Vacuum Cups

A

Section A

Convum

A

Selecting the Proper Vacuum Cup

CAUTION

Selecting the type of vacuum cup, material, and size suitable for an application is important to the overall vacuum system. Calculating the forces involved for each application is recommended to determine the vacuum cup size. It should be noted that these calculations are basic theoretical guidelines and each application must be tested for actual results. With all vacuum applications, certain practical assumptions concerning cup materials, environmental conditions, and product characteristics to name a few, may not be consistent with the performance. Again, the user should determine the efficiency, performance, and safety factor of the cup selection.

Calculating Pad Diameter and Forces

Mass

The term mass is a quantity of matter and its ability to resist motion when acted on by an external force. The magnitude of an object is represented as a certain number of kilograms (kg) and is symbolized as "m". The easiest way to determine the mass of an object is to measure the weight with a scale within the earth's gravitational field (ag = 9,81 m/sec^2). Likewise, outside of any gravitational field, a mass could potentially be weightless.

Forces

For vacuum applications, force is a vector quantity in a defined direction either horizontal or vertical. The standard international unit of force is measured in Newtons (N) which is the equivalent of (kgm/sec^2). The force can be calculated by measuring the effect of a change in acceleration on a mass.

Newtons Law: F(N) = mass (kg) x ag(m/sec^2)

Consider an object with a mass of 10kg. The gravitational force on this object would be:

F(N) = 10 kg x 9,81 m/sec^2 = 98,1 N

Acceleration

Acceleration is the change in velocity of a moving object. Acceleration is a vector, a directional quantity expressed in units of meters per second squared (m/sec^2) and symbolized as "*a*". To explain the magnitude of acceleration consider an object with a change in velocity of 2 meters per second (m/sec) over a 4 second time frame. The acceleration can be calculated with:

$$a = \frac{\Delta \text{ velocity}}{\text{time}} \qquad a = \frac{2 \text{ m/sec}}{4 \text{ sec}} \qquad a = 0{,}5 \text{ m/sec}^2$$

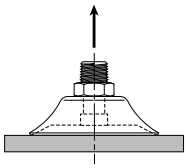
This is considered an average acceleration.

Coefficient of Friction

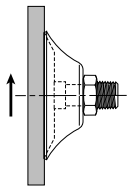
Certain values for coefficient of friction should be taken into consideration when calculating the combined forces in motion. Actual values between suction cups and surfaces are difficult to determine. Therefore, coefficient of friction values from published charts, should be used as a reference to adjust the safety factors accordingly.

Lifting Forces

When calculating lifting forces, safety factors of 2 for horizontal lifts and 4 for vertical lifts are minimum values. Applications with irregular shapes, difficult surfaces, and ackward motions will require increased safety factors.



F_H: Horizontal Lift



F_V: Vertical Lift

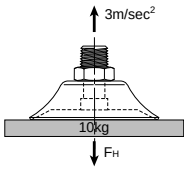
Horizontal Lifting Force

Apply Newtons Law to calculate the force on a 10kg mass with a change in acceleration of 3m/sec^2 and a safety factor of 2.

FH(N) = mass (kg) x (ag+ a) x SH

FH(N) = 10 kg x (9,81 m/sec^2 +3 m/sec^2) x 2

FH = 256,2 N



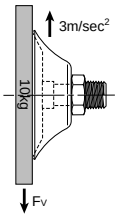
Vertical Lifting Force

Apply Newtons Law to calculate the force on a 10kg mass with a dry surface, a change in acceleration of 3m/sec^2 and a safety factor of 4.

FV(N) = mass (kg) x (ag+ a) x Sv

FV(N) = 10 kg x (9,81 m/sec^2 +3 m/sec^2) x 4

FV = 512,4 N



Combined Vertical Lift and Horizontal Motion

Calculate the force on a 10kg mass with a dry surface, a change in acceleration of 3m/sec^2, and a change in travel acceleration of 2m/sec^2.

