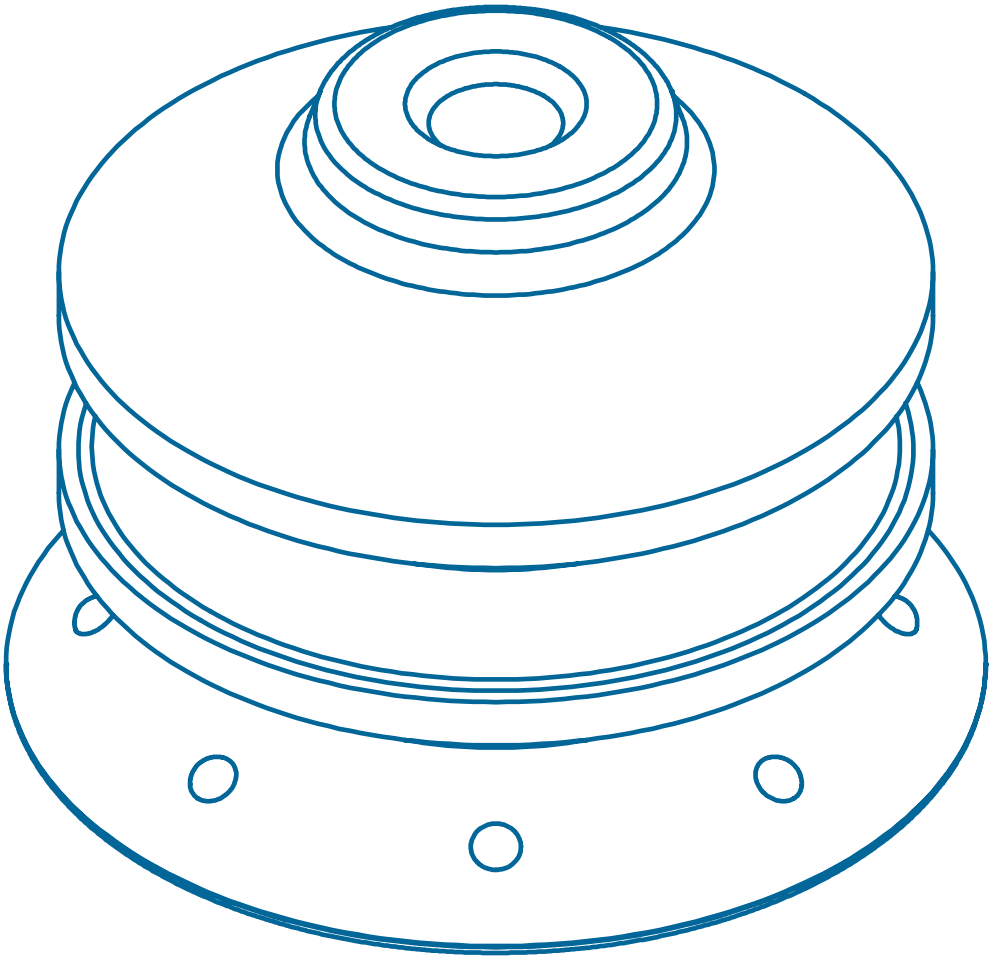
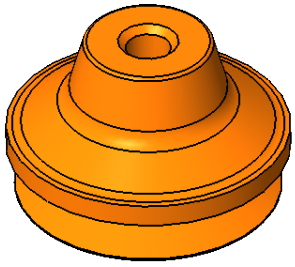
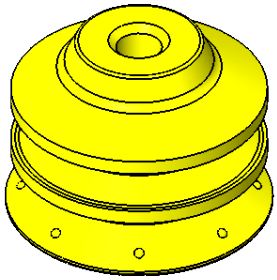
SECTION 2

VACUUM CUPS



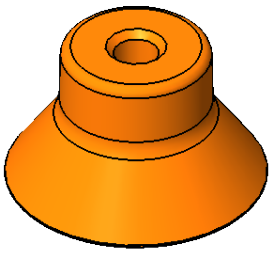


Bellows

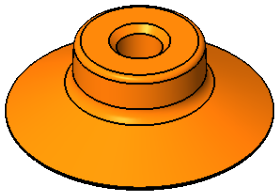


Double Bellows

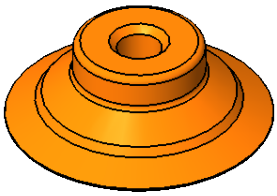
Multi-Bellows



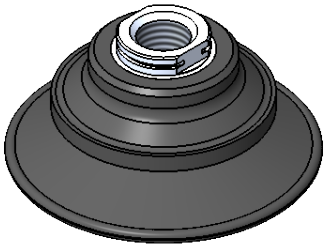
Deep



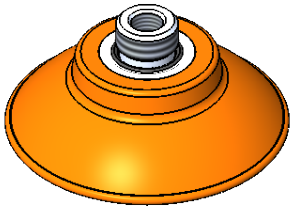
Flat



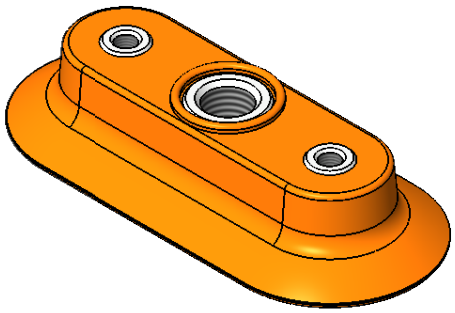
Universal



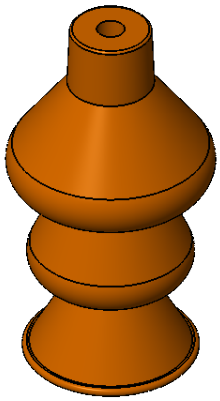
Bellows Flat



Flat-Concave



Oval



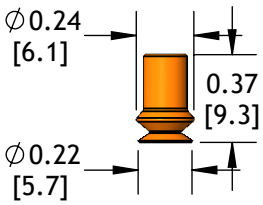
Special

UPDATED 02/25/19

Bellows Vacuum Cups

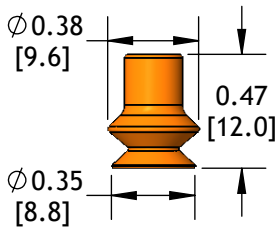
	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-B	15		CS		-10M		-FD	
	5	Ø 5 mm	A	Ameriflex[4]	(Blank)	None	(Blank)	None
	8	Ø 8 mm	CS	Conductive Silicone[3]	See cup fittings for available threads.		-FD	PE Filter Disc
	10	Ø 10 mm	D	Duramax[4]			-FS	SS Filter Screen
	15	Ø 15 mm	N	Nitrile			See cup fittings for availability.	
	20	Ø 20 mm	S	Silicone				
			V	Viton				

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.
[2]All figures for shear load are 18"Hg. 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.
[3]Not available on XP-B15 or XP-B20.
[4]Not available on XP-B5, XP-B8, XP-B10, or XP-B15.



