



Wide range of shapes and sizes



Materials to suit most applications

Vacuum Cups

IMI Norgren offers a wide range of vacuum cup styles, materials, sizes and capabilities. Fittings in multiple styles are available individually or as a cup assembly for each cup group.

Engineering GREAT Solutions



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VACUUM CUPS

- Wide range of sizes – 0.09” to 2.75” in diameter
- Flat and bellows cups available to provide flexibility
- Round and oval cups
- Non-contact vacuum pads
- Variety of materials available
 - Dual durometer for long wear and excellent sealing
 - FDA-approved material
 - Metal detectable avoids contamination in food processing



● Vacuum Cup Material Specifications

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

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

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

Vacuum Cup Terms and Definitions:

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

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

Facts to Remember:

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

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

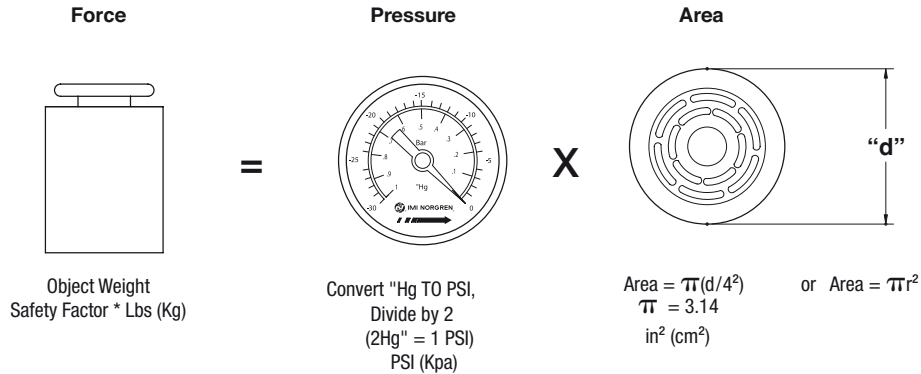
● Vacuum Cup Selection Guide

As is true in most vacuum applications, there is more than one correct answer. In order to successfully find the best cup(s) and pumps for a specific task, it is helpful to review the guidelines below.

Vacuum Cup Sizing

Choose the cup size, quantity, material and style based on the size of the object being handled, its weight, orientation, surface temperature, conditions and space available to mount the cups.

I. Determine the cup size by using the "Vacuum Cup Holding Force Calculation:"



Force = Pressure x Area

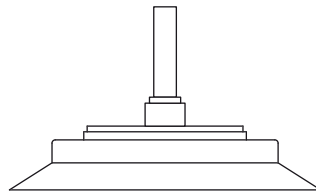
F = the weight of the objects in lbs(kg) multiplied by the safety factor, see below.

P = the expected vacuum level in PSI (Kpa) (2Hg" = 1 PSI)

A = the area of the Vacuum cup measured by in² [cm²]

Safety Factors:

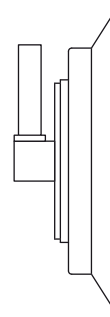
Always include safety factors when calculating lifting capabilities.



Safety Factor=2

Horizontal Lift = 2

Safety factor of 2 is recommended when cup face is in horizontal position.



Safety Factor=4

Vertical Lift = 4

Safety factor of 4 is recommended when cup face is in a vertical position.

● Vacuum Cup Selection Guide

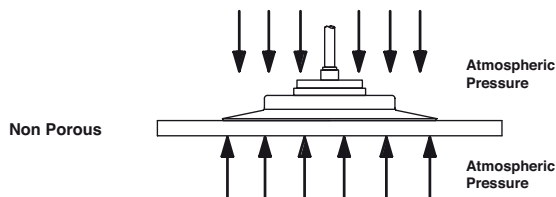
II. Determine Type of Material to be handled: Non-Porous, Porous, Flexible/Non-Porous

Materials being handled in pick & place applications can be grouped into three categories – non-porous, porous and flexible. It is important to determine what type of material you are working with in order to determine the cup type, and the fitting choices. IMI Norgren offers a variety of cup styles – including bellows, multi-bellows, round, oval, flat (with and without cleats), cups with removable fittings and cups with permanent fittings.

Non-Porous Materials: steel, glass, laminated chipboard, rigid plastic, semiconductors, etc.

Handling non-porous materials is the easiest application for choosing a Vacuum cup and vacuum pump because there is no vacuum flow (leakage). The cup seals to the surface of the object enabling the pump to reach its maximum vacuum level.

Typically, flat cleated cups are used for non-porous applications because the rigid, low profile design resists peeling away. In horizontal applications, where there is a large array of cups, bellows cups may be an option as they offer the pliability needed to ensure that all cups make contact with the object(s) being handled.



Example: Holding Force Calculation for Non-Porous Materials

Application: lift a 100 lb [45.36 kg] steel plate, 1/8" [3mm] thick, measuring 4' x 4' [121.9cm X 121.9cm] from a horizontal stack and place into a press. IMI Norgren recommends an "H" series pump when handling non-porous materials. All "H" series pumps generate 14 PSI [28"Hg, 0.965 bar].

$$F = P * A$$

Force = 200 lbs [90.72 kg] (weight x safety factor/horizontal lift or 100 lbs [45.36 kg] x 2)

Pressure = 14 PSI [.965 bar] (convert 28"Hg to PSI by dividing by 2)

If F (200 lbs [90.72 kg]) = P (14 PSI [.965 bar]) * A (Solve for A)

$A = 200/14$ [90.72/.965] which is 14.3 in² [94.01 cm²] – " A " represents the total area of the cup or all the cups combined to lift this load horizontally

Determine the Number of Cups Needed to Determine the Diameter of each Cup

Whereas the metal is only 1/8" [3mm] thick, it will tend to droop. IMI Norgren recommends using 2 rows of 3 cups each for a total of 6 cups.

Therefore, 14.3 in² [94.01 cm²] divided by 6 cups = 2.38 in² [15.67 cm²] is the area per cup

Solve for the diameter (d) using the equation: $A = \pi * [d^2 / 4]$ or pr^2

$$d^2 = 4 * 2.38 / \pi \text{ or } d^2 = 3.03 \text{ in}^2$$

$$d = \text{sq. root of } 3.03 \text{ or } 1.74 \text{ in}$$

$$[A = \pi * [d^2 / 4] \text{ or } pr^2]$$

$$[d^2 = 4 * 15.67 / \pi \text{ or } d^2 = 19.96 \text{ cm}^2]$$

$$[d = \text{sq. root of } 19.96 \text{ or } 44.7\text{mm}]$$

Solution: Choose a flat cup with cleats with a diameter of 1.75" [44.45mm] or greater. With plenty of space on the steel plate to position cups, choosing a larger cup will add to the holding force and take into account any acceleration or deceleration loads during transfer.

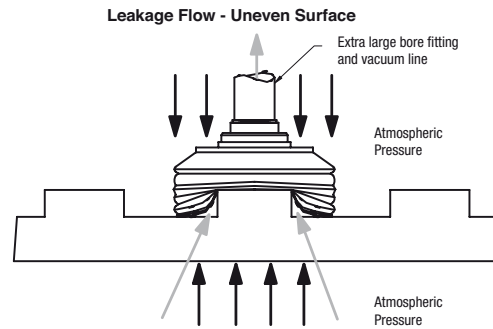
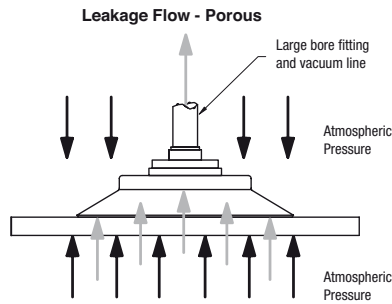
● Vacuum Cup Selection Guide

Porous Materials: corrugated, woven materials, or objects with extremely rough or uneven surfaces

When handling porous materials, it is important that the flow path between the object and the vacuum pump is as large as necessary to allow the pump to draw away the air that leaks through the surface or from gaps between the cup and the surface. Pay close attention to the bore size of the fitting in the cup, as well as the size of the vacuum lines. To confirm vacuum lines are sized properly, see the Operating and Installation Instructions section for each pump.

When calculating the holding force for porous materials, the vacuum level that will be achieved is not normally known because the leak rate of the material is unknown. To move forward and determine the diameter of the Vacuum cups, assume that system will reach a vacuum level of 8 PSI [16"Hg, 0.542 bar].

IMI Norgren recommends the "M" series vacuum pumps to maximize flow and minimize compressed air usage when handling porous materials. To ensure that the vacuum level of 8 PSI [16"Hg, .542 bar] is achieved, contact IMI Norgren Tech Support for a pump recommendation.



Example: Holding Force Calculation for Porous Materials or Uneven Surfaces

Application: lift a 100 lb [45.36 kg] corrugated box with vacuum cups in the horizontal plane. Remember the safety factor and the equation **F = P * A**.

200 lbs [90.72 kg] = 8 PSI [.542 bar] x **A** - Solve for **A** - the total vacuum cup(s) area.

A = 200 [90.72]/8 [.542 bar] = 25 in² [164.35 cm²] of combined cup area. Assume the number of cups used will be 4.

Determine the Number of Cups Needed to Determine the Diameter of each Cup

Divide the total area by the number of cups (25/4)[164.35/4] - area of each cup is 6.25 in² [41.09 cm²].

Solve for the diameter (d²) using the equation: **A** = π * d²/4, 6.25 = 3.14 (d²)/4 [**A** = π * d²/4, 41.09 = 3.14 (d²/4)]
d = square root of (6.25 * 4/3.14) = 2.82 [**d** = square root of (41.09 * 4/3.14) = 72.3 mm]

Solution: Choose a flat cup with cleats or bellows cups with a diameter of 3" [76.2mm] or greater. (Dimensions have been rounded up.) In this situation, IMI Norgren recommends a NVP80-250M vacuum pump.

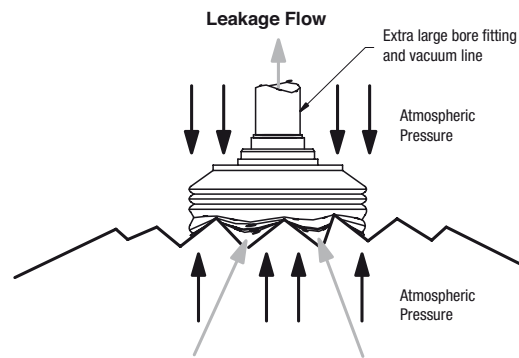
● Vacuum Cup Selection Guide

Flexible Materials: plastic films, baked goods, IV bags, paper bags – things that wrinkle

When handling flexible packaging materials, it is critical that the cup fitting and the vacuum line have a very large bore. Flexible materials wrinkle, causing large leak paths. The cup and the vacuum pump must be sized to accommodate that leak rate. The bore of the fitting must be close to a 1:2 ratio to the diameter of the cup.

Typically, handling flexible materials does not involve heavy weights. Calculating cup holding force is not required. Choose a cup with a very thin flexible lip to ensure the cup conforms to the wrinkled material. Multi-bellows cups work well in these applications because of their flexibility.

The interaction between the Vacuum cup and the flexible material is critical. Because the leakage flow rates are so high, it is necessary to use our NCFD Series of high flow (air amplifier) vacuum pumps. With so many variables affecting performance, IMI Norgren strongly suggests that a sample of the material be sent to our in-house test facility for a pump and cup recommendation.