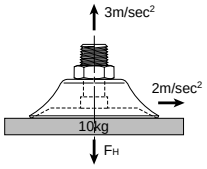
$$FM(N) = \sqrt{FV^2 + FH^2}$$

$$FM(N) = \sqrt{[(10 \text{ kg x } 2 \text{ m/sec}^2) \text{ x } 4]^2 + [10 \text{ kg x } (9{,}81 \text{ m/sec}^2 + 3 \text{ m/sec}^2) \text{ x } 2]^2}$$

$$FM(N) = \sqrt{(80 \text{ kgm/sec}^2)^2 + [256 \text{ kgm/sec}^2]^2}$$

$$FM(N) = \sqrt{6400 \text{ kgm/sec}^2 + 65{,}536 \text{ kgm/sec}^2}$$

FM = 268,2 N



Analyze the Forces

Using the previous examples, consider an application where 4 cups have been selected to transfer the product.

Take the Horizontal Lifting Force (F_H) of 256,2 N and divide by the number of cups (4) to obtain the individual force for each cup.

$$\frac{256,2\ (N)}{4} = 64,05\ N/Cup$$

Refering to the chart below, at 60% vacuum, select a force greater than 64,05 N. The appropriate selection is a 40mm diameter cup which has a theoretical lifting force of 76,9 N.

The same calculation can be applied to the Vertical Lifting Force and the Forces in Motion examples to determine the cup diameter.

To convert Pounds (Lb_f) to Newton (N), multiply Lb_f x 4,4.

Calculate the Diameter of the Cup

For non-porus applications, calculate the cup diameter at 60% of full vacuum.

$$A = \left(\frac{m\ (a_g + a)}{n}\right) \times S\ /\ P_V$$

$$A = \frac{10\ (9,81 + 3)}{4} \times 10 \times 2\ /\ 61 = 10,5\ cm^2$$

$$D = 20\sqrt{\frac{A}{3,14}}$$

$$D = 20\sqrt{\frac{10,5}{3,14}}$$

$$D = 37\ mm$$

A (cm^2) = Area
D [mm] = Diameter of Cup
S = Safety Factor
P_V (kPa) = Operating Vacuum Pressure = 61kPa
n = Number of Cups

Refering to the chart below, at 60% vacuum, select a cup diameter equal to or greater than 37mm. The appropriate selection is a 40mm diameter cup which has a theoretical lifting force of 76,9 N.

Theoretical Lifting Force Per Cup (Newton, N)

Cup		Vacuum Level								
Diameter	Area	10	20	30	40	50	60	70	80	90
[mm]	[cm^2]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
1	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,07	0,07
2	0,03	0,03	0,06	0,10	0,13	0,16	0,19	0,22	0,25	0,28
3,5	0,10	0,10	0,20	0,29	0,39	0,49	0,59	0,69	0,78	0,88
5	0,20	0,20	0,40	0,60	0,80	1,00	1,20	1,40	1,60	1,80
6	0,28	0,29	0,58	0,87	1,20	1,40	1,70	2,00	2,30	2,60
7	0,39	0,39	0,78	1,18	1,60	2,00	2,40	2,70	3,10	3,50
8	0,50	0,52	1,02	1,54	2,00	2,60	3,10	3,60	4,10	4,60
10	0,79	0,80	1,60	2,40	3,20	4,00	4,80	5,60	6,40	7,20
15	1,77	1,80	3,60	5,41	7,20	9,00	10,8	12,6	14,4	16,2
18	2,55	2,60	5,20	7,79	10,4	13,0	15,6	18,1	20,8	23,3
20	3,14	3,20	6,40	9,60	12,8	16,0	19,2	22,4	25,6	28,8
25	4,91	5,00	10,0	15,0	20,0	25,0	30,0	35,0	40,0	45,0
30	7,07	7,20	14,4	21,6	28,8	36,0	43,2	50,4	57,6	64,8
35	9,62	9,80	19,6	29,4	39,2	49,0	58,9	68,6	78,5	88,2
40	12,6	12,9	25,6	38,5	51,2	64,0	76,9	89,6	103	115
50	19,6	20,1	40,0	60,1	80,0	100	120	140	160	180
60	28,3	28,9	57,6	86,5	115	144	173	202	231	259
75	44,2	45,2	90,0	135	180	225	270	315	360	405
80	50,3	51,4	102	154	205	256	308	359	410	461
90	63,6	65,1	130	195	259	324	389	454	519	583
95	70,9	72,5	144	217	289	361	434	506	578	650
110	95,0	97,2	194	291	387	484	581	678	775	871
120	113,1	116	230	346	461	576	692	807	922	1037
150	176,7	181	360	541	720	900	1081	1260	1441	1620
200	314,2	321	640	961	1279	1601	1922	2241	2562	2880

Material specifications

Cup material should be considered for temperature resistance, chemical resistance, oil resistance, abrasion resistance, markless properties, and electrical properties.