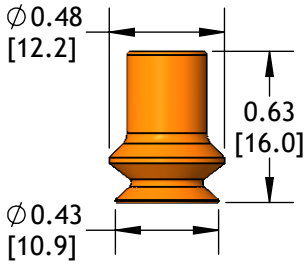
XP-B5

Cup Diameter: in [mm]	5 mm
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[2]: lb [n]	0.05 [0.2]



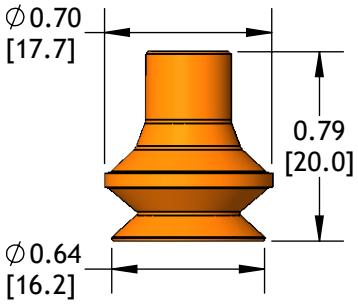
XP-B8

Cup Diameter: in [mm]	8 mm
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[2]: lb [n]	0.18 [0.8]



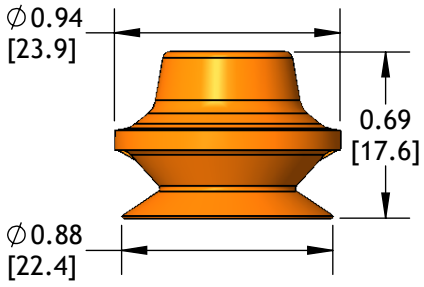
XP-B10

Cup Diameter: in [mm]	10 mm
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[2]: lb [n]	0.4 [1.7]



XP-B15

Cup Diameter: in [mm]	15 mm
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[2]: lb [n]	0.70 [3.1]



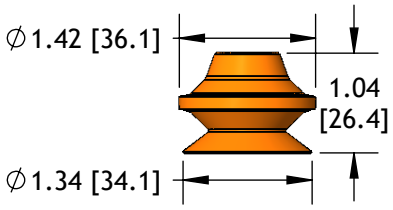
XP-B20

Cup Diameter: in [mm]	20 mm
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[2]: lb [n]	1.10 [4.8]

Bellows Vacuum Cups

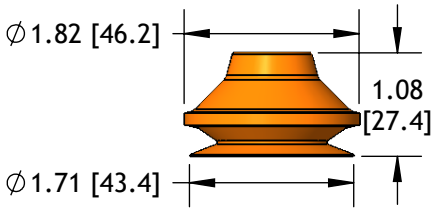
	Cup Size		Cup Material[1]		Cup Fitting		Filter Option	
XP-B	50		V		-38F		-FS	
	30	Ø 30 mm	A	Ameriflex	(Blank)	None	(Blank)	None
	40	Ø 40 mm	D	Duramax	See cup fittings for available threads.		-FD	PE Filter Disc
	50	Ø 50 mm	N	Nitrile			-FS	SS Filter Screen
	65	Ø 65 mm	S	Silicone[3]			See cup fittings for availability.	
			V	Viton[3]				

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.
[2]All figures for shear load are 18"Hg. 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.
[3]Not available on XP-B65.



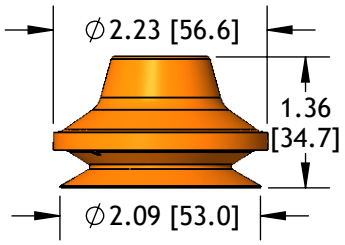
XP-B30

Cup Diameter: in [mm]	30 mm
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[2]: lb [n]	2.50 [11.1]



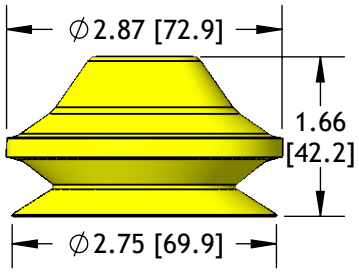
XP-B40

Cup Diameter: in [mm]	40 mm
Thru Hole: in [mm]	0.29 [7.4]
Stroke: in [mm]	0.59 [14.9]
Cup Weight: oz [g]	0.40 [11.3]
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[2]: lb [n]	4.40 [19.5]



XP-B50

Cup Diameter: in [mm]	50 mm
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.79 [20.0]
Cup Weight: oz [g]	0.75 [21.3]
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[2]: lb [n]	7.30 [32.4]



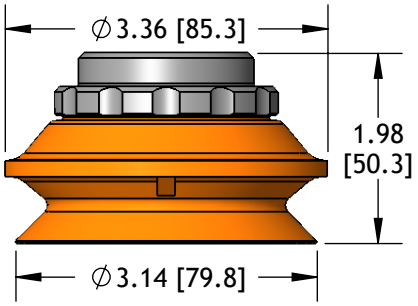
XP-B65

Cup Diameter: in [mm]	65 mm
Thru Hole: in [mm]	0.50 [12.7]
Stroke: in [mm]	0.90 [22.9]
Cup Weight: oz [g]	1.29 [36.5]
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[2]: lb [n]	13.1 [58.3]

Bellows Vacuum Cups

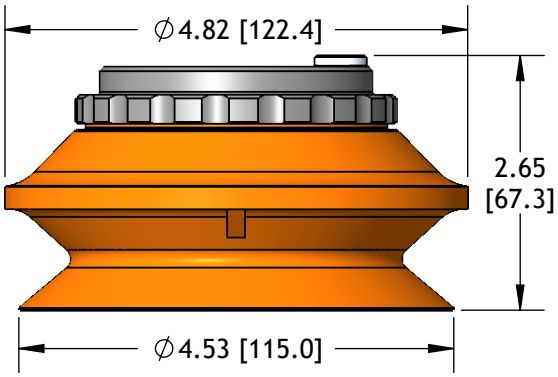
	Cup Size		Cup Material	Cup Fitting	
XP-B	75		S	-12F	
	75	Ø 75 mm	N	Nitrile	(Blank) None
	110	Ø 110 mm	S	Silicone	See cup fittings for available threads.
	150	Ø 150 mm	V	Viton	

[2]All figures for shear load are 18"Hg. 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.



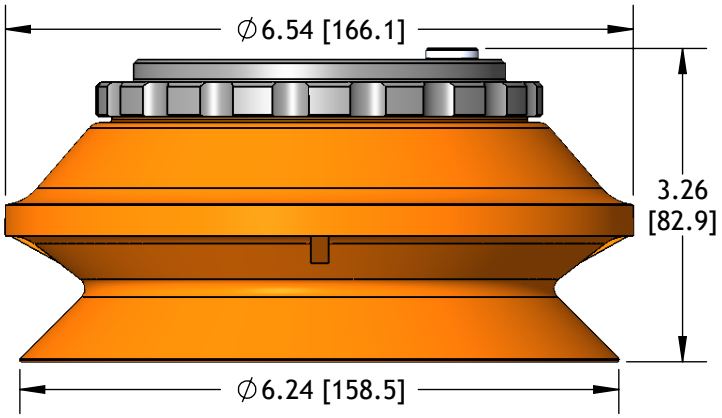
XP-B75

Cup Diameter: in [mm]	75 mm
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[2]: lb [n]	19.00 [84.5]



XP-B110

Cup Diameter: in [mm]	110 mm
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[2]: lb [n]	39.00 [173.5]



XP-B150

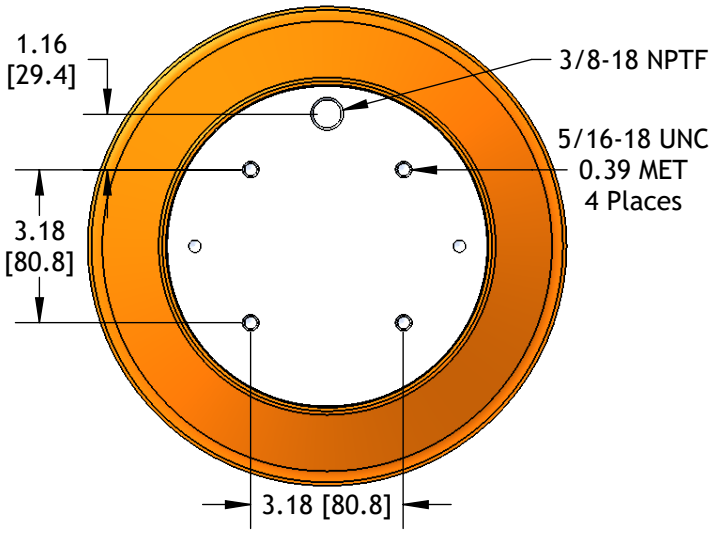
Cup Diameter: in [mm]	150 mm
Stroke: in [mm]	1.75 [44.4]
Cup Weight: oz [g]	13.00 [369.0]
Internal Volume: cu in [cc]	40.00 [656.0]
Force @ 6 inHG: lb [n]	66.00 [294.0]
Force @ 18 inHG: lb [n]	154.00 [685.0]
Minimum Radius: in [mm]	3.00 [76.2]
Shear Load[2]: lb [n]	77.00 [342.0]