VACUUM BELLOWS CUPS

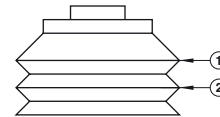
- Bellows cups conform to curved or uneven surfaces and the bellows sections compensate for inconsistent stack heights.










● Single Bellows Cups: 1 Convolution

Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism.

This bellows has a total of 2 convolutions

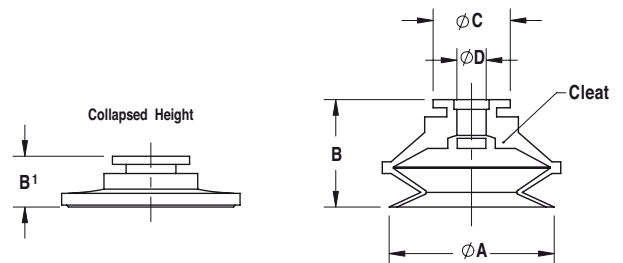


Part Number	Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVC-B5	 1	0.18 (4.60)	0.03 (20)	0.50 (12.7)	0.45 (11.4)	0.12 (3.00)	0.06 (1.50)	No	V	ORV, GS or P	0 (0)	1
NVCC-B-020-*	 1	0.20 (5.10)	0.03 (20)	0.45 (11.4)	0.35 (8.90)	0.28 (7.10)	0.16 (4.10)	No	N or S	-	0 (0)	2
NVC-B6	 1	0.25 (6.40)	0.05 (31)	0.45 (11.4)	0.39 (9.9)	0.14 (3.60)	0.06 (1.50)	No	V	ORV, GS or P	0 (0)	1
NVC-B10-5	 1	0.41 (10.4)	0.13 (85)	0.65 (16.50)	0.48 (12.20)	0.31 (7.90)	0.16 (4.10)	No	V	ORV, GS or P	0.02 (0.60)	2
NVCC-B-043-*	 1	0.43 (10.90)	0.15 (94)	0.66 (16.80)	0.48 (12.2)	0.41 (10.40)	0.15 (3.80)	No	N or S	-	0.03 (0.90)	7
NVCR-B10P-*	 1	0.43 (10.90)	0.15 (94)	0.67 (17.00)	0.46 (11.7)	0.36 (9.10)	0.15 (3.80)	No	C or S	-	0.03 (0.90)	3
NVC-B3	 1	0.51 (13.00)	0.20 (132)	0.56 (14.20)	0.28 (7.10)	0.31 (7.90)	0.15 (3.80)	No	V	ORV, GS or P	0.02 (0.60)	2

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVCC-B-020-N (for Nitrile material). See Chart below for material specifications.

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. NF indicates no fitting is required. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

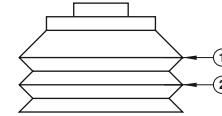
Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
ORV - Oil Resistant Vinyl	Black	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



● Single Bellows Cups: 1 Convolution

Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism.

This bellows has a total of 2 convolutions



Part Number		Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq.mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVCC-B-051-*		1	0.51 (13.00)	0.20 (132)	0.63 (16.00)	0.45 (11.40)	0.41 (10.40)	0.16 (4.10)	No	N or S	-	0.05 1	7
NVC-B15		1	0.61 (15.50)	0.29 (189)	0.81 (20.6)	0.57 (14.50)	0.36 (9.10)	0.14 (3.60)	No	V	ORV, GS or P	0.05 (1.00)	3
NVCC-B-063-*		1	0.63 (16.00)	0.31 (201)	0.75 (19.10)	0.48 (12.20)	0.41 (10.40)	0.19 (4.80)	Yes	N or S	-	0.05 (1.00)	7
NVCR-B15P-*		1	0.65 (16.50)	0.33 (214)	0.77 (19.60)	0.50 (12.70)	0.36 (9.10)	0.15 (3.80)	No	C or S	-	0.05 (1.00)	3
NVCC-B-075-*		1	0.72 (18.30)	0.41 (263)	0.61 (15.50)	0.40 (10.20)	0.41 (10.40)	0.16 (4.10)	Yes	N or S	-	0.07 (2.00)	7
NVC-B2		1	0.75 (19.10)	0.44 (285)	0.71 (18.00)	0.43 (10.90)	0.51 (13.00)	0.26 (6.60)	No	V	ORV, GS or P	0.07 (2.00)	NF
NVC-B20		1	0.80 (20.30)	0.50 (324)	0.78 (19.80)	0.63 (16.00)	0.38 (9.70)	0.16 (4.10)	No	V	ORV, GS or P	0.07 (2.00)	3
NVCR-B20P-*		1	0.85 (21.60)	0.57 (366)	0.79 (20.10)	0.38 (9.70)	0.56 (14.20)	0.22 (5.60)	Yes	C or S	-	0.10 (3.00)	4
NVC-B20P		1	0.87 (22.10)	0.59 (384)	0.73 (18.50)	0.40 (10.20)	0.57 (14.50)	0.19 (4.80)	Yes	V	ORV, GS or P	0.07 (2.00)	4
NVCC-B-087-*		1	0.87 (22.10)	0.59 (384)	0.75 (19.10)	0.45 (11.40)	0.39 (9.90)	0.19 (4.80)	Yes	N or S	-	0.07 (2.00)	7
NVCC-B-094-*		1	0.94 (23.90)	0.69 (448)	0.91 (23.10)	0.50 (12.70)	0.39 (9.90)	0.15 (3.80)	Yes	N or S	-	0.11 (3.00)	7
NVC-124		1	1.02 (25.90)	0.82 (527)	1.45 (36.80)	0.97 (24.60)	0.64 (16.30)	0.34 (8.60)	No	V	ORV, GS or P	0.18 (5.00)	NF

● Single Bellows Cups: 1 Convolution

Part Number	Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B ¹ - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group	
NVC-B1		1	1.20 (30.50)	1.13 (730)	1.23 (31.2)	0.84 (21.30)	0.54 (13.70)	- (-)	No	V	ORV, GS or P	0.42 (12)	1/8 NPTF
NVCR-B30P-*		1	1.31 (33.30)	1.35 (870)	1.02 (25.90)	0.60 (15.20)	0.75 (19.10)	0.22 (5.60)	No	C or S	-	0.28 (8)	5
NVC-B30P		1	1.32 (33.50)	1.37 (883)	1.00 (25.40)	0.58 (14.70)	0.56 (14.20)	0.19 (4.80)	Yes	V	ORV, GS or P	0.21 (6)	4
NVCC-B-130-*		1	1.32 (33.50)	1.37 (883)	1.08 (27.40)	0.65 (16.50)	0.71 (18.00)	0.31 (7.90)	Yes	N or S	-	0.25 (7)	8
NVCR-B40P-*		1	1.69 (42.90)	2.24 (1447)	1.10 (27.90)	0.64 (16.30)	0.79 (20.10)	0.30 (7.60)	Yes	C or S	-	0.42 (12)	5
NVC-B40P		1	1.69 (42.90)	2.24 (1447)	1.10 (27.90)	0.52 (13.20)	0.79 (19.10)	0.25 (7.10)	Yes	V	-	0.42 (12)	5
NVCC-B-169-*		1	1.69 (42.90)	2.24 (1447)	1.10 (27.90)	0.70 (17.80)	0.71 (18.00)	0.31 (7.90)	Yes	N or S	-	0.39 (11)	8
NVC-32C		1	2.00 (50.80)	3.14 (2027)	1.61 (40.90)	0.85 (21.60)	0.73 (18.50)	0.38 (9.70)	Yes	V	ORV, GS or P	0.67 (19)	NF
NVC-32C-1		1	2.00 (50.80)	3.14 (2027)	1.59 (40.40)	0.85 (21.60)	0.75 (19.10)	0.50 (12.70)	Yes	V	ORV, GS or P	0.53 (15)	NF
NVC-32C1-F		1	2.00 (50.80)	3.14 (2027)	1.50 (38.10)	0.85 (21.60)	1.00 (25.40)	- (-)	Yes	V	ORV, GS or P	1.13 (32)	1/4 NPTF
NVCC-B-209-*		1	2.07 (52.60)	3.37 (2171)	1.34 (34.00)	0.85 (21.60)	0.71 (18.00)	0.31 (7.90)	Yes	N or S	-	0.78 (22)	8
NVC-B50P		1	2.10 (53.30)	3.46 (2235)	1.38 (35.10)	0.75 (19.10)	1.04 (26.40)	0.41 (10.40)	Yes	V	ORV, GS or P	0.78 (22)	6
NVCR-B50P-*		1	2.10 (53.30)	3.46 (2235)	1.43 (36.30)	0.75 (19.10)	1.04 (26.40)	0.41 (10.40)	Yes	C or S	-	0.88 (25)	6
NVC-32B		1	2.78 (70.60)	6.07 (3916)	1.82 (46.20)	0.79 (20.10)	1.00 (25.40)	- (-)	Yes	V	ORV, GS or P	1.66 (47)	1/4 NPTF
NVCC-B-307-*		1	3.07 (78.00)	7.40 (4776)	1.80 (45.70)	1.25 (31.80)	0.98 (24.90)	0.47 (11.90)	Yes	N or S	-	2.15 (61)	9

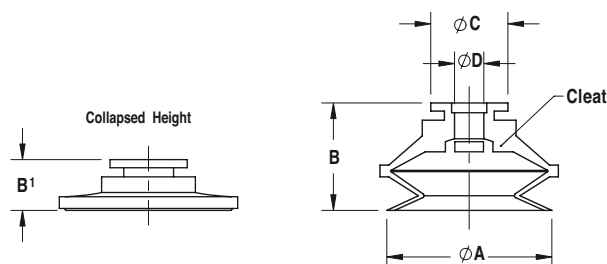
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I.E. NVCC-B-020-N (for Nitrile material). See Chart below for material specifications.

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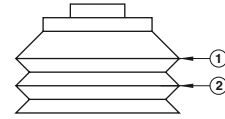
Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
ORV - Oil Resistant Vinyl	Black	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



● Multi-Bellows Cups: 2, 3, 4 Convolutions

Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism.