Suction Cup Material	NBR	NBRE	CR	CRE	SI	SIE	U	FKM	SH	Z
Name	Nitrile	Nitrile Anti-Static	Chloroprene	Chloroprene Anti-Static	Silicone	Silicone Anti-Static	Urethane	Viton	High Temp. Material	Markless Material
Operating Temperature [°C]	-20 to +120	-30 to +120	-30 to +140	-30 to +140	-60 to +250	-60 to +250	-30 to +120	-10 to +230	-50 to +300	-10 to +230
Color	Black	Black / Blue Dot	Green	Black	White	Black / Red Dot	Blue	Black / White Dot	Grey	Black / Yellow Dot
Hardness, Shore A [°Sh]	55 ±5	70 ±5	55 ±5	20 ±5	55 ±5	55 ±5	55 ±5	70 ±5	55 ±5	70 ±5
Electrical Resistance [Ω cm]	—	800 to 1000	—	100 to 1000	—	5 to 15	—	—	—	—
Wear Resistance	•••••	•••••	••	•••••	••••••		•••	•••••	••••	•••••
Tear Strength	••••		•••••	••	•		••••••	•	•••••	•
Aging Resistance	••••		•••••	••••	••••••		••••••	••••••	•••••	••••••
Ozone Resistance	••••		•••••	••••	••••••		••••••	••••••	••	••••••
Gasoline Resistance	••••••		•••••	—	••••		•••••	••••••	••	••••••
Oil Resistance	••••••		•••••	—	••••••		•••••	••••••	•••	••••••
Acid Resistance	•••		•••••	•••	•••		•	••••••	••	••••••
Alkali Resistance	••••		•••••	•••••	•••		•	••••••	••	••••••
Chemical Resistance	•••		••••	••••	••		••	••••••	•••	••••••
Mechanical Resistance	••••		•••••	•••••	••		••••••	•••	•••••	•••

•••••• = excellent; ••••• = very good; •••• = good; ••• = medium; •• = poor; • = not recommended

Suction Cup in this catalogue are shown in selected material only.
Other materials are available on request.

Index of Vacuum Component Symbols

Symbol	Description
Suction Cup Icons	
	**Flat Surface, Thin Section**
	**Flat Surface, Any Section**
	**Soft Porous Material, Thin Section**
	**Soft Porous Material, Any Section**
	**Slightly Bowed Surface, Thin Section**
	**Slightly Bowed Surface, Any Section**
	**Bowed Surface, Thin Section**
	**Bowed Surface, Any Section**
	**Soft Material**
	**Metal Sheet Handling**
	**Corrugated Sheet Handling**

Symbol	Description
Suction Cup Icons	
	**Differences In Heights and Levels**
	**Vertical Lift**
	**Not For Vertical Lift**
	**Rough and / or Abrasive Surfaces**
	**Thin or Narrow Item Handling**
	**Oil Resistant**
	**High Lifting Force**
	**Vertical Lifting Force**
	**Horizontal Lifting Force**

PFG Flat Vacuum Cups

Features

- **Universal Flat Design for Most Smooth Surface Applications**
- **Stable Vertical / Horizontal Lift**
- **Strong Low Profile Design for Fast Response Needed for Short Cycles**
- **1 mm to 200 mm Diameters**

Applications

Exceptional for any smooth flat or surface that will benefit from stability and fast response of the cup design. This is a multi-versatile and multi-industry cup. Typical applications could be chip mounting, electrical components, semiconductor chips, glass, injection mold, sheet metal, press transfer, fixtures, woodworking.

PFG Series Vacuum Cups

Precision molded single lip flat cup for smooth or slightly curved surfaces.

PFTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PFTF Series Female Thread Connector

Simple female connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PFTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PFYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt thru a plate or “L” bracket to allow the tube connection from the side port. Nickel plated brass materials.

PFTYS Series Bulkhead Level Compensator

303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.