Bellows Vacuum Cups

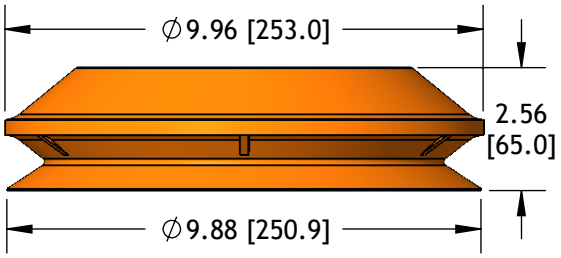
	Cup Material		Mount
XP-B250	N	-	AQ

N	Nitrile	AQ	Quad Mount, Side Port
S	Silicone	P	Quad Mount, Centered Port

[2]All figures for shear load are 18"Hg. 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.

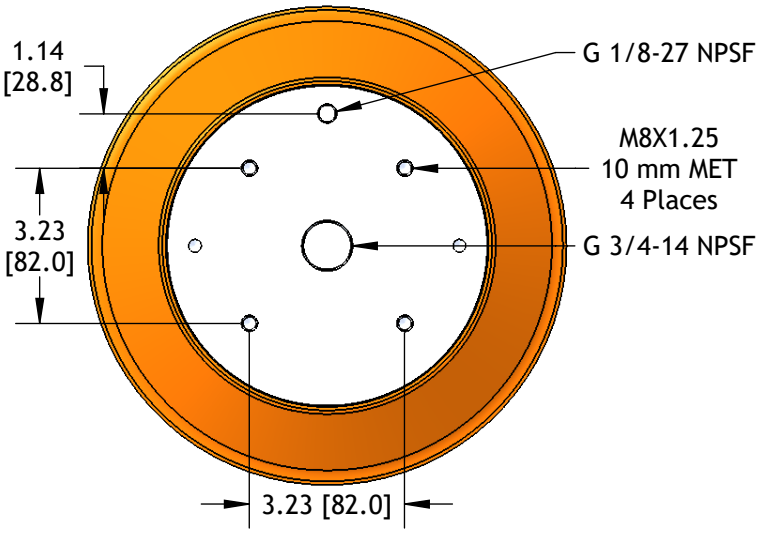


AQ Mount

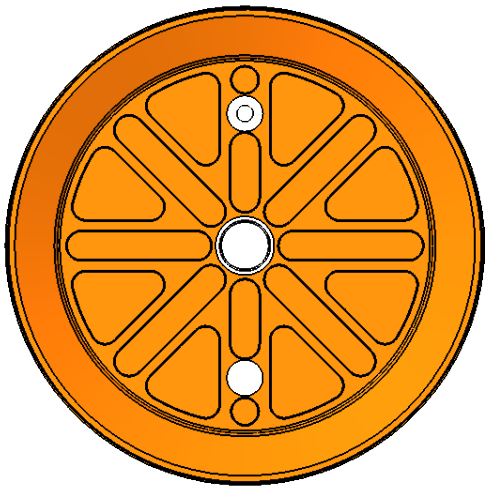


XP-B250

Cup Diameter: in [mm]	250 mm
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[2]: lb [n]	225.00 [1001.0]



P Mount

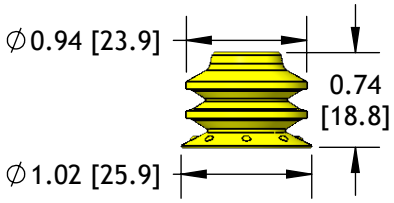


Bottom View

UPDATED 02/25/19

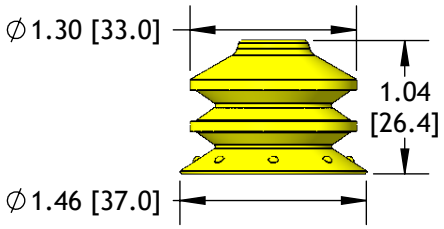
Double Bellows Vacuum Cups

	Cup Size		Cup Material		Cup Fitting		Filter	
XP-2B	65		D		-18MS			
	25	Ø 25 mm	A	Ameriflex	(Blank)	None	(Blank)	None
	35	Ø 35 mm	D	Duramax	See cup fittings for available threads.		-FD	PE Filter Disc
	50	Ø 50 mm	N	Nitrile			-FS	SS Filter Screen
	65	Ø 65 mm					See cup fittings for availability.	



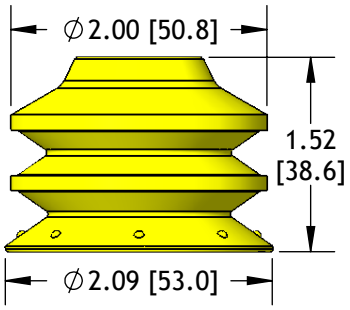
XP-2B25

Cup Diameter: in [mm]	25 mm
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]



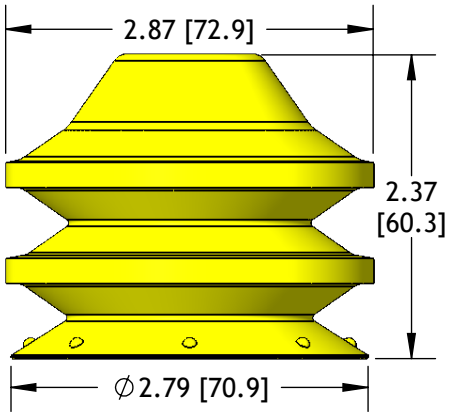
XP-2B35

Cup Diameter: in [mm]	35 mm
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
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]

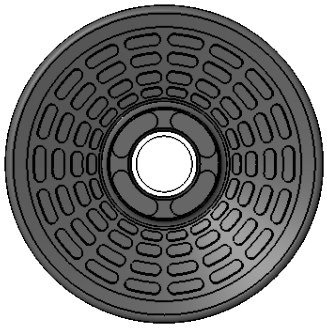


XP-2B65

Cup Diameter: in [mm]	65 mm
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]

Bellows Flat Vacuum Cups

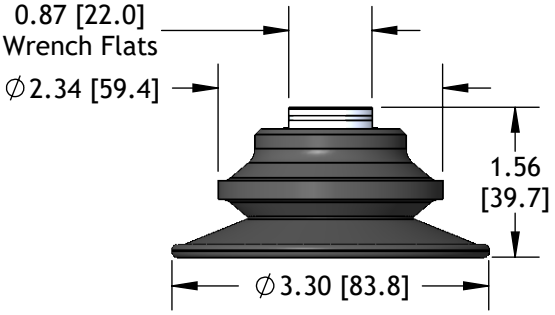
The Bellows Flat style vacuum cups combine the versatility of a Bellows cup with a large anti-skid tread pattern to provide maximum holding power and high resistance to shear loads even when lubrication is present. BF Cups are ideal for feeding sheet metal blanks to stamping presses or other robotic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



Bottom View

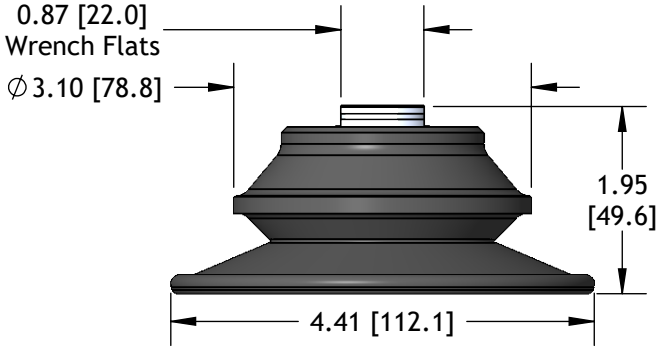
[2]All figures for shear load are 18"Hg. using a 0.5 coefficient of friction. Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.