This bellows has a total of 2 convolutions



Part Number	Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group	
NVCC-B-021-*		2	0.21 (5.30)	0.03 (22)	0.53 (13.50)	0.47 (11.90)	0.27 (6.90)	0.16 (4.10)	No	N or S	-	0 (0)	3
NVCC-B-028-*		2	0.26 (6.60)	0.05 (34)	0.55 (14.00)	0.42 (10.70)	0.37 (9.40)	0.19 (4.80)	No	N or S	-	0 (0)	7
NVCC-B-035-*		2	0.35 (8.90)	0.10 (62)	0.59 (15.00)	0.46 (11.70)	0.36 (9.10)	0.19 (4.80)	No	N or S	-	0 (0)	7
NVC-B10-2		2	0.38 (9.70)	0.11 (73)	0.75 (19.10)	0.48 (12.20)	0.19 (4.80)	0.06 (1.50)	No	V	ORV, GS or P	0 (0)	1
NVCC-B-055-*		2	0.56 (14.20)	0.25 (159)	0.91 (23.10)	0.62 (15.70)	0.40 (10.20)	0.19 (4.80)	No	N or S	-	0.07 (2)	7
NVCC-B-069-*		2	0.69 (17.50)	0.38 (248)	0.91 (23.10)	0.50 (12.70)	0.40 (10.20)	0.19 (4.80)	No	N or S	-	0.07 (2)	7
NVC-33A5		3	0.75 (19.10)	0.44 (285)	1.00 (25.40)	0.37 (9.40)	0.67 (17.00)	0.44 (11.20)	No	V	ORV, GS or P	0.11 (3)	NF
NVCR-BL20P-*		4	0.79 (20.10)	0.49 (316)	0.90 (22.90)	0.38 (9.70)	0.57 (14.50)	0.20 (5.10)	No	C or S	-	0.11 (3)	4
NVCC-B-079-*		2	0.79 (20.10)	0.49 (316)	0.91 (23.10)	0.50 (12.70)	0.40 (10.20)	0.19 (4.80)	No	N or S	-	0.07 (2)	7
NVC-33A3		2	0.89 (22.60)	0.62 (401)	1.02 (25.90)	0.55 (14.00)	0.67 (17.00)	0.43 (10.90)	No	V	ORV, GS or P	0.14 (4)	NF
NVCC-B-098-*		2	0.98 (24.90)	0.72 (467)	1.34 (34.00)	0.69 (17.50)	0.40 (10.20)	0.16 (4.10)	No	N or S	-	0.14 (4)	7
NVCR-BL30P-*		4	1.18 (30.00)	1.09 (706)	1.26 (32.00)	0.55 (14.00)	0.79 (20.10)	0.25 (6.40)	No	C or S	-	0.21 (6)	5

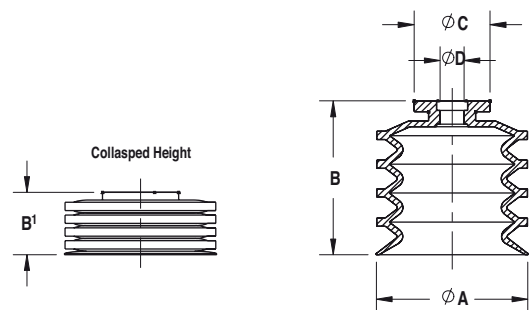
● Multi-Bellows Cups: 2, 3, 4 Convolutions

Part Number		Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B ¹ - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVC-33A2		2	1.25 (31.80)	1.23 (792)	1.43 (36.30)	0.87 (22.10)	0.68 (17.30)	- (-)	No	V	ORV, GS or P	0.60 (17)	1/4 NPTF
NVCC-B-126-*		2	1.28 (32.50)	1.29 (830)	1.48 (37.60)	0.90 (22.90)	0.73 (18.50)	0.31 (7.90)	No	N or S	-	0.35 (10)	8
NVC-33A		3	1.42 (36.10)	1.58 (1022)	2.08 (52.80)	1.14 (29.00)	0.68 (17.30)	- (-)	No	V	ORV, GS or P	0.71 (20)	1/4 NPTF
NVCR-BL40P-*		4	1.58 (40.10)	1.96 (1265)	1.60 (40.60)	0.65 (16.50)	0.79 (20.10)	0.25 (6.40)	No	C or S	-	0.42 (12)	5
NVCC-B-165-*		2	1.65 (41.90)	2.14 (1379)	1.81 (46.00)	0.98 (24.90)	0.70 (17.80)	0.31 (7.90)	No	N or S	-	0.63 (18)	8
NVCR-BL50P-*		4	1.98 (50.30)	3.08 (1986)	2.04 (51.80)	0.90 (22.90)	1.07 (27.20)	0.41 (10.40)	No	C or S	-	0.85 (24)	6
NVC-32D		2	2.00 (50.80)	3.14 (2027)	1.65 (41.90)	0.75 (19.10)	0.75 (19.10)	- (-)	No	V	ORV, GS or P	1.02 (29)	1/4 NPTF
NVCC-B-244-*		2	2.44 (62.00)	4.68 (3017)	2.17 (55.10)	0.81 (20.60)	0.70 (17.80)	0.31 (7.90)	No	N or S	-	1.34 (38)	8
NVC-130		4	3.31 (84.10)	8.60 (5551)	2.75 (69.90)	1.14 (29.00)	2.42 (61.50)	- (-)	Yes	V	ORV, GS or P	4.76 (135)	3/4 NPTF
NVCC-B-346-*		2	3.46 (87.90)	9.40 (6066)	3.44 (87.40)	1.81 (46.00)	0.97 (24.60)	0.47 (11.90)	Yes	N or S	-	5.86 (166)	9
NVC-104-4.5		2	4.50 (114.30)	15.90 (10261)	2.50 (63.50)	1.50 (38.10)	3.50 (88.90)	- (-)	Yes	V	ORV, GS or P	7.4 (209)	3/8 NPTF

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVCC-B-021-N (for Nitrile material). See Chart below for material specifications.

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. NF indicates no fitting is required. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
ORV - Oil Resistant Vinyl	Black	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



VACUUM CUPS - FLAT

- Flat cups without cleats are flexible and work well in applications that do not require lifting heavy loads. Flat cups with cleats are strong with a rigid, low profile that will lift heavy loads. The low profile allows heavy loads to be lifted vertically without the cup "peeling" away from the product surface or deforming the object being lifted. These cups perform well when gripping smooth, flat, heavy objects such as steel or glass.



● Flat Cups: with or without Cleats

Part Number		A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVC-1		0.22 (5.60)	0.04 (25)	0.21 (5.30)	0.19 (4.80)	0.22 (5.60)	0.06 (1.50)	No	V	ORV, GS or P	0 (0)	NF
NVC-165A		0.37 (9.40)	0.11 (69)	0.25 (6.40)	0.22 (5.60)	0.37 (9.40)	0.21 (5.30)	No	V	ORV, GS or P	0 (0)	NF
NVCC-F-039-*		0.39 (9.90)	0.12 (77)	0.43 (10.90)	0.39 (9.90)	0.37 (9.40)	0.20 (5.10)	No	N or S	-	0 (0)	7
NVC-25		0.59 (15.00)	0.27 (176)	0.53 (13.50)	0.53 (13.50)	0.46 (11.70)	0.25 (6.40)	No	V	ORV, GS or P	0.04 (1)	NF
NVCC-F-059-*		0.59 (15.00)	0.27 (176)	0.44 (11.20)	0.36 (9.10)	0.36 (9.10)	0.20 (5.10)	No	N or S	-	0.04 (1)	7
NVCR-F15P-*		0.66 (16.80)	0.34 (221)	0.47 (11.90)	0.42 (10.70)	0.36 (9.10)	0.15 (3.80)	Yes	C or S	-	0.04 (1)	3
NVCC-F-079-*		0.79 (20.10)	0.49 (316)	0.45 (11.40)	0.35 (8.90)	0.33 (8.40)	0.20 (5.10)	No	N or S	-	0.04 (1)	7
NVCR-F20P-*		0.87 (22.10)	0.59 (384)	0.32 (8.10)	0.27 (6.90)	0.57 (14.50)	0.21 (5.30)	Yes	C or S	-	0.07 (2)	4
NVCC-F-100-*		1.00 (25.40)	0.79 (507)	0.50 (12.70)	0.35 (8.90)	0.38 (9.70)	0.20 (5.10)	No	N or S	-	0.07 (2)	7
NVC-36B		1.02 (25.90)	0.82 (527)	0.34 (8.60)	0.25 (6.40)	0.56 (14.20)	0.24 (6.10)	Yes	V	ORV, GS or P	0.04 (1)	NF
NVC-10		1.04 (26.40)	0.85 (548)	0.90 (22.90)	0.70 (17.80)	0.62 (15.70)	- (-)	No	V	ORV, GS or P	0.32 (9)	1/8 NPTF
NVCR-F25P-*		1.10 (27.90)	0.95 (613)	0.36 (9.10)	0.33 (8.40)	0.57 (14.50)	0.21 (5.30)	Yes	C or S	-	0.07 (2)	4
NVC-11		1.19 (30.20)	1.11 (718)	0.88 (22.40)	0.75 (19.10)	0.75 (19.10)	- (-)	No	V	ORV, GS or P	0.49 (14)	1/4 NPTF

● Flat Cups: with or without Cleats

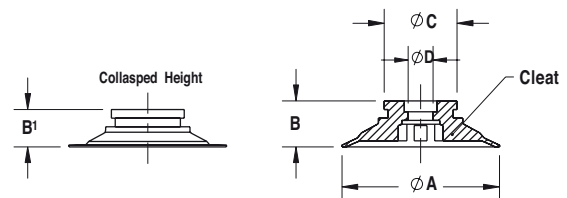
Part Number	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVCC-F-120-*	1.20 (30.50)	1.13 (730)	0.74 (18.80)	0.63 (16.00)	0.62 (15.70)	0.31 (7.90)	Yes	N or S	-	0.14 (4)	8
NVCR-F30P-*	1.27 (32.30)	1.27 (817)	0.39 (9.90)	0.35 (8.90)	0.57 (14.50)	0.20 (5.10)	Yes	C or S	-	0.11 (3)	4
NVC-2EA	1.34 (34.00)	1.41 (910)	0.90 (22.90)	0.83 (21.10)	0.62 (15.70)	- -	Yes	V	ORV, GS or P	0.21 (6)	1/8 NPTM
NVC-12	1.40 (35.60)	1.54 (993)	0.82 (20.80)	0.75 (19.10)	0.75 (19.10)	- -	No	V	ORV, GS or P	0.56 (16)	1/4 NPTF
NVCC-F-142-*	1.42 (36.10)	1.58 (1022)	0.79 (20.10)	0.63 (16.00)	0.62 (15.70)	0.31 (7.90)	Yes	N or S	-	0.21 (6)	8
NVC-37A	1.51 (38.40)	1.79 (1115)	1.19 (30.20)	0.92 (23.40)	0.89 (22.60)	- (-)	No	V	ORV, GS or P	0.67 (19)	1/4 NPTF
NVC-8	1.51 (38.40)	1.79 (1155)	0.56 (14.20)	0.43 (10.90)	0.55 (14.00)	0.23 (5.80)	No	V	ORV, GS or P	0.21 (6)	NF
NVCC-F-160-*	1.60 (40.60)	2.01 (1297)	0.79 (20.10)	0.64 (16.30)	0.63 (16.00)	0.31 (7.90)	Yes	N or S	-	0.21 (6)	8
NVCR-F40P-*	1.65 (41.90)	2.14 (1379)	0.48 (12.20)	0.39 (9.90)	0.76 (19.30)	0.26 (6.60)	Yes	C or S	-	0.21 (6)	5
NVC-168	2.00 (50.80)	3.14 (2027)	1.02 (25.90)	0.68 (17.30)	1.10 (27.90)	- (-)	No	V	ORV, GS or P	0.99 (28)	1/4 NPTF
NVC-59	2.00 (50.80)	3.14 (2027)	1.00 (25.40)	0.82 (20.80)	1.53 (38.90)	- (-)	Yes	V	ORV, GS or P	2.08 (59)	1/4 NPTF
NVCC-F-205-*	2.05 (52.10)	3.30 (2129)	0.85 (21.60)	0.67 (17.00)	0.70 (17.80)	0.31 (7.90)	Yes	N or S	-	0.42 (12)	8
NVCR-F50P-*	2.10 (53.30)	3.46 (2235)	0.69 (17.50)	0.62 (15.70)	1.04 (26.40)	0.43 (10.90)	Yes	C or S	-	0.46 (13)	6
NVCC-F-236-*	2.36 (59.90)	4.37 (2822)	0.87 (22.10)	0.67 (17.00)	0.70 (17.80)	0.31 (7.90)	Yes	N or S	-	0.56 (16)	8
NVC-49	2.44 (62.00)	4.68 (3017)	2.20 (55.90)	1.99 (50.50)	1.04 (26.40)	- (-)	Yes	V	ORV, GS or P	1.52 (43)	1/4 NPTF

(Continued on next page)

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVCC-F-236-N (for Nitrile material). See Chart below for material specifications.