A

Model Number Index

PFG - 2A - NBR

Cup Diameter [mm]			
1	1	**30**	30
1.5	1,5	**35**	35
2A	2	**40**	40
3.5A	3,5	**50**	50
5A	5	**60**	60
6A	6	**80**	80
8A	8	**95**	95
10A	10	**120**	120
15A	15	**150**	150
20B	20	**200**	200
25	25		

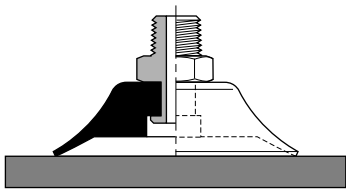
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

Application Guide

Flat - Smooth Surface

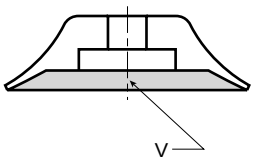
Ø 120/200 Only



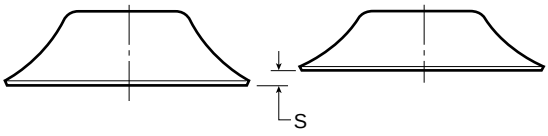
- Products With Smooth Surfaces
- Products With Minimum Flex
- Products That Will Not Permanently Deform

Main Data for Flat PFG Cups

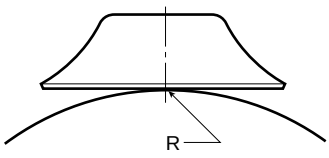
Volume



Cup Deflection



Radius



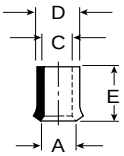
Model Number	Cup Diameter [mm]	Area [cm^2]	Volume [V] Liters	Lifting Force @60% [N]		Cup Deflection [S] [mm]	Radius [R] [mm]
							
PFG-1-*	1	0,008	0,00000015	0,05	0,025	0,1	1,6
PFG-1.5-*	1,5	0,01	0,00000053	0,10	0,05	0,1	3,5
PFG-2A-*	2	0,03	0,0000007	0,19	0,09	0,1	1,75
PFG-3.5A-*	3	0,10	0,000002	0,59	0,29	0,2	2,0
PFG-5A-*	5	0,20	0,000005	1,20	0,6	0,5	3,5
PFG-6A-*	6	0,28	0,000008	1,70	0,85	1,0	4,0
PFG-8A-*	8	0,50	0,00003	3,10	1,5	1,4	5,0
PFG-10A-*	10	0,79	0,00007	4,80	2,4	1,5	6,0
PFG-15A-*	15	1,77	0,0004	10,8	5,4	1,9	6,0
PFG-20B-*	20	3,14	0,0008	19,2	9,6	2,3	13,0
PFG-25-*	25	4,91	0,0013	30,0	15,0	3,0	17,5
PFG-30-*	30	7,07	0,0018	43,2	21,6	2,0	26
PFG-35-*	35	9,62	0,0026	58,9	29,5	3,0	31
PFG-40-*	40	12,60	0,004	76,9	38,5	3,5	37
PFG-50-*	50	19,60	0,007	120	60	4,0	41
PFG-60-*	60	28,30	0,0090	173	87	5,0	70
PFG-80-*	80	50,30	0,025	308	154	6,0	100
PFG-95-*	95	70,90	0,035	434	267	6,0	150
PFG-120-*	120	113,00	0,078	692	346	6,0	365
PFG-150-*	150	176,70	0,177	1081	541	9,0	380
PFG-200-*	200	314,20	0,425	1922	961	13,0	430