	Cup Size		Cup Material		Fitting	
XP-BF	80		N		-38F	
	80	Ø 80 mm	N	Nitrile	-38F	3/8-18 NPSF Female
	100	Ø 100 mm				



XP-BF80

Cup Diameter: in [mm]	80 mm
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[2]: lb [n]	45.00 [200.0]



XP-BF100

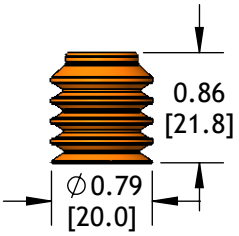
Cup Diameter: in [mm]	100 mm
Stroke: in [mm]	0.95 [24.1]
Cup Weight: oz [g]	2.40 [68.0]
Internal Volume: cu in [cc]	4.90 [80.3]
Force @ 6 inHG: lb [n]	28.00 [125.0]
Force @ 18 inHG: lb [n]	78.00 [347.0]
Minimum Radius: in [mm]	3.60 [91.5]
Shear Load[2]: lb [n]	53.00 [236.0]

UPDATED 02/25/19

Multi-Bellows Vacuum Cups

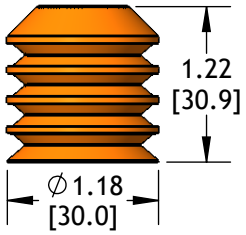
	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-BL	30		A		-G14F		-FS	
	20	Ø 20 mm	A	Ameriflex	(Blank)	None	(Blank)	None
	30	Ø 30 mm	D	Duramax	See cup fittings for available threads.		-FD	PE Filter Disc
	40	Ø 40 mm	N	Nitrile			-FS	SS Filter Screen
	50	Ø 50 mm	S	Silicone			See cup fittings for availability.	

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.



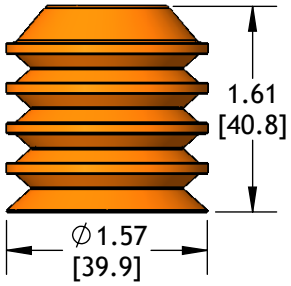
XP-BL20

Cup Diameter: in [mm]	20 mm
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]



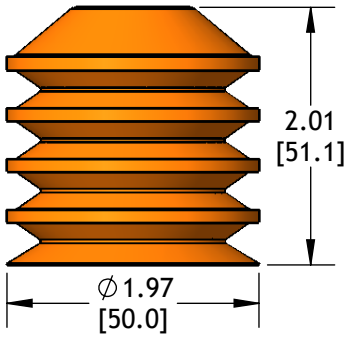
XP-BL30

Cup Diameter: in [mm]	30 mm
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
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]

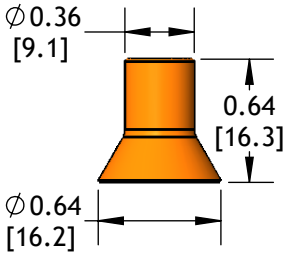


XP-BL50

Cup Diameter: in [mm]	50 mm
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]

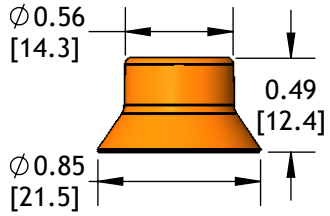
Deep Vacuum Cups

	Cup Size		Cup Material		Cup Fitting		Filter	
XP-D	15		S		-5F			
	15	Ø 15 mm	N	Nitrile	(Blank)	None	(Blank)	None
	20	Ø 20 mm	S	Silicone	See cup fittings for available threads.		-FD	PE Filter Disc
	30	Ø 30 mm					-FS	SS Filter Screen
	40	Ø 40 mm					See cup fittings for availability.	
	50	Ø 50 mm						



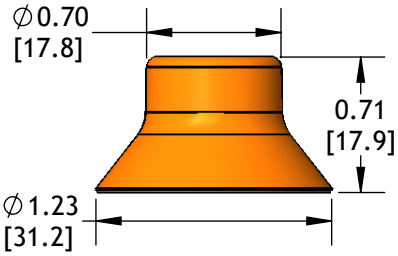
XP-D15

Cup Diameter: in [mm]	15 mm
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]



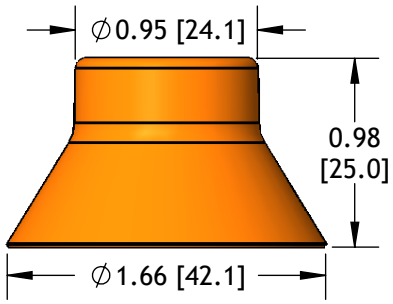
XP-D20

Cup Diameter: in [mm]	20 mm
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]



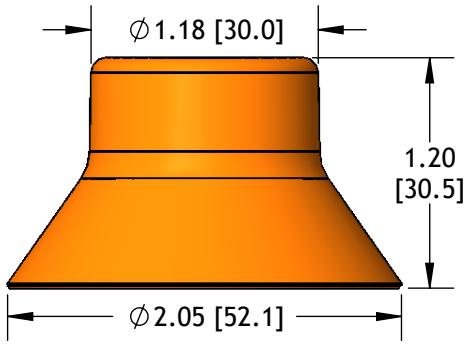
XP-D30

Cup Diameter: in [mm]	30 mm
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
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]



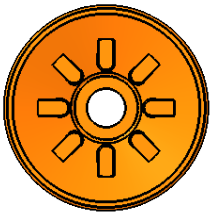
XP-D50

Cup Diameter: in [mm]	50 mm
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]

UPDATED 02/25/19

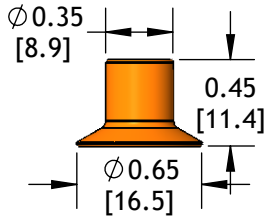
Flat Vacuum Cups

	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-F	20		A		-14M		-FS	
	15	Ø 15 mm	A	Ameriflex[3]	(Blank)	None	(Blank)	None
	20	Ø 20 mm	D	Duramax[3]	See cup fittings for available threads.		-FD	PE Filter Disc
	25	Ø 25 mm	N	Nitrile			-FS	SS Filter Screen
	30	Ø 30 mm	S	Silicone			See cup fittings for availability.	
			V	Viton				



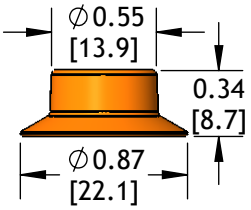
Bottom View
All Flat Cups have cleats.