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. NF indicates no fitting is required. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
ORV - Oil Resistant Vinyl	Black	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)

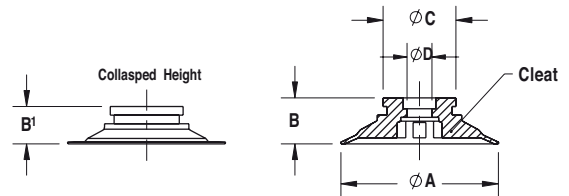


● Flat Cups: with or without Cleats

Part Number		A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	Fitting Group
NVC-106		2.50 (63.50)	4.91 (3167)	1.18 (30.00)	0.80 (20.30)	1.09 (27.70)	- -	No	V	ORV, GS or P	1.02 (29)	1/4 NPTF
NVCC-F-295-*		2.95 (74.90)	6.83 (4409)	1.20 (30.50)	1.08 (27.40)	0.92 (23.40)	0.47 (11.90)	Yes	N or S	-	1.20 (34)	9
NVC-30		3.06 (77.70)	7.35 (4744)	1.45 (36.80)	1.10 (27.90)	1.15 (29.20)	- -	No	V	ORV, GS or P	2.61 (74)	1/4 NPTF
NVC-27A		3.25 (82.60)	8.30 (5352)	1.20 (30.50)	0.95 (24.10)	2.23 (56.60)	- -	Yes	V	ORV, GS or P	3.28 (93)	1/4 NPTF
NVCC-F-374-*		3.74 (95.00)	10.99 (7087)	1.47 (37.30)	1.08 (27.40)	0.97 (24.60)	0.47 (11.90)	Yes	N or S	-	1.83 (52)	9
NVC-27		4.25 (108.00)	14.19 (9152)	1.30 (33.00)	0.85 (21.60)	2.73 (69.30)	- -	Yes	V	ORV, GS or P	4.03 (122)	1/4 NPTF
NVC-63		4.75 (120.70)	17.72 (11432)	1.25 (31.80)	0.90 (22.90)	1.67 (42.40)	- -	Yes	V	ORV, GS or P	4.09 (116)	3/8 NPTF
NVC-34		6.25 (158.80)	30.68 (19793)	1.37 (34.80)	0.85 (21.60)	5.00 (127.00)	- -	Yes	V	ORV, GS or P	16.0 (454)	3/8 NPTF

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVCC-F-374-N (for Nitrile material). See Chart below for material specifications.
Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. NF indicates no fitting is required. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
ORV - Oil Resistant Vinyl	Black	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



VACUUM CUPS - UNIVERSAL

- Universal cups can handle flat or slightly curved surfaces.



Universal

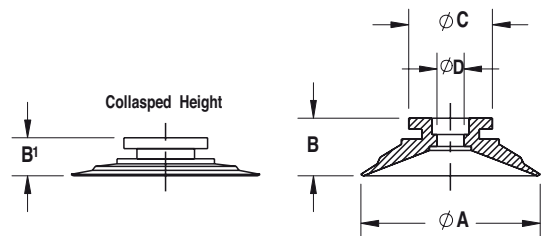
Part Number		A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Weight oz (g)	Fitting Group
NVCR-U4P-*		0.20 (5.10)	0.03 (20)	0.27 (6.90)	0.26 (6.60)	0.18 (4.60)	0.07 (1.80)	No	C or S	0 (0.10)	1
NVCR-U6P-*		0.28 (7.10)	0.06 (40)	0.27 (6.90)	0.26 (6.60)	0.20 (5.10)	0.08 (2.00)	No	C or S	0 (0.10)	1
NVCR-U8P-*		0.37 (9.40)	0.11 (69)	0.27 (6.90)	0.24 (6.10)	0.20 (5.10)	0.08 (2.00)	No	C or S	0 (0.10)	1
NVCR-U10P-*		0.44 (11.20)	0.15 (98)	0.43 (10.90)	0.40 (10.20)	0.35 (8.90)	0.15 (3.80)	No	C or S	0.02 (0.70)	3
NVCR-U15P-*		0.65 (16.50)	0.33 (214)	0.45 (11.40)	0.37 (9.40)	0.35 (8.90)	0.15 (3.80)	No	C or S	0.03 (0.80)	3
NVCR-U20P-*		0.85 (21.60)	0.57 (366)	0.33 (8.40)	0.21 (5.30)	0.57 (14.50)	0.21 (5.30)	No	C or S	0.04 (0)	4
NVCR-U30P-*		1.25 (31.80)	1.23 (792)	0.38 (9.70)	0.21 (5.30)	0.57 (14.50)	0.21 (5.30)	No	C or S	0.07 (2)	4
NVCR-U40P-*		1.65 (41.90)	2.14 (1379)	0.53 (13.50)	0.33 (8.40)	0.77 (19.60)	0.25 (6.40)	No	C or S	0.21 (6)	5
NVCR-U50P-*		2.05 (52.10)	3.30 (2129)	0.72 (18.30)	0.45 (11.40)	1.06 (26.90)	0.44 (11.20)	No	C or S	0.39 (11)	6

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVCR-U4P-S (for Silicone material). See Chart below for material specifications.

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



VACUUM CUPS - DUAL DUROMETER

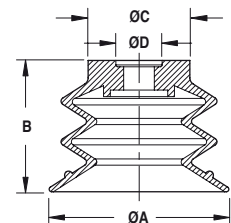
- Dual Durometer Cups are a durable combination of polyurethane with 30 and 60 durometers (stiffness), offering long wear and excellent sealing capability for uneven and porous surfaces. Available in single and double bellows models.



● Dual Durometer

Part Number		Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Weight oz (g)	Fitting Group
NVCD-B15P-1		1	0.63 (16.00)	0.31 (201.00)	0.75 (19.00)	0.35 (9.00)	0.15 (3.80)	No	PD	0.041 (1.20)	45
NVCD-B20P		2	0.83 (21.00)	0.54 (346.20)	0.57 (14.50)	0.47 (12.00)	0.20 (5.00)	No	PD	0.06 (1.70)	45
NVCD-B20P-1		1	0.83 (21.00)	0.54 (346.20)	0.71 (18.00)	0.47 (12.00)	0.24 (6.00)	No	PD	0.06 (1.70)	45
NVCD-B30P		2	1.26 (32.00)	1.25 (803.80)	0.67 (17.10)	0.67 (17.10)	0.34 (8.60)	No	PD	0.19 (5.40)	45
NVCD-B30P-1		1	1.18 (30.00)	1.10 (706.50)	0.84 (21.30)	0.65 (16.50)	0.20 (5.00)	No	PD	0.15 (4.30)	45
NVCD-B40P		2	1.57 (40.00)	1.95 (1256.00)	1.12 (28.40)	0.87 (22.00)	0.33 (8.50)	No	PD	0.53 (15.00)	45
NVCD-B40P-1		1	1.70 (42.00)	2.10 (1384.70)	0.90 (22.40)	0.90 (22.40)	0.30 (8.50)	No	PD	0.40 (10.00)	45
NVCD-B50P		2	2.05 (52.00)	3.29 (2122.60)	1.15 (29.20)	1.10 (28.00)	0.49 (12.50)	No	PD	0.88 (24.90)	6
NVCD-B50P-1		1	2.00 (52.00)	3.30 (2122.60)	1.10 (29.20)	1.10 (28.00)	0.50 (12.50)	No	PD	0.80 (22.00)	6
NVCD-BF60P-1-G38F		1	2.44 (62.00)	4.70 (3032.30)	1.60 (40.50)	1.10 (28.00)	G 3/8 F	Yes	PD	2.40 (68.00)	G 3/8 F
NVCD-B70P-38F		2	2.80 (70.00)	6.00 (3846.50)	2.40 (60.00)	1.50 (38.50)	G 3/8 F	No	PD	0.53 (15.00)	3/8 NPSF
NVCD-B70P-38M		2	2.80 (70.00)	6.00 (3846.50)	2.30 (58.50)	1.50 (38.50)	G 3/8 M	No	PD	6.02 (170.60)	3/8 NPSM
NVCD-B70P-1-38F		1	2.90 (73.00)	6.50 (4183.30)	1.80 (46.50)	1.70 (42.00)	G 3/8 F	No	PD	2.40 (68.00)	3/8 NPSF
NVCD-B70P-1-38M		1	2.90 (73.00)	6.50 (4183.30)	1.80 (46.50)	1.70 (42.00)	G 3/8 M	No	PD	2.40 (68.00)	3/8 NPSM
NVCD-BF80P-1-38F		1	3.30 (84.00)	8.60 (5548.40)	1.46 (37.00)	1.40 (35.40)	3/8 NPSF	Yes	PD	2.40 (68.00)	3/8 NPSF
NVCD-BF80P-1-G38F		1	3.30 (84.00)	8.60 (5548.40)	1.46 (37.00)	1.40 (35.40)	G 3/8 F	Yes	PD	2.40 (68.00)	G 3/8 F

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.




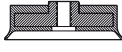
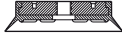




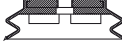


Material	Color	Temperature Range
PD - Polyurethane Dual Durometer	Blue	50°F to 122°F (10°C to 50°C)

VACUUM CUPS - OVAL

- Oval cups have heavy load capabilities due to their rigid design and large vacuum work area. They have the largest lifting force because they provide the most surface area for a given footprint.



