Diameter: in [mm]	0.65 [16.5]
Cup Height: in [mm]	0.45 [11.4]
Thru Hole: in [mm]	0.14 [3.6]
Stroke: in [mm]	0.06 [1.5]
Cup Weight: oz [g]	0.03 [0.9]
Internal Volume: cu in [cc]	0.03 [0.5]
Force @ 6 inHG: lb [n]	0.80 [3.6]
Force @ 18 inHG: lb [n]	1.90 [8.5]
Minimum Radius: in [mm]	0.31 [7.9]

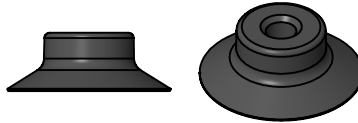
### Universal Vacuum Cups

Cup Size		Cup Material		Cup Fitting	
XP-U	25	N	Nitrile / TPV	(Blank)	None
20	Ø 20 mm	N	Nitrile / TPV	See cup fittings for available threads.	None
25	Ø 25 mm	S	Silicone		
30	Ø 30 mm				
40	Ø 40 mm				
50	Ø 50 mm				



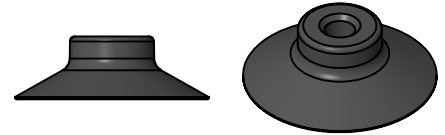
**XP-U20**

Cup Diameter: in [mm]	20 mm
Outer Diameter: in [mm]	0.87 [22.1]
Cup Height: in [mm]	0.34 [8.7]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.10 [2.5]
Cup Weight: oz [g]	0.04 [1.1]
Internal Volume: cu in [cc]	0.06 [1.0]
Force @ 6 inHG: lb [n]	1.30 [5.8]
Force @ 18 inHG: lb [n]	2.70 [12.0]
Minimum Radius: in [mm]	0.51 [13.0]



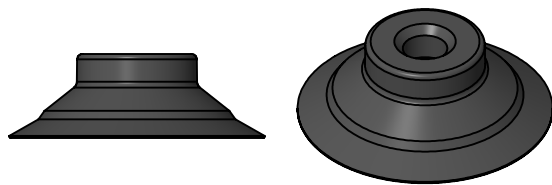
**XP-U25**

Cup Diameter: in [mm]	25 mm
Outer Diameter: in [mm]	1.06 [26.9]
Cup Height: in [mm]	0.38 [9.6]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.10 [2.5]
Cup Weight: oz [g]	0.06 [1.7]
Internal Volume: cu in [cc]	0.07 [1.1]
Force @ 6 inHG: lb [n]	2.00 [8.9]
Force @ 18 inHG: lb [n]	4.40 [19.6]
Minimum Radius: in [mm]	0.65 [16.5]



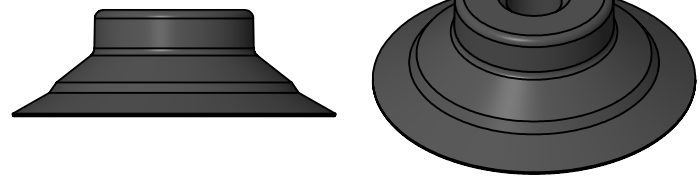
**XP-U30**

Cup Diameter: in [mm]	30 mm
Outer Diameter: in [mm]	1.26 [32.0]
Cup Height: in [mm]	0.41 [10.4]
Thru Hole: in [mm]	0.20 [5.1]
Stroke: in [mm]	0.14 [3.6]
Cup Weight: oz [g]	0.07 [2.0]
Internal Volume: cu in [cc]	0.12 [2.0]
Force @ 6 inHG: lb [n]	2.70 [12.0]
Force @ 18 inHG: lb [n]	5.60 [24.9]
Minimum Radius: in [mm]	0.79 [20.1]



**XP-U40**

Cup Diameter: in [mm]	40 mm
Outer Diameter: in [mm]	1.66 [42.2]
Cup Height: in [mm]	0.55 [13.9]
Thru Hole: in [mm]	0.29 [7.4]
Stroke: in [mm]	0.18 [4.6]
Cup Weight: oz [g]	0.17 [4.8]
Internal Volume: cu in [cc]	0.34 [5.6]
Force @ 6 inHG: lb [n]	4.50 [20.0]
Force @ 18 inHG: lb [n]	8.80 [39.1]
Minimum Radius: in [mm]	1.18 [30.0]