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.
[2]All figures for shear load are 18"Hg. 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.
[3]Not available on XP-F15.



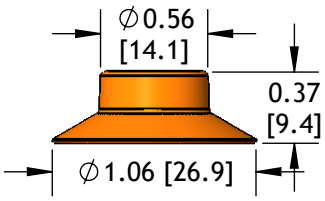
XP-F15

Cup Diameter: in [mm]	15 mm
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[2]: lb [n]	0.90 [4.0]



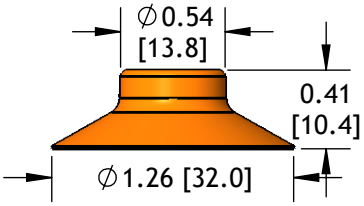
XP-F20

Cup Diameter: in [mm]	20 mm
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[2]: lb [n]	1.70 [7.6]



XP-F25

Cup Diameter: in [mm]	25 mm
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[2]: lb [n]	2.10 [9.3]



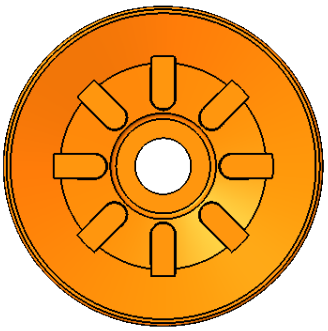
XP-F30

Cup Diameter: in [mm]	30 mm
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[2]: lb [n]	2.80 [12.5]

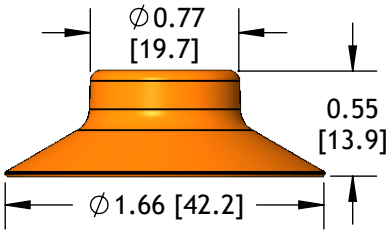
Flat Vacuum Cups

	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-F	50		D		-38M		-FS	
	40	Ø 40 mm	A	Ameriflex	(Blank)	None	(Blank)	None
	50	Ø 50 mm	D	Duramax	See cup fittings for available threads.		-FD	PE Filter Disc
	65	Ø 65 mm	N	Nitrile			-FS	SS Filter Screen
			S	Silicone[3]			See cup fittings for availability.	
			V	Viton[3]				

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.
[2]All figures for shear load are 18"Hg. 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.
[3]Not available on XP-F65.

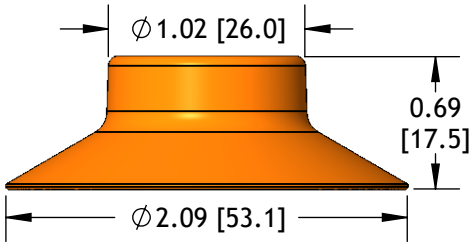


Bottom View
All Flat Cups have cleats.



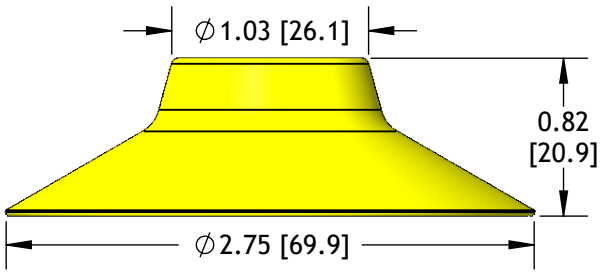
XP-F40

Cup Diameter: in [mm]	40 mm
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[2]: lb [n]	4.50 [20.0]



XP-F50

Cup Diameter: in [mm]	50 mm
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[2]: lb [n]	8.30 [36.9]



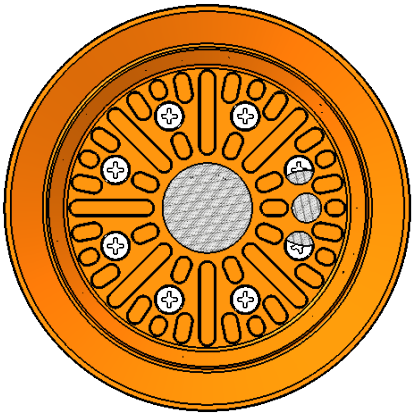
XP-F65

Cup Diameter: in [mm]	65 mm
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[2]: lb [n]	11.00 [49.0]

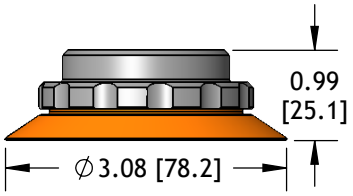
Flat Vacuum Cups

	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	See cup fittings for available threads.	
	150	Ø 150 mm	S	Silicone		
			V	Viton		

[2]All figures for shear load are 18"Hg. 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.

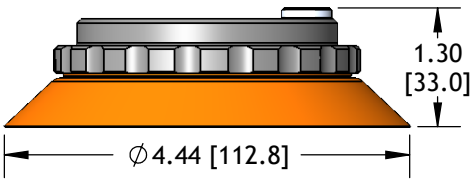


Bottom View
All Flat Cups have cleats.



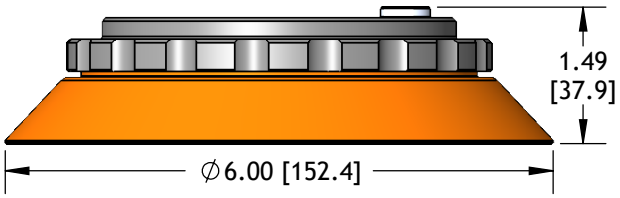
XP-F75

Cup Diameter: in [mm]	75 mm
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[2]: lb [n]	23.00 [102.0]



XP-F110

Cup Diameter: in [mm]	110 mm
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[2]: lb [n]	47.00 [209.0]



XP-F150

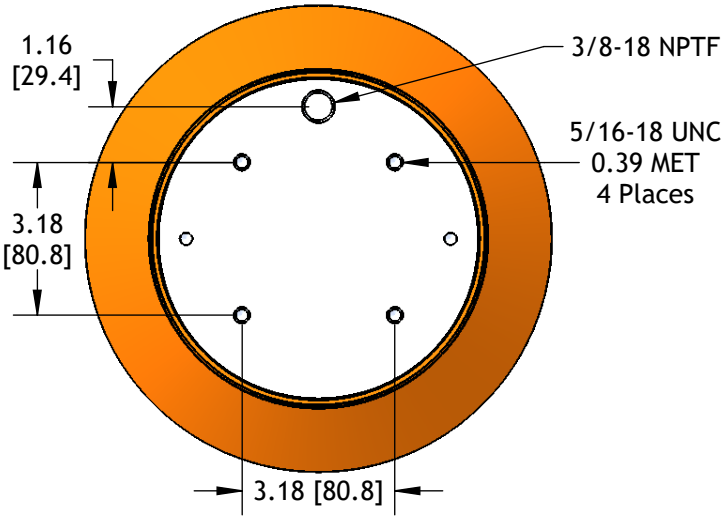
Cup Diameter: in [mm]	150 mm
Stroke: in [mm]	0.33 [8.4]
Cup Weight: oz [g]	7.30 [207.0]
Internal Volume: cu in [cc]	9.80 [161.0]
Force @ 6 inHG: lb [n]	67.00 [298.0]
Force @ 18 inHG: lb [n]	191.00 [850.0]
Minimum Radius: in [mm]	19.70 [500.0]
Shear Load[2]: lb [n]	95.00 [422.0]

Flat Vacuum Cups

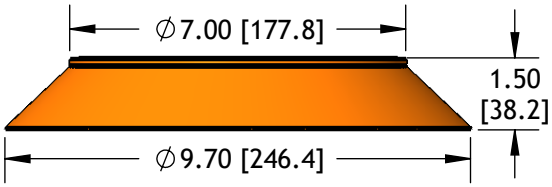
	Cup Material		Mount
XP-F240	S	-	P

NP	Neoprene	AQ	Quad Mount, Side Port
S	Silicone	P	Quad Mount, Centered Port

[2]All figures for shear load are 18"Hg. 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.