● Oval

Part Number	A-1 in. (mm)	A - 2 in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	B' - Collapsed Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	E in. (mm)	F in. (mm)	H in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)	
NVC-89		1.14 (29.00)	2.78 (70.60)	5.85 (3774)	1.13 (28.70)	0.95 (2.41)	0.57 (14.50)	1.39 (35.30)	1/4 NPTF	-	-	No	V	ORV, GS or P	1 (27)
NVC-83		1.56 (39.60)	4.09 (103.90)	3.16 (2039)	1.30 (33.00)	1.20 (30.50)	0.78 (19.80)	2.05 (51.90)	1/4 NPTF	-	-	No	V	ORV, GS or P	3.20 (91)
NVC-183-2X4		2.00 (50.80)	4.00 (101.60)	7.14 (4606)	1.00 (25.40)	0.70 (17.80)	1.00 (25.40)	2.00 (50.80)	1/4 NPTF	-	-	Yes	V	ORV, GS or P	2.70 (76)
NVC-183-2X6		2.00 (50.80)	6.00 (152.40)	11.14 (7187)	0.98 (24.90)	0.75 (19.10)	1.00 (25.40)	4.00 (101.60)	1.00 (25.40)	1/4 NPTF	-	Yes	V	ORV, GS or P	4.70 (134)
NVC-90-2X10		2.00 (50.80)	10.00 (254.00)	19.14 (12348)	0.82 (20.80)	0.55 (14.00)	1.00 (25.40)	6.50 (165.10)	1.75 (44.50)	1/4 NPTF	-	No	V	ORV, GS or P	4.90 (139)
NVC-90-3X8		3.00 (76.20)	8.00 (203.20)	22.06 (14232)	1.10 (27.80)	0.75 (19.10)	1.50 (38.10)	5.00 (127.00)	1.50 (38.10)	3/8 NPTF	-	Yes	V	ORV, GS or P	11 (312)
NVC-90-3X10		3.00 (76.20)	10.00 (254.00)	28.06 (18103)	1.10 (27.80)	0.73 (18.50)	1.50 (38.10)	7.00 (177.80)	1.50 (38.10)	3/8 NPTF	-	Yes	V	ORV, GS or P	14 (397)
NVC-32-3.5X5.0		3.50 (88.90)	5.00 (127.00)	11.87 (7658)	1.82 (46.20)	1.02 (25.90)	1.75 (44.50)	2.50 (63.50)	3/8 NPTF	-	-	Yes	V	ORV, GS or P	6.70 (190)
NVC-129		3.25 (82.60)	7.87 (199.90)	23.30 (150.32)	1.83 (46.50)	0.80 (20.30)	1.63 (41.30)	3.94 (100.00)	1/2 NPTF	-	-	Yes	V	ORV, GS or P	13.20 (373)
NVC-90-6X10		6.00 (152.40)	10.00 (254.00)	58.06 (37458)	1.19 (30.20)	0.73 (18.50)	2.00 (50.80)	6.00 (152.40)	2.00 (50.80)	6.00 (152.40)	Consult Factory	Yes	V	ORV, GS or P	24 (680)

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **NVCR-U4P-S** (for Silicone material). See Chart below for material specifications.

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section. Custom mounting holes available. Consult factory.

Material

- V** - Vinyl
- ORV** - Oil Resistant Vinyl
- P** - Polyurethane
- GS** - Silicone

Color

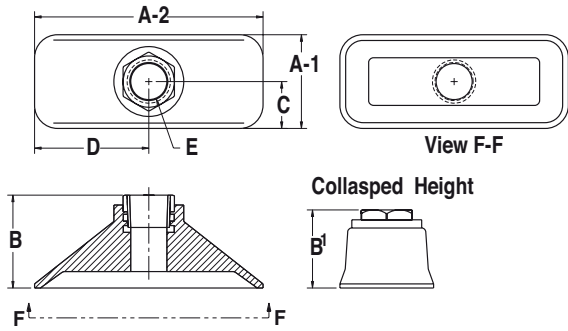
- Blue
- Black
- Green
- Gray

Temperature Range

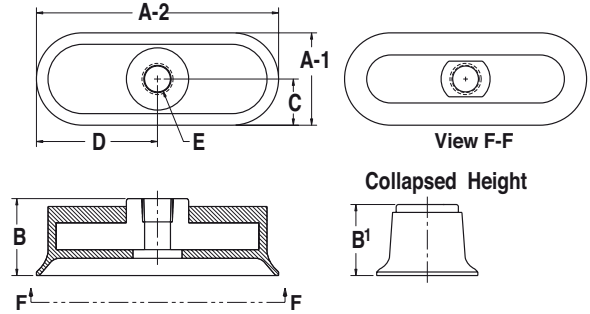
- +32°F to +125°F (0°C to +52°C)
- +32°F to +125°F (0°C to +52°C)
- +32°F to +150°F (0°C to +66°C)
- 50°F to +392°F (-46°C to +200°C)

● Oval

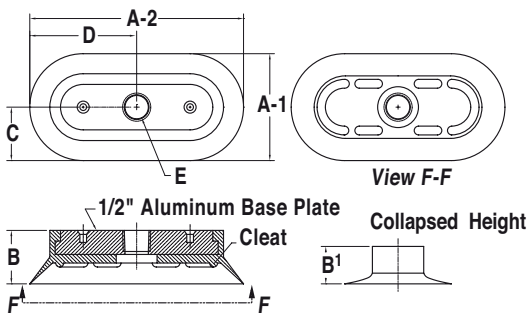
NVC-89



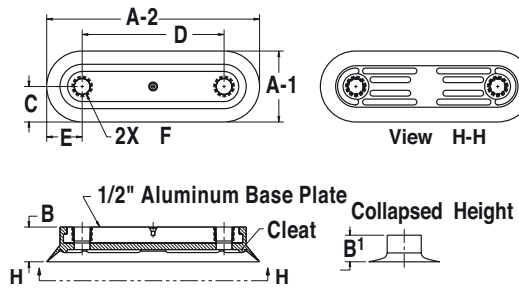
NVC-83



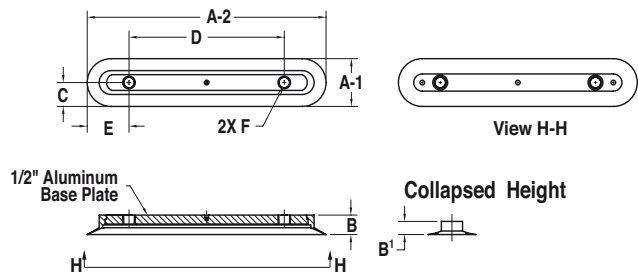
NVC-183-2X4



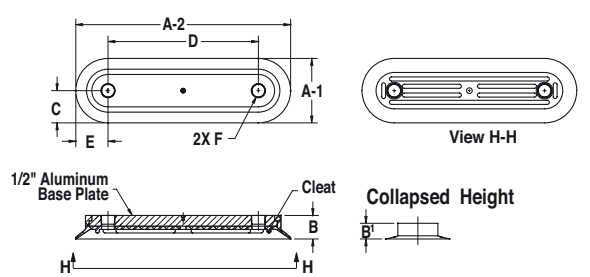
NVC-183-2X6



NVC-90-2X10



NVC-90-3X10

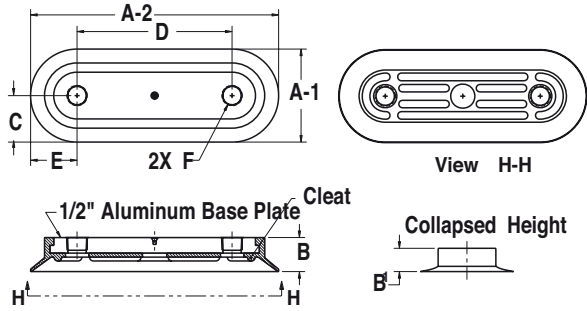


Custom mounting holes available. Consult factory.

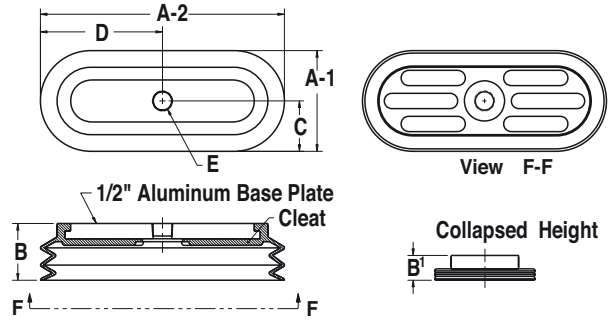
Vacuum Cups - Oval

● Oval

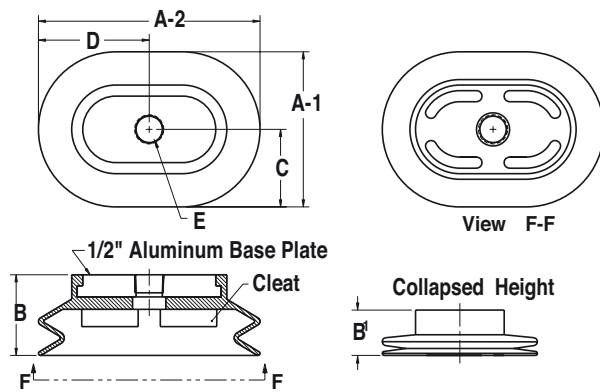
NVC-90-3X8



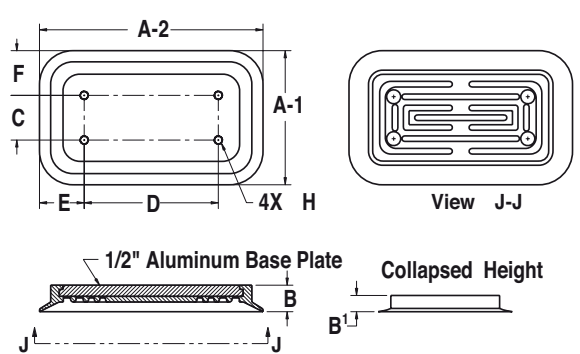
NVC-129



NVC-32-3.5X5.0



NVC-90-6X10





Custom mounting holes available. Consult factory.

VACUUM CUPS - EGG

- Silicone Egg Cups with bellows safely handle delicate, round objects.

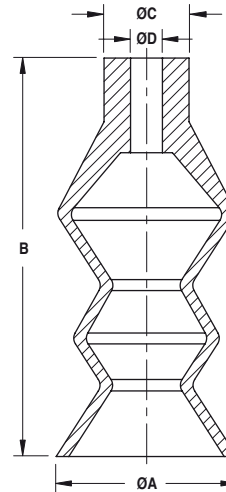


● Egg

Part Number	Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Weight oz (g)
NVCC-E-034-S	2.50	1.34 (34.00)	1.41 (907.50)	2.95 (75.00)	0.63 (16.00)	0.24 (6.00)	No	S	0.61 (17.30)
NVCC-E-034-SR	 2.50	1.34 (34.00)	1.41 (907.50)	2.95 (75.00)	0.63 (16.00)	0.24 (6.00)	No	RS	0.61 (17.30)
NVCC-E-037-SR	 5.50	1.46 (37.00)	1.67 (1074.70)	2.73 (69.40)	0.61 (15.50)	0.20 (5.00)	No	RS	0.53 (15.00)

Fittings: NVCC-E style cups are for use with the NVPIA-60H-M11 Atmospheric Release Pump. Fittings are not required.

Material	Color	Temperature Range
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)
RS - Silicone	Red	-94°F to 536°F (-70 °C to 280°C)



VACUUM CUPS - METAL DETECTABLE

- Metal Detectable Cups contain bits of metal embedded into the cup's silicone material and are used where contamination is a concern, such as in food processing.

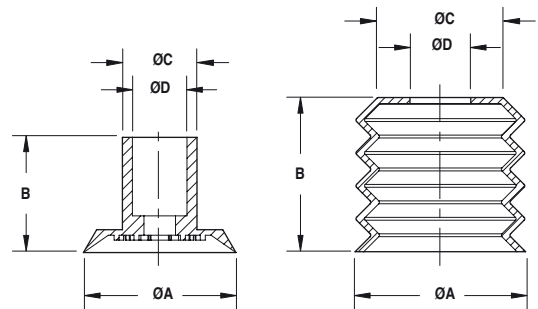


● Metal Detectable

Part Number		Convolutions	A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Weight oz (g)	Fitting Group
NVCMD-F30		N/A	1.18 (30.00)	1.10 (706.50)	0.91 (23.20)	0.59 (15.00)	0.43 (11.00)	Yes	NR	0.11 (3.00)	Consult Factory
NVCMD-BC40B-R		4	1.57 (40.00)	1.95 (1256.00)	1.50 (38.00)	1.57 (40.00)	0.59 (15.00)	No	BS or RS	0.50 (14.20)	10
NVCMD-BC40B		4	1.57 (40.00)	1.95 (1256.00)	1.50 (38.00)	1.57 (40.00)	0.59 (15.00)	No	BS or RS	0.50 (14.20)	10
NVCMD-BC42B		4	1.65 (42.00)	2.15 (1384.70)	1.50 (38.00)	1.65 (42.00)	0.59 (15.00)	No	BS or RS	0.50 (14.20)	10

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
RS - Silicone	Red	-94°F to 536°F (-70 °C to 280°C)
BS - Silicone	Blue	-94°F to 536°F (-70 °C to 280°C)
NR - Natural Rubber	Blue	-40°F to 176°F (-40 to 80°C)



VACUUM CUPS - NON-MARKING

- Natural rubber Non-Marking vacuum cups don't leave marks.