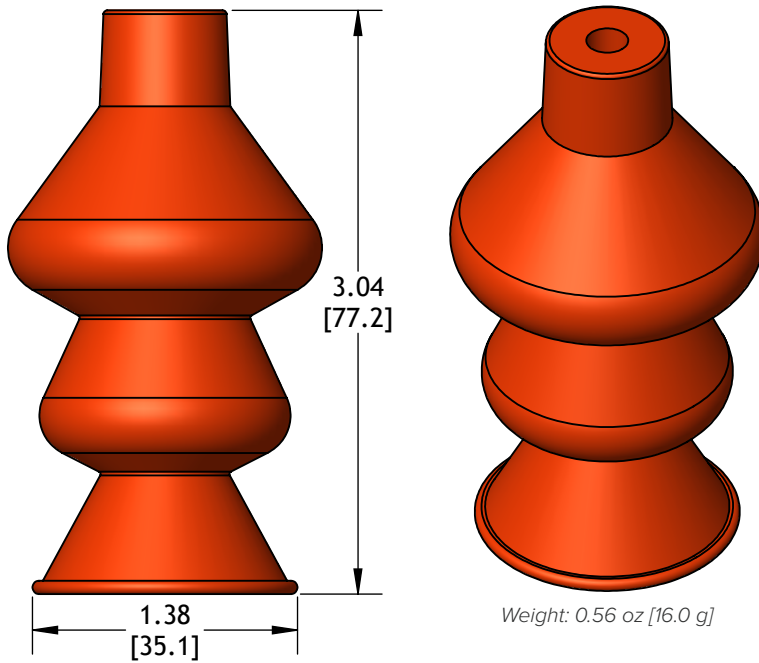


**XP-U50**

Cup Diameter: in [mm]	50 mm
Outer Diameter: in [mm]	2.10 [53.3]
Cup Height: in [mm]	0.69 [17.6]
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.24 [6.1]
Cup Weight: oz [g]	0.35 [9.9]
Internal Volume: cu in [cc]	0.73 [12.0]
Force @ 6 inHG: lb [n]	7.90 [35.1]
Force @ 18 inHG: lb [n]	16.40 [73.0]
Minimum Radius: in [mm]	1.38 [35.1]

## EC34S-30R: Egg Picking Vacuum Cup

Egg picking vacuum cups are double-bellows cups with a conical lower lip designed to gently grip eggs in a wide range of sizes. The lower bellows and lip collapse and nest inside the larger upper lip to provide stability under shallow vacuum levels that will not harm the egg shell. Common applications are sorting, incubation, rejection, or inoculation of eggs. Egg vacuum cups come in one material: brick-red, 30 Shore-A silicone rubber.



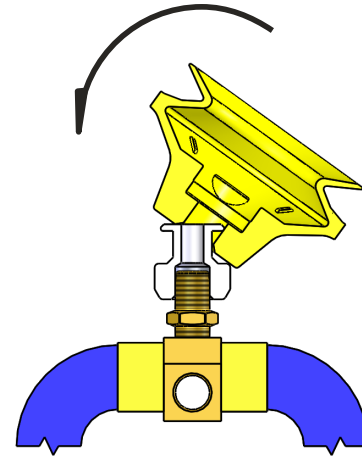
## Vacuum Cup Fittings Assembly

Secure a block tee or other suitable pipe fitting in a vise to make a simple fixture as shown in the illustration.

Screw the cup fitting onto the fixture about 2 thread turns, by hand.

Dip your finger into a small container of water and wipe a few drops onto the fitting flange and into the top chamfer and bore of the vacuum cup. Use only water. Do not use any soap or oil. Water will quickly evaporate and leave no residue which could later affect performance.

Invert the vacuum cup and place it onto the flange as shown. Grasp the far side of the cup and pull it over the flange while apply downward pressure. After the cup snaps over the flange, rotate the cup on the fitting about 1/2 turn to make sure it is properly seated.



## Elastomer Properties

### Ameriflex (A)

For general-purpose, normal ambient temperature applications as a replacement for competitors' PVC vinyl cups.

### Duramax (D)<sup>4</sup>

Softer, non-staining, non-marking, general-purpose material for high visibility surfaces at normal ambient temperatures.

### Nitrile / TPV (N)

For general-purpose, normal ambient temperature applications. Some cups are Nitrile while others are TPV. If this specification is important for your application, contact us and we can let you know which material each cup is made of.

### Silicone (S)

For either cold or high-temperature applications or where greater flexibility will improve conformance to a part.

### Conductive Silicone (CS)

For grounding parts such as electronic chips to eliminate static electricity.

### Viton (V)<sup>1</sup>

For extremely high-temperature applications in automotive, appliance, or other applications where silicone is not allowed.

Code	Elastomer	Wear Resistance	Working Temperature <sup>2</sup>	Weight Ratio <sup>3</sup>	Color	Durometer Shore-A
A	Ameriflex	Excellent	-4° to 230° F -20° to 110° C	0.85	Yellow	50
D	Duramax	Excellent	-4° to 230° F -20° to 110° C	0.85	White	45
N	Nitrile / TPV	Excellent	-4° to 230° F -20° to 110° C	1.0	Black	50
S	Silicone	Good	-100° to 400° F -70° to 205° C	1.06	Orange	50
CS	Conductive Silicone	Good	-100° to 400° F -70° to 205° C	1.06	Black	50
V	Fluorocarbon (Viton <sup>1</sup> )	Excellent	40° to 450° F 4° to 230° C	1.78	Gray	60

<sup>1</sup>Viton is a registered trademark of DuPont Dow.

<sup>2</sup>Continuous service temperature. Intermittent service may possibly be higher. Determine via testing under actual conditions.

<sup>3</sup>Weight of Nitrile cup without fitting is tabulated. Use the ratio multiplier for other materials.

<sup>4</sup>The terms non-staining and non-marking refer only to the cup material. Airborne aerosols that attach to the cup surface or direct cup contact with dirty surfaces can result in residue transfer marks. Proper maintenance is important. Use only soap and water to wipe cups clean after installation and periodically afterward to remove airborne contaminants.

<sup>5</sup>EDCO products are made with synthetic, rubber-like materials. As such, EDCO products do not contain latex.

<sup>6</sup>All figures for shear load are 18 inHg using a 0.5 coefficient of friction. Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.