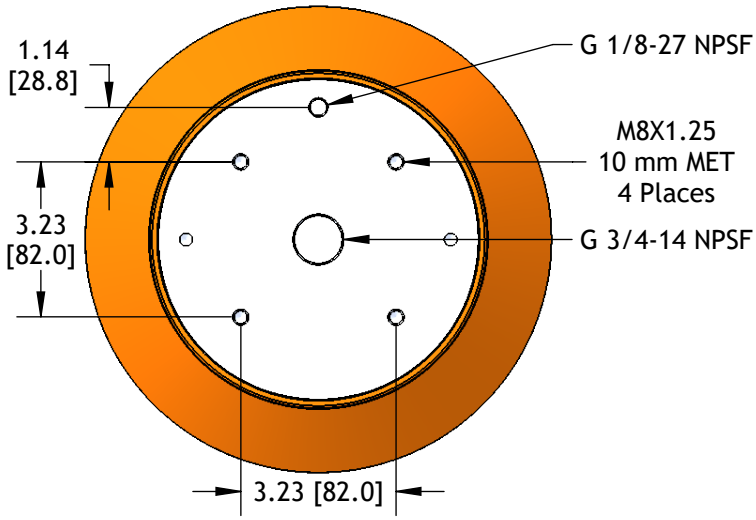


AQ Mount

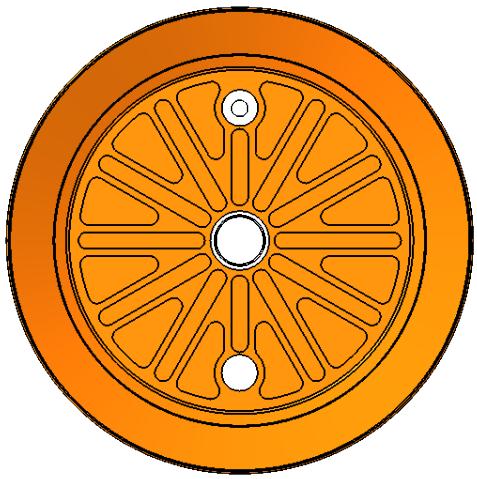


XP-F240

Cup Diameter: in [mm]	240 mm
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[2]: lb [n]	225.00 [1001.0]



P Mount

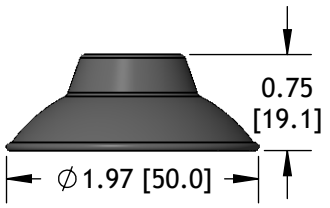


Bottom View
All Flat Cups have cleats.

Flat-Concave Vacuum Cups

	Cup Material		Cup Fitting		Filter	
XP-FC50	A		-14F		-FD	
	A	Ameriflex	(Blank)	None	(Blank)	None
	N	Nitrile	See cup fittings for available threads.		-FD	PE Filter Disc
					-FS	SS Filter Screen
					See cup fittings for availability.	

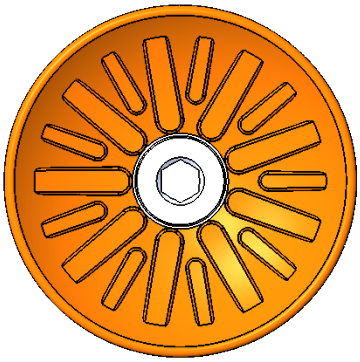
[2]All figures for shear load are 18"Hg. using a 0.5 coefficient of friction. Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.



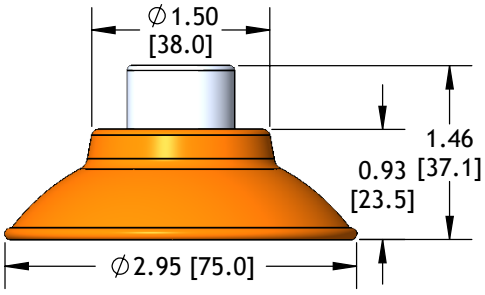
Cup Diameter: in [mm]	50 mm
Thru Hole: in [mm]	0.36 [9.1]
Stroke: in [mm]	0.25 [6.4]
Cup Weight: oz [g]	0.30 [7.9]
Internal Volume: cu in [cc]	0.70 [11.5]
Force @ 6 inHG: lb [n]	7.80 [34.7]
Force @ 18 inHG: lb [n]	19.00 [84.5]
Minimum Radius: in [mm]	2.09 [53.1]
Shear Load[2]: lb [n]	10.00 [44.5]

	Cup Material			Fitting	
XP-FC75	S		-	38F	
	N	Nitrile		38F	3/8-18 NPSF Female
	S	Silicone		G38M	G 3/8-19 Male

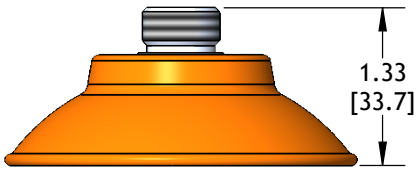
[2]All figures for shear load are 18"Hg. using a 0.5 coefficient of friction. Adjust coefficient of friction to suit your conditions, then apply a generous factor of safety (3:1 or greater) to shear loads.



Bottom View
Concave cleats on bottom.
8 mm Hex Socket



XP-FC75-38F



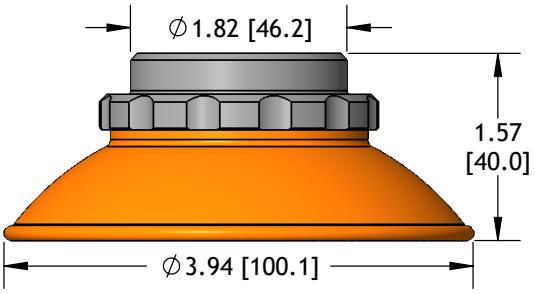
XP-FC75-G38M

Cup Diameter: in [mm]	75 mm
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[2]: lb [n]	45.00 [200.0]

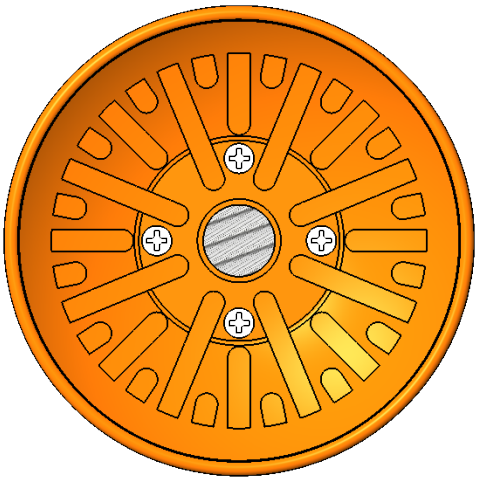
Flat-Concave Vacuum Cups

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

[2]All figures for shear load are 18”Hg. 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.