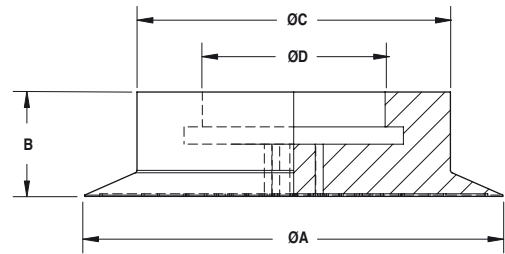


● Non-Marking

Part Number		A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	C in. (mm)	D - Thru Hole in. (mm)	Cleats	Standard Material	Weight oz (g)	Fitting Group
NVCNM-F20-NR		0.79 (20.00)	0.49 (314.00)	0.59 (15.00)	0.47 (12.00)	0.24 (6.00)	No	NR	0.06 (1.80)	NM
NVCNM-F40-NR		1.57 (40.00)	1.95 (1256.00)	0.79 (20.00)	0.79 (20.00)	0.51 (13.00)	No	NR	0.22 (6.40)	NM
NVCNM-F60-NR		2.36 (60.00)	4.38 (2826.00)	0.79 (20.00)	1.97 (50.00)	1.38 (35.00)	No	NR	1.12 (31.80)	NM
NVCNM-F80-NR		3.15 (80.00)	7.79 (5024.00)	0.79 (20.00)	2.36 (60.00)	1.38 (35.00)	No	NR	1.84 (52.20)	NM
NVCNM-F140-NR		5.51 (140.00)	23.85 (15386.00)	0.79 (20.00)	3.15 (80.00)	1.18 (30.00)	No	NR	6.02 (170.60)	G 1/2 F

Fittings: To order fittings, please reference the fitting groups section for the appropriate part numbers. The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see vacuum fitting section.

Material	Color	Temperature Range
NR - Natural Rubber	Orange	-40°F to +176°F (-40°C to +80°C)



VACUUM CUPS - ULTRA-MINIATURE

- Ultra-Miniature Cups are ideal for use in picking up extremely small parts.



● Ultra-Miniature

Part Number		A - O.D. in. (mm)	Approx. Area sq. in. (sq. mm)	B - Height in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Cleats	Standard Material	Optional Material	Weight oz (g)
NVC-VI093-*		0.09 (2.40)	0.01 (4.00)	0.16 (4.10)	0.08 (2.00)	0.03 (0.76)	0.02 (0.50)	No	B	S	0 (0)
NVC-VI125-*		0.13 (3.20)	0.01 (8.00)	0.18 (4.60)	0.10 (2.50)	0.03 (0.76)	0.04 (0.90)	No	B	ESD or S	0 (0)
NVC-VI250-*		0.25 (6.40)	0.05 (32.00)	0.20 (5.10)	0.13 (3.30)	0.06 (1.50)	0.04 (0.90)	No	B	ESD or S	0 (0)
NVC-VI375-*		0.38 (9.50)	0.11 (71.00)	0.25 (6.40)	0.13 (3.30)	0.06 (1.50)	0.04 (0.90)	No	B	ESD or S	0 (0.10)
NVC-VI500-*		0.50 (12.70)	0.20 (127.00)	0.30 (7.60)	0.16 (4.10)	0.06 (1.50)	0.04 (0.90)	No	B	ESD or S	0 (0.10)
NVC-VI625-*		0.63 (15.90)	0.31 (198.00)	0.31 (7.90)	0.16 (4.10)	0.06 (1.50)	0.04 (0.90)	No	B	ESD or S	0.01 (0.30)
NVC-VI750-*		0.75 (19.10)	0.44 (285.00)	0.32 (8.10)	0.16 (4.10)	0.06 (1.50)	0.04 (0.90)	No	B	ESD or S	0.02 (0.50)

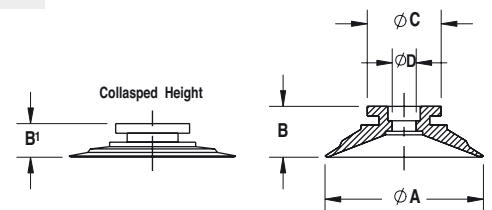
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. NVC-VI093-* (for Buna-N material). See Chart below for material specifications.

Material

- B** - Buna-N static dissipative (ESD-safe) non-marking
- ESD** - Hi-Temp conductive (ESD-safe) silicone
- S** - Hi-Temp (non-ESD-safe) silicone

Color Temperature Range

- Black -5°F to +250°F (-15°C to +121°C)
- Black -65°F to +445°F (-55°C to +230°C)
- Clear -65°F to +480°F (-55°C to +250°C)



Available
in imperial
and metric
threads



Holds vacuum
cups securely

Vacuum Cup Fittings

Designed with large thru bores, IMI Norgren fittings connect to vacuum cups, vacuum pumps and spring levelers ensuring unrestricted vacuum flow for safe material handling operations. For plumbing flexibility, IMI Norgren offers 12 different fitting groups with various thread sizes.

Fittings

- > Clear chromate coated aluminum or brass
- > Available in metric and imperial threads
- > See cup specification for appropriate fitting group
- > Large through bore to maximize flow
- > Easily replace cup without replacing fitting
- > Holds cup securely

To Specify

- > Size the cup first based on application requirements. Then choose the fitting size. Please note IMI Norgren's Cup Section includes recommended fitting groups for each cup.

Engineering
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VACUUM CUP FITTINGS

● Fitting Groups 1, 2, 3



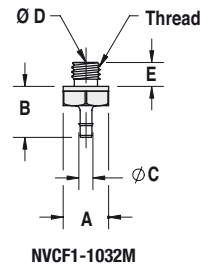
NVCF1-1032M



NVCF2-1032M



NVCF3-1032M



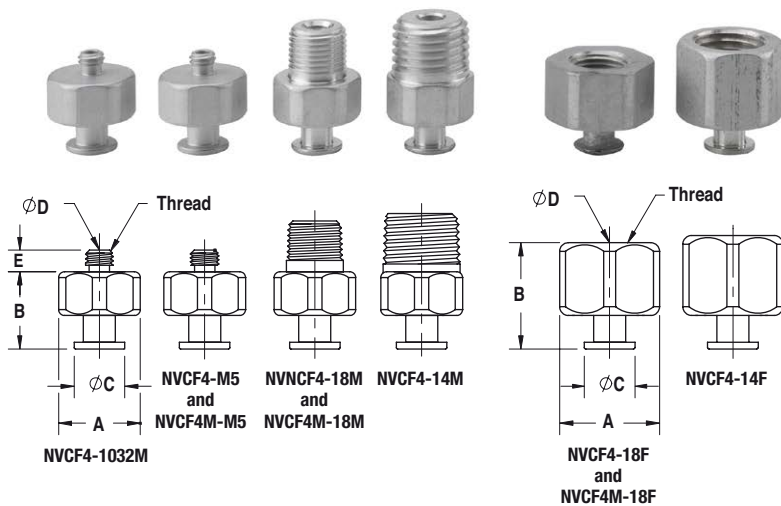
NVCF2-1032M



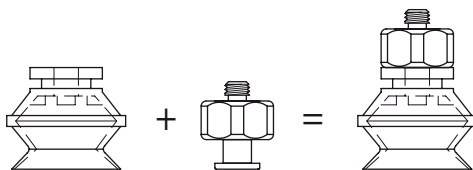
NVCF3-1032M

Part Number	Thread Size	Dimensions A - Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)	Weight oz (g)	Material
NVCF1-1032M	10-32 MALE	0.31 (7.90)	0.35 (8.90)	0.10 (2.50)	0.05 (1.40)	0.16 (4.10)	0.07 (2)	Brass
NVCF2-1032M	10-32 MALE	0.31 (7.90)	0.44 (11.20)	0.24 (6.10)	0.09 (2.20)	0.16 (4.10)	0.10 (2.80)	Brass
NVCF3-1032M	10-32 MALE	0.31 (7.90)	0.39 (9.90)	0.24 (6.10)	0.09 (2.40)	0.16 (4.10)	0.10 (2.80)	Brass

● Fitting Groups 4

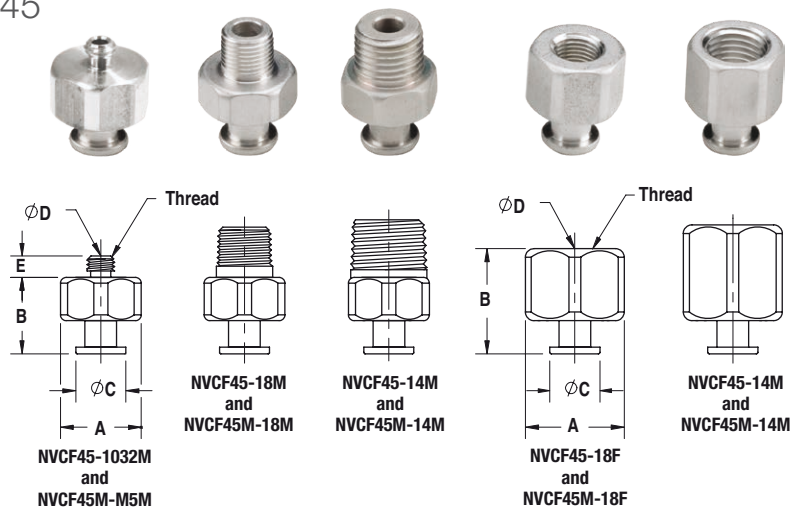


Part Number	Thread Size	Dimensions A - Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)	Weight oz (g)	Material
NVCF4-1032M	10-32 Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.09 (2.40)	0.15 (3.80)	0.20 (5.70)	Aluminum
NVCF4-M5	M5 X 0.8 Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.09 (2.40)	0.15 (3.80)	0.20 (5.70)	Aluminum
NVCF4-18M	1/8 NPT Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.17 (4.40)	0.35 (8.80)	0.20 (5.70)	Aluminum
NVCF4-14M	1/4 NPT Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.17 (4.40)	0.40 (10.20)	0.30 (8.50)	Aluminum
NVCF4-18F	1/8 NPT Female	0.69 (17.40)	0.73 (18.50)	0.35 (8.80)	0.17 (4.40)	N/A N/A	0.30 (8.50)	Aluminum
NVCF4-14F	1/4 NPT Female	0.69 (17.40)	0.78 (19.80)	0.35 (8.80)	0.17 (4.40)	N/A N/A	0.30 (8.50)	Aluminum
NVCF4M-M5	M5 X 0.8 Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.09 (2.40)	0.15 (3.80)	0.20 (5.70)	Aluminum
NVCF4M-18M	G1/8 Male	0.56 (14.30)	0.53 (13.50)	0.35 (8.80)	0.17 (4.40)	0.35 (8.90)	0.20 (5.70)	Aluminum
NVCF4M-18F	G1/8 Female	0.56 (17.50)	0.73 (18.50)	0.35 (8.80)	0.17 (4.40)	N/A N/A	0.30 (8.50)	Aluminum