* Cup Material

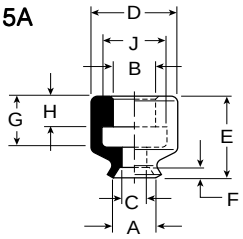
A

Dimensions

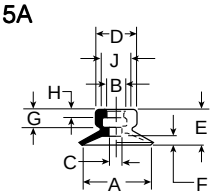
PFG-1
PFG-1.5



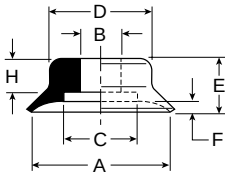
PFG-2A
PFG-3.5A



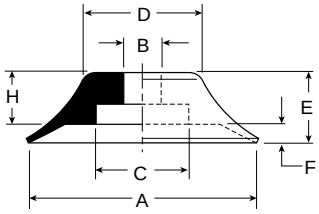
PFG-5A
PFG-15A



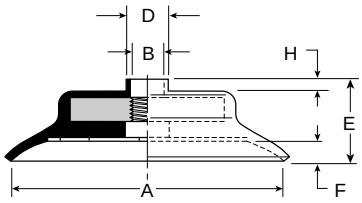
PFG-20B thru
PFG-40



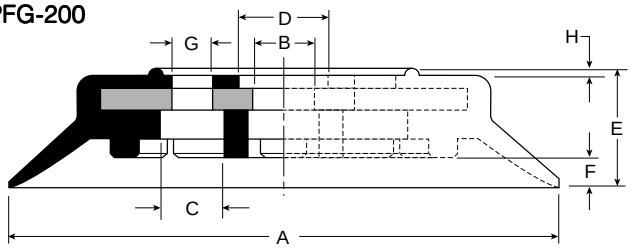
PFG-50



PFG-60 thru
PFG-95



PFG-120 thru
PFG-200



Model Number	ØA	ØB	ØC	ØD	E	F	G	H	ØJ
PFG-1-*	1	—	0,8	1,2	1,6	—	—	—	—
PFG-1.5-*	1,5	—	1,2	1,8	2,5	—	—	—	—
PFG-2A-*	2	2	1,2	4	4	0,5	2,5	1,5	3
PFG-3.5A-*	3,5	2	1,2	4	4	0,5	2,5	1,5	3
PFG-5A-*	5	4	1,4	7,5	6,5	0,8	4	2	6
PFG-6A-*	6	4	2	7,5	6,5	0,8	4	2	6
PFG-8A-*	8	4	2	8	7	1,2	4	2	6
PFG-10A-*	10	4	2	8,5	7,5	1,5	4	2	6
PFG-15-*	15	—	7,8	12	8	1,9	—	—	—
PFG-15A-*	15	4	2	9	8	2	4	2	6
PFG-20-*	20	4,6	11	15	10	2,3	—	4,5	—
PFG-20B-*	20	6	11	15	12,5	2,3	—	7	—
PFG-25-*	25	6	11	16	14	3	—	7	—
PFG-30-*	30	6	11	14	12	2	—	7	—
PFG-35-*	35	6	11	21	14	3	—	7	—
PFG-40-*	40	6	11	24	14	4	—	7	—
PFG-50-*	50	8	20	27	15	3,5	—	7	—
PFG-60-*	60	M10x1,25	—	12,5	18,5	5	—	2,5	—
PFG-80-*	80	M10x1,25	—	12,5	20,5	6	—	2,5	—
PFG-95-*	95	M10x1,25	—	12,5	21	6	—	2,5	—
PFG-120-*	120	14	14	20	25,5	6	4xØ8,7xØ40	1,5	—
PFG-150-*	150	13	14	20	32,5	9	4xØ8,7xØ40	1,5	—
PFG-200-*	200	13	12	20	37,5	13	4xØ8,7xØ40	1,5	—

Millimeter

* Cup Material

PFTM Vacuum Cup Assemblies

Model Number Index

PFTM - 2A - NBR - M5

Cup Diameter [mm]			
2A	2	**25**	25
3.5A	3,5	**30**	30
5A	5	**35**	35
6A	6	**40**	40
8A	8	**50**	50
10A	10	**60**	60
15A	15	**80**	80
20B	20	**95**	95

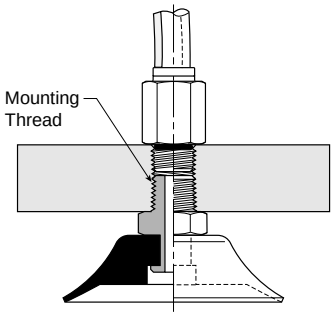
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

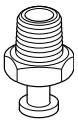
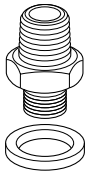
Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