Cup Diameter: in [mm]	100 mm
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[2]: lb [n]	53.00 [236.0]

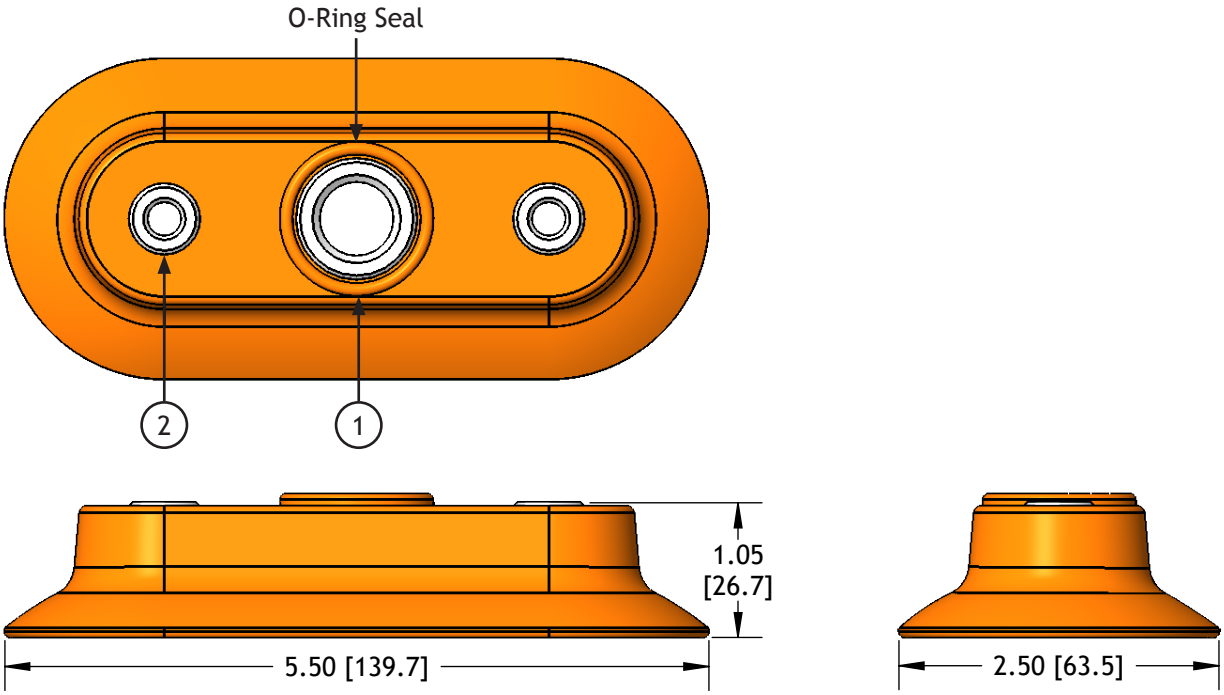


Bottom View
Concave cleats on bottom.

Oval Vacuum Cups

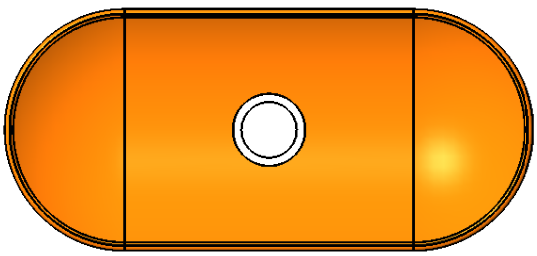
Cup Style			Cup Material		Threads	
OC		-60X140-	S		-G	
OC	Concave		N	Nitrile	(Blank)	NPTF Threads
OF	Flat		S	Silicone	-G	G Threads

[2]All figures for shear load are 18"Hg. 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.

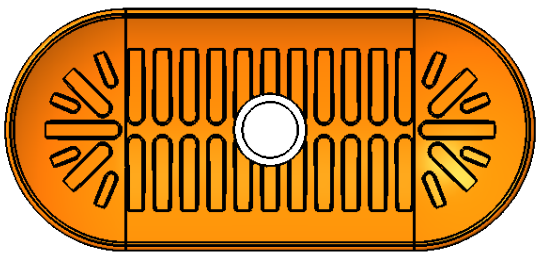


	OC	OF
Cup Dimensions: in [mm]	60 mm X 140 mm	
Stroke: in [mm]	0.29 [7.4]	0.18 [4.6]
Cup Weight: oz [g]	4.10 [116.0]	4.20 [119.0]
Internal Volume: cu in [cc]	3.20 [52.4]	3.00 [49.2]
Force @ 6 inHG: lb [n]	29.00 [129.0]	
Force @ 18 inHG: lb [n]	83.00 [369.0]	
Minimum Radius: in [mm]	1.50 [38.1]	3.00 [76.2]
Shear Load[2]: lb [n]	41.00 [182.0]	

Code	Function	NPTF	G
1	Vacuum Port	3/8-18 NPTF	G 3/8-19
2	Mounting Holes	5/16-18 UNC	M8X1.25



OC-60X140

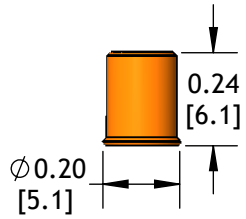


OF-60X140

Universal Vacuum Cups

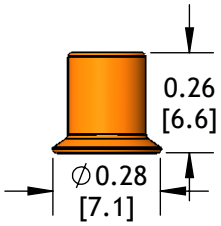
	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-U	8		S		-10M			
	4	Ø 4 mm	N	Nitrile	(Blank)	None	(Blank)	None
	6	Ø 6 mm	S	Silicone	See cup fittings for available threads.		-FD	PE Filter Disc
	8	Ø 8 mm	V	Viton[2]			-FS	SS Filter Screen
	10	Ø 10 mm					See cup fittings for availability.	
	15	Ø 15 mm						

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.
[2]Not available for XP-U15.



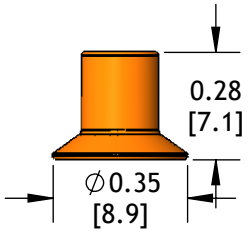
XP-U4

Cup Diameter: in [mm]	4 mm
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]



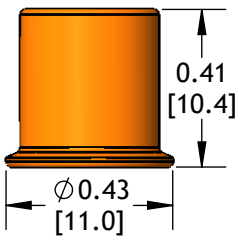
XP-U6

Cup Diameter: in [mm]	6 mm
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]



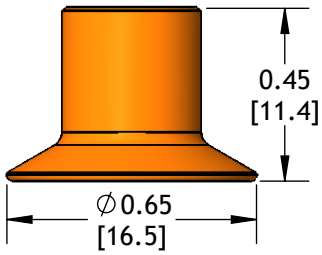
XP-U8

Cup Diameter: in [mm]	8 mm
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
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]



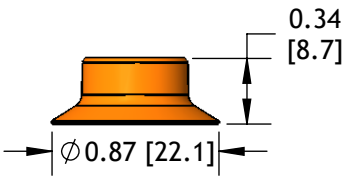
XP-U15

Cup Diameter: in [mm]	15 mm
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

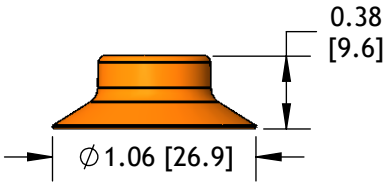
	Cup Size		Cup Material[1]		Cup Fitting		Filter	
XP-U	25		N		-14M		-FS	
	20	Ø 20 mm	N	Nitrile	(Blank)	None	(Blank)	None
	25	Ø 25 mm	S	Silicone	See cup fittings for available threads.		-FD	PE Filter Disc
	30	Ø 30 mm					-FS	SS Filter Screen
	40	Ø 40 mm					See cup fittings for availability.	
	50	Ø 50 mm						

[1]All cups are available in Nitrile and Silicone. Check availability for other materials before ordering.