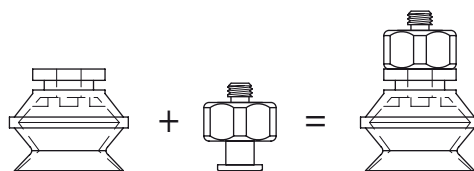


Example: Cup with Fitting

● Fitting Groups 45

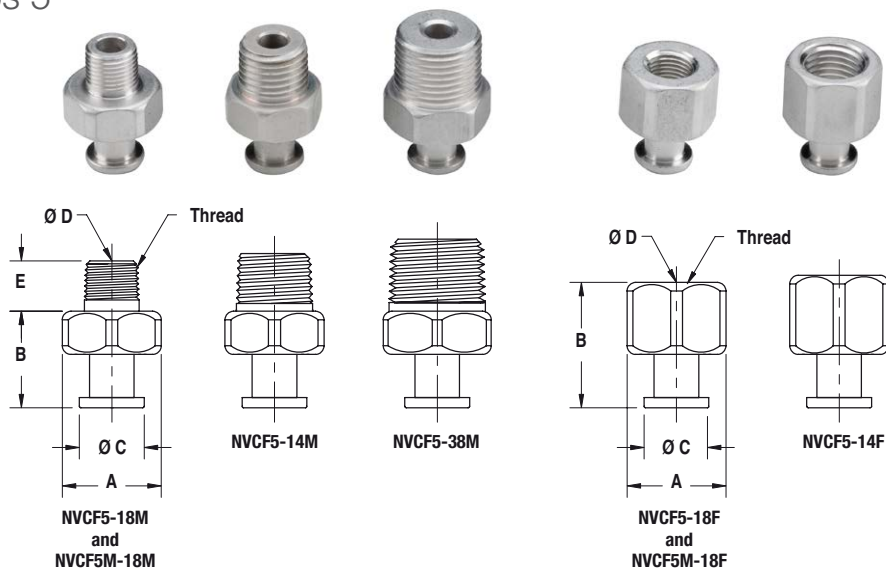


Part Number	Thread Size	Dimensions					Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)		
NVCF45-1032M	10-32 Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.09 (2.36)	0.15 (3.81)	(0.30) (8.5)	Aluminum
NVCF45-18F	1/8 NPT Female	0.75 (19.05)	0.80 (20.19)	0.45 (11.43)	0.22 (5.56)	N/A	(0.30) (8.50)	Aluminum
NVCF45-18M	1/8 NPT Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.22 (5.59)	0.35 (8.89)	(0.30) (8.50)	Aluminum
NVCF45-14F	1/4 NPT Female	0.75 (19.05)	0.85 (21.59)	0.45 (11.43)	0.22 (5.59)	N/A	(0.30) (8.50)	Aluminum
NVCF45-14M	1/4 NPT Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.22 (5.59)	0.40 (10.16)	(0.30) (8.50)	Aluminum
NVCF45M-M5M	M5 Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.09 (2.36)	0.15 (3.81)	(0.30) (8.50)	Aluminum
NVCF45M-18F	G 1/8 Female	0.75 (19.05)	0.80 (20.32)	0.45 (11.43)	0.22 (5.59)	N/A	(0.30) (8.50)	Aluminum
NVCF45M-18M	G 1/8 Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.22 (5.59)	0.35 (8.89)	(0.30) (8.50)	Aluminum
NVCF45M-14F	G 1/4 Female	0.75 (19.05)	0.85 (21.59)	0.45 (11.43)	0.22 (5.59)	N/A	(0.30) (8.50)	Aluminum
NVCF45M-14M	G 1/4 Male	0.75 (19.05)	0.60 (15.11)	0.45 (11.43)	0.22 (5.59)	0.40 (10.16)	(0.30) (8.50)	Aluminum

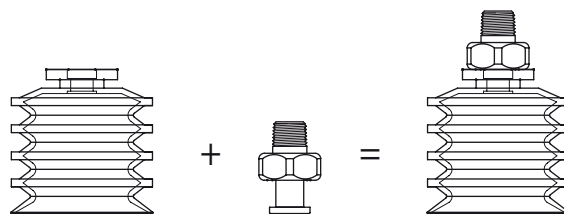


Example: Cup with Fitting

● Fitting Groups 5

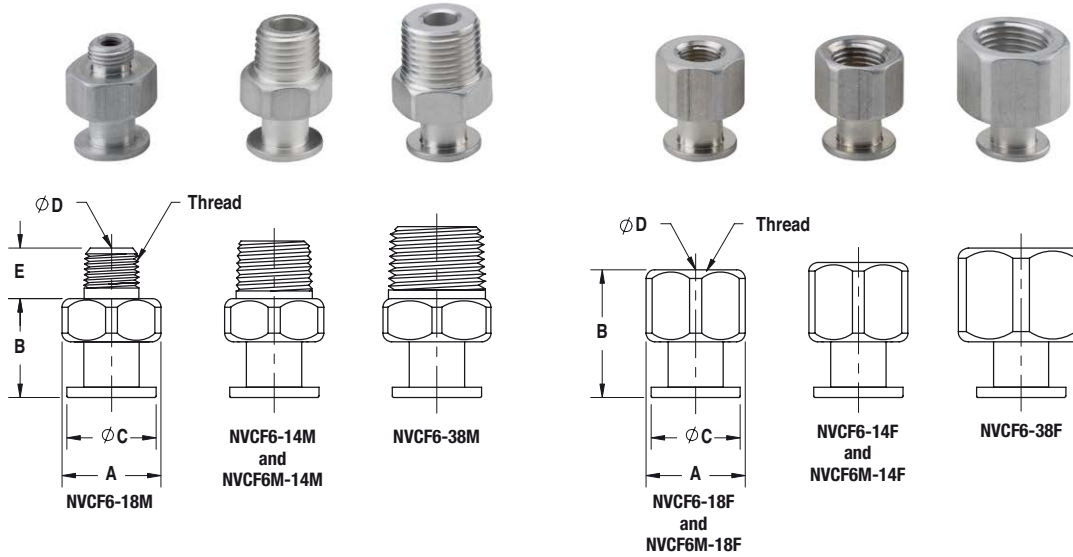


Part Number	Thread Size	Dimensions					Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)		
NVCF5-18M	1/8 NPT Male	0.69 (17.40)	0.67 (17.00)	0.45 (11.40)	0.22 (5.60)	0.35 (8.90)	0.30 (8.50)	Aluminum
NVCF5-14M	1/4 NPT Male	0.69 (17.40)	0.67 (17.00)	0.45 (11.40)	0.22 (5.60)	0.40 (10.20)	0.30 (8.50)	Aluminum
NVCF5-38M	3/8 NPT Male	0.75 (19.10)	0.67 (17.00)	0.45 (11.40)	0.22 (5.60)	0.50 (12.70)	0.40 (11.00)	Aluminum
NVCF5-18F	1/8 NPT Female	0.69 (17.40)	0.87 (22.10)	0.45 (11.40)	0.22 (5.60)	N/A N/A	0.30 (8.50)	Aluminum
NVCF5-14F	1/4 NPT Female	0.69 (17.40)	0.92 (23.40)	0.45 (11.40)	0.22 (5.60)	N/A N/A	0.30 (8.50)	Aluminum
NVCF5M-18M	G1/8 Male	0.69 (17.40)	0.87 (22.10)	0.45 (11.40)	0.22 (5.60)	0.35 (8.90)	0.30 (8.50)	Aluminum
NVCF5M-18F	G1/8 Female	0.69 (17.40)	0.87 (22.10)	0.45 (11.40)	0.22 (5.60)	N/A N/A	0.30 (8.50)	Aluminum

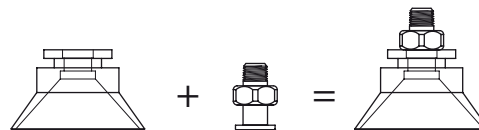


Example: Cup with Fitting

● Fitting Groups 6

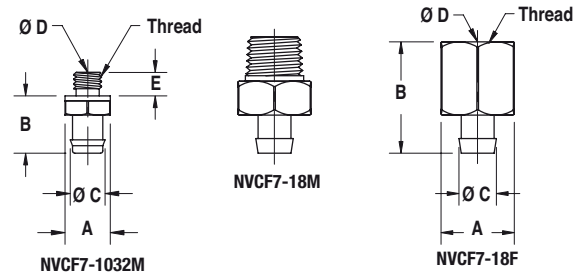


Part Number	Thread Size	Dimensions			D Thru Hole Diameter in. (mm)	E in. (mm)	Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)				
NVCF6-18M	1/8 NPT Male	0.69 (17.40)	0.69 (17.40)	0.62 (15.70)	0.28 (7.10)	0.35 (8.90)	0.40 (11.00)	Aluminum
NVCF6-14M	1/4 NPT Male	0.69 (17.40)	0.69 (17.40)	0.62 (15.70)	0.28 (7.10)	0.40 (10.20)	0.30 (8.50)	Aluminum
NVCF6-38M	3/8 NPT Male	0.75 (19.10)	0.69 (17.40)	0.62 (15.70)	0.28 (7.10)	0.50 (12.70)	0.50z (14.00)	Aluminum
NVCF6-18F	1/8 NPT Female	0.69 (17.40)	0.89 (22.50)	0.62 (15.70)	0.28 (7.10)	N/A N/A	0.30 (8.50)	Aluminum
NVCF6-14F	1/4 NPT Female	0.69 (17.40)	0.94 (23.70)	0.62 (15.70)	0.28 (7.10)	N/A N/A	0.40 (11.00)	Aluminum
NVCF6-38F	3/8 NPT Female	0.88 (22.20)	1.04 (26.30)	0.62 (15.70)	0.28 (7.10)	N/A N/A	0.40 (11.00)	Aluminum
NVCF6M-14M	G 1/4 Male	0.69 (17.40)	0.69 (17.40)	0.62 (15.70)	0.28 (7.10)	0.40 (10.20)	0.30z (8.50)	Aluminum
NVCF6M-14F	G 1/4 Female	0.69 (17.40)	0.94 (23.70)	0.62 (15.70)	0.28 (7.10)	N/A N/A	0.40 (11.00)	Aluminum
NVCF6M-18F	G 1/8 Female	0.69 (17.40)	0.89 (22.50)	0.62 (15.70)	0.28 (7.10)	N/A N/A	0.30 (8.50)	Aluminum



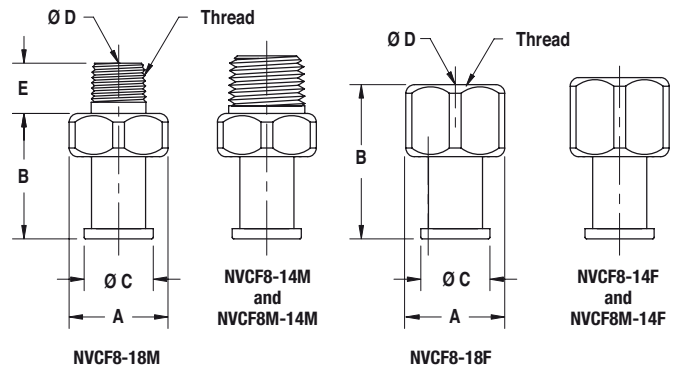
Example: Cup with Fitting

● Fitting Groups 7



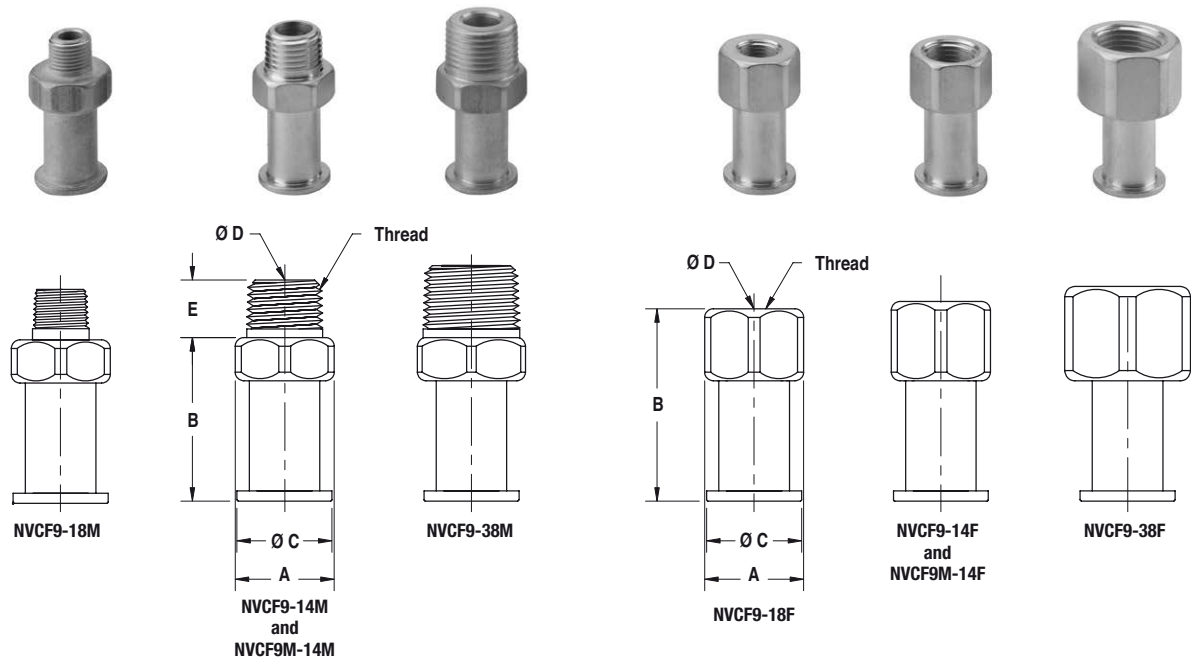
Part Number	Thread Size	Dimensions					Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)		
NVCF7-1032M	10-32 Male	0.31 (7.90)	0.39 (9.90)	0.24 (6.10)	0.09 (2.40)	0.16 (4.10)	0.10 (2.80)	Brass
NVCF7-18M	1/8 NPT Male	0.50 (12.70)	0.49 (12.40)	0.26 (6.50)	0.16 (4.10)	0.30 (7.60)	0.40 (11.00)	Brass
NVCF7-18F	1/8 NPT Female	0.50 (12.70)	0.76 (19.30)	0.26 (6.50)	0.16 (4.10)	N/A N/A	0.40 (11.00)	Brass

● Fitting Groups 8

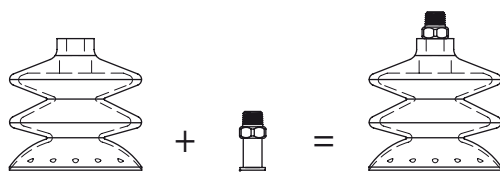


Part Number	Thread Size	Dimensions					Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)		
NVCF8-18M	1/8 NPT Male	0.69 (17.40)	0.87 (22.10)	0.48 (12.20)	0.28 (7.10)	0.35 (8.90)	0.30 (8.50)	Aluminum
NVCF8-14M	1/4 NPT Male	0.69 (17.40)	0.87 (22.10)	0.48 (12.20)	0.28 (7.10)	0.40 (10.20)	0.30 (8.50)	Aluminum
NVCF8-18F	1/8 NPT Female	0.69 (17.40)	1.07 (27.20)	0.48 (12.20)	0.28 (7.10)	N/A N/A	0.30 (8.50)	Aluminum
NVCF8-14F	1/4 NPT Female	0.69 (17.40)	1.12 (28.40)	0.48 (12.20)	0.28 (7.10)	N/A N/A	0.30 (8.50)	Aluminum
NVCF8M-14M	G 1/4 Male	0.69 (17.40)	0.74 (18.80)	0.48 (12.20)	0.28 (7.10)	0.45 (11.40)	0.30 (8.50)	Aluminum
NVCF8M-14F	G 1/4 Female	0.69 (17.40)	1.12 (28.40)	0.48 (12.20)	0.28 (7.10)	N/A N/A	0.30 (8.50)	Aluminum

● Fitting Groups 9

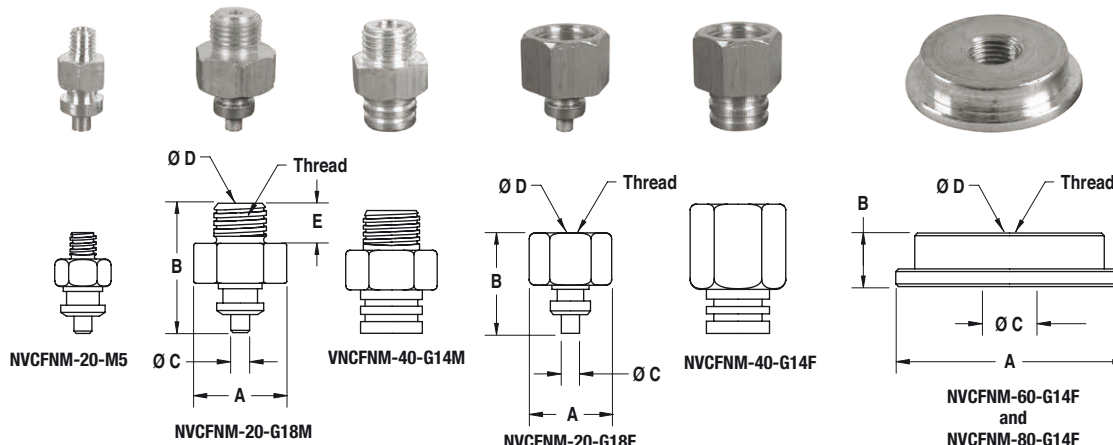


Part Number	Thread Size	Dimensions			D Thru Hole Diameter in. (mm)	E in. (mm)	Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)				
NVCF9-18M	1/8 NPT Male	0.69 (17.40)	1.14 (28.80)	0.66 (16.80)	0.22 (5.60)	0.35 (8.90)	0.40 (11.00)	Aluminum
NVCF9-14M	1/4 NPT Male	0.69 (17.40)	1.14 (28.80)	0.66 (16.80)	0.34 (8.60)	0.40 (10.20)	0.40 (11.00)	Aluminum
NVCF9-38M	3/8 NPT Male	0.75 (19.10)	1.14 (28.80)	0.66 (16.80)	0.34 (8.60)	0.50 (12.70)	0.60 (17.00)	Aluminum
NVCF9-18F	1/8 NPT Female	0.69 (17.40)	1.34 (33.90)	0.66 (16.80)	0.34 (8.60)	N/A N/A	0.40 (11.00)	Aluminum
NVCF9-14F	1/4 NPT Female	0.69 (17.40)	1.39 (35.20)	0.66 (16.80)	0.34 (8.60)	N/A N/A	0.40 (11.00)	Aluminum
NVCF9-38F	3/8 NPT Female	0.88 (22.40)	1.49 (37.80)	0.66 (16.80)	0.34 (8.60)	N/A N/A	0.50 (14.00)	Aluminum
NVCF9M-14M	G 1/4 Male	0.69 (17.40)	1.14 (28.80)	0.66 (16.80)	0.34 (8.60)	0.40 (10.20)	0.40 (11.00)	Aluminum
NVCF9M-14F	G 1/4 Female	0.69 (17.40)	1.39 (35.20)	0.66 (16.80)	0.34 (8.60)	N/A N/A	0.40 (11.00)	Aluminum



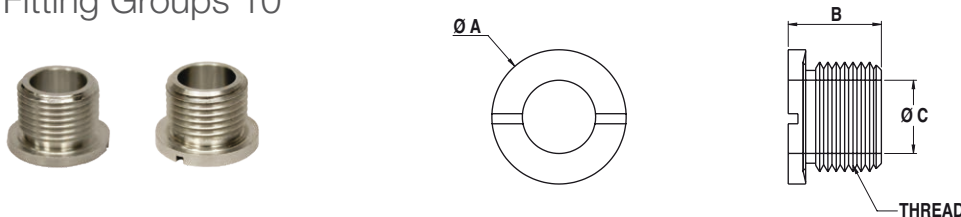
Example: Cup with Fitting

● Fitting Groups NM



Part Number	Thread Size	Dimensions					Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)	D Thru Hole Diameter in. (mm)	E in. (mm)		
NVCFNM-20-M5	M5 Male	0.32 8.13	0.55 13.97	0.32 8.13	0.10 2.54	0.20 5.08	0.04 oz 1.1 g	Aluminum
NVCFNM-20-G18F	G 1/8 Female	0.55 13.97	0.73 18.54	0.32 8.13	0.10 2.54	N/A	0.2 oz 5.7 g	Aluminum
NVCFNM-20-G18M	G 1/8 Male	0.55 13.97	0.61 15.49	0.32 8.13	0.10 2.54	0.28 7.11	0.2 oz 5.7 g	Aluminum
NVCFNM-40-G14F	G 1/4 Female	0.69 17.40	1.04 26.42	0.51 12.95	0.30 7.62	N/A	0.2 oz 5.7 g	Aluminum
NVCFNM-40-G14M	G 1/4 Male	0.32 8.00	0.67 17.02	0.51 12.95	0.30 7.62	0.31 7.87	0.3 oz 7.7 g	Aluminum
NVCFNM-60-G14F	G 1/4 Female	1.67 42.42	0.39 9.91	1.39 35.31	0.59 15.00	N/A	0.94 oz 26.6 g	Aluminum
NVCFNM-80-G14F	G 1/4 Female	1.67 42.42	0.39 9.91	1.39 35.31	0.59 15.00	N/A	0.94 oz 26.6 g	Aluminum

● Fitting Groups 10



Part Number	Thread Size	Dimensions			Weight oz (g)	Material
		A-Hex in. (mm)	B in. (mm)	C in. (mm)		
NVCF10-38-NPS	3/8 in. NPS Male	0.825 (21.00)	0.573 (14.60)	0.450 (11.40)	0.15 (4.30)	Aluminum
NVCF10M-38	3/8 BSP Male	0.825 (21.00)	0.573 (14.60)	0.450 (11.40)	0.15 (4.30)	Aluminum