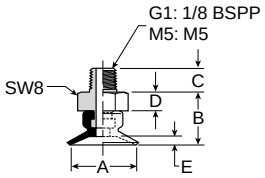
Male Thread Fitting for PFG Cups

PFG Cup Diameter [mm]	FTM Fitting Part Number	Mounting Thread
 2A 3.5A	FTM-2A-M5	M5x0,8 Male
5A 6A 8A 10A 15A	FTM-5A-M5 FTM-5A-G1	M5x0,8 Male 1/8 BSPP Male
 20B 25 30 35 40	FTM-20B-G1 FTM-20B-G2	1/8 BSPP Male 1/4 BSPP Male
50	FTM-50-G1 FTM-50-G2	1/8 BSPP Male 1/4 BSPP Male
 60 80 95	FTM-60-G2	1/4 BSPP Male

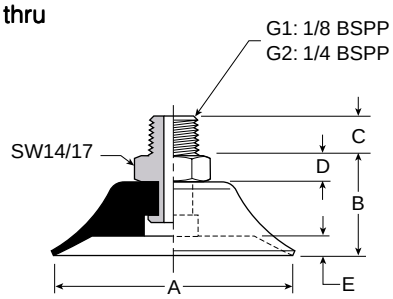
A

Dimensions

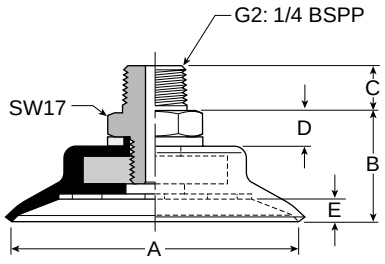
PFTM-2A thru
PFTM-15A



PFTM-20B thru
PFTM-50



PFTM-60 thru
PFTM-95



Model Number	ØA	B	C	D	E
PFTM-2A-*-†	2	7,5	4,5	3,5	5
PFTM-3.5A-*-†	3,5	7,5	4,5	3,5	5
PFTM-5A-*-†	5	10	4,5	3,5	8
PFTM-6A-*-†	6	10	4,5	3,5	8
PFTM-8A-*-†	8	10,5	4,5	3,5	1,2
PFTM-10A-*-†	10	11	4,5	3,5	1,5
PFTM-15A-*-†	15	11,5	4,5	3,5	2
PFTM-20B-*-†	20	17,5	8	5	2,5
PFTM-25-*-†	25	19	8	5	3
PFTM-30-*-†	30	17	8	5	2
PFTM-35-*-†	35	19	8	5	3
PFTM-40-*-†	40	19	8	5	3,5
PFTM-50-*-†	50	20	8	5	4
PFTM-60-*-†	60	23	10	7	5
PFTM-80-*-†	80	25	10	7	6
PFTM-95-*-†	95	25,5	10	7	6

Millimeter

* Cup Material
† Thread Size

PFTF Vacuum Cup Assemblies

Model Number Index

PFTF - 5A - NBR - M5

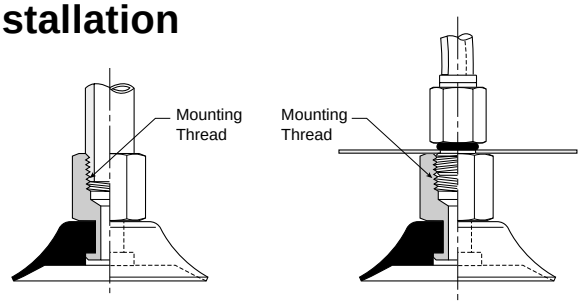
Cup Diameter [mm]			
5A	5	**40**	40
6A	6	**50**	50
8A	8	**60**	60
10A	10	**80**	80
15A	15	**95**	95
20B	20	**120**	120
25	25	**150**	150
30	30	**200**	200
35	35		

Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
G4	1/2 BSPP
See Chart Below	

Installation



Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

Female Thread Fitting for PFG Cups

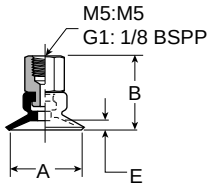
PFG Cup Diameter [mm]	FTF Fitting Part Number	Mounting Thread
5A 6A 8A 10A 15A	FTF-5A-M5 FTF-5A-G1	M5x0,8 Female 1/8 BSPP Female
20B 25 30 35 40	FTF-20B-G1 FTF-20B-G2	1/8 BSPP Female 1/4 BSPP Female
50	FTF-50-G1 FTF-50-G2	1/8 BSPP Female 1/4 BSPP Female
60 80 95	FTF-60-G2	1/4 BSPP Female
120 150 200	FTF-120-G4	1/2 BSPP Female

Millimeter