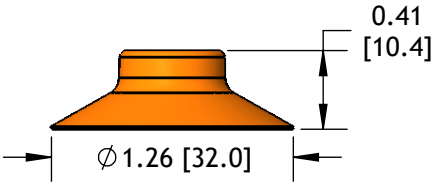
XP-U20

Cup Diameter: in [mm]	20 mm
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]



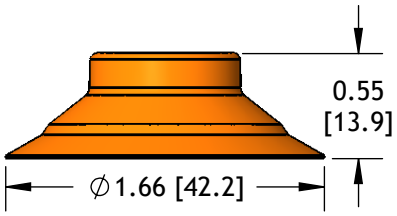
XP-U25

Cup Diameter: in [mm]	25 mm
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]



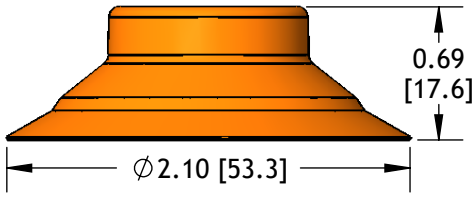
XP-U30

Cup Diameter: in [mm]	30 mm
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
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]



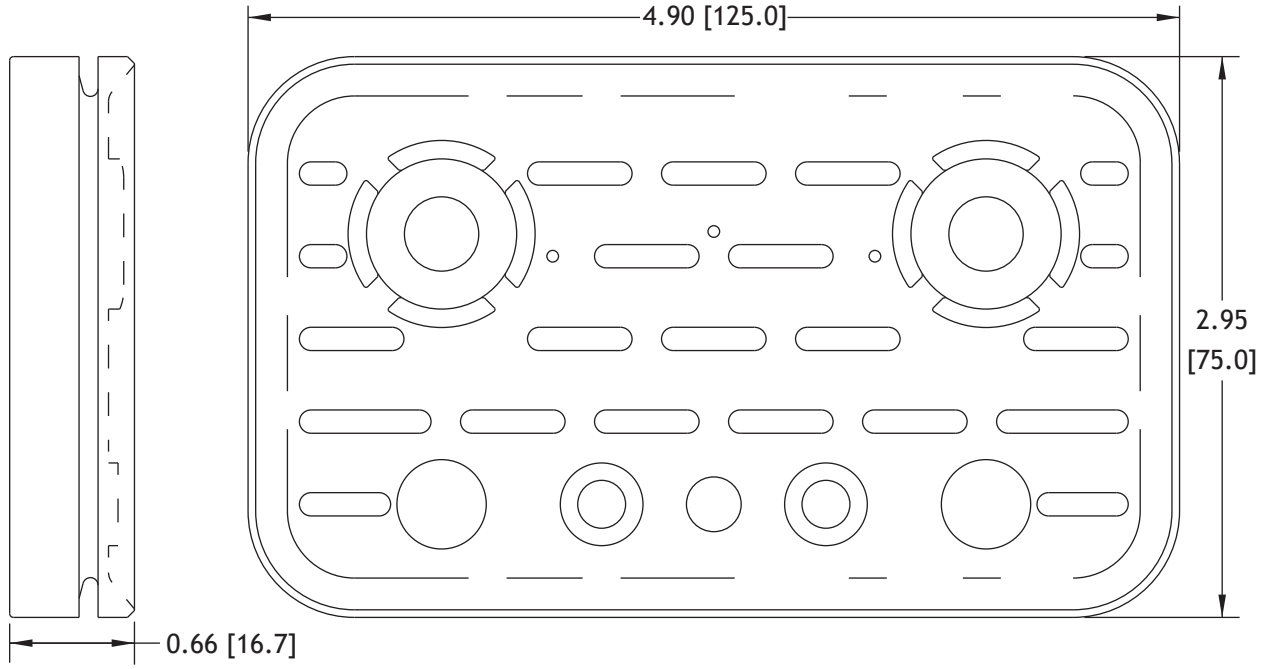
XP-U50

Cup Diameter: in [mm]	50 mm
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]

Specialty Vacuum Cups

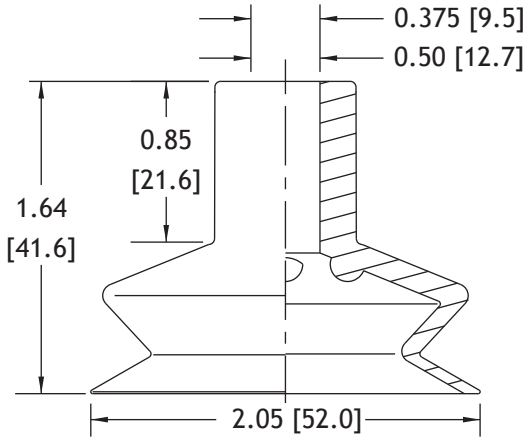
11-0079N

Nitrile Wood Working Clamp Pad
Replaces # 4-011-11-0079



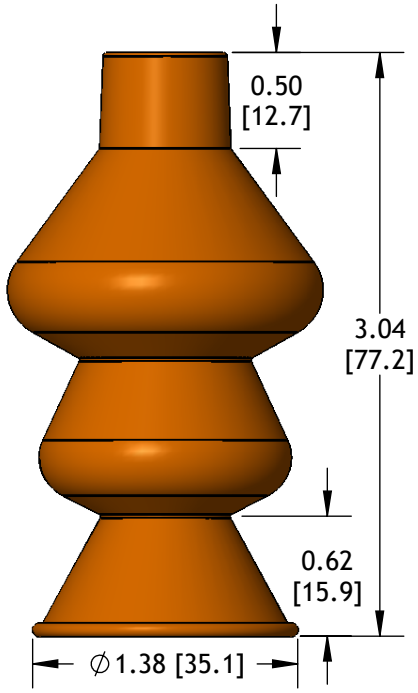
V32-38B

Blue PVC Bellows Cup, 3/8 Stem
Replaces VC-32

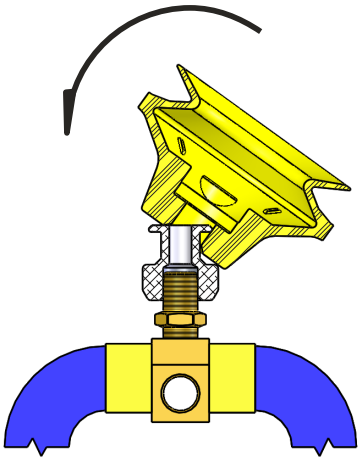


EC34S-30R

Egg Cup



Vacuum Cup Fitting 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

Code	Elastomer	Wear Resistance	Working Temperature[2]	Weight Ratio[3]	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	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[1])	Excellent	40° to 450° F 4° to 230°C	1.78	Gray	60

Elastomer Selection

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

Duramax (D)[4]
Softer, non-staining, non-marking, general-purpose material for high visibility surfaces at normal ambient temperatures.

Nitrile (N)
For general-purpose, normal ambient temperature applications.

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)[1]
For extremely high-temperature applications in automotive, appliance, or other applications where silicone is not allowed.

[1]Viton is a registered trademark of DuPont Dow.
[2]Continous service temperature. Intermittent service may possibly be higher. Determine via testing under actual conditions.
[3]Weight of Nitrile cup without fitting is tabulated. Use the ratio multiplier for other materials.
[4]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 denatured alcohol to wipe cups clean after installation and periodically afterward to remove airborne contaminants.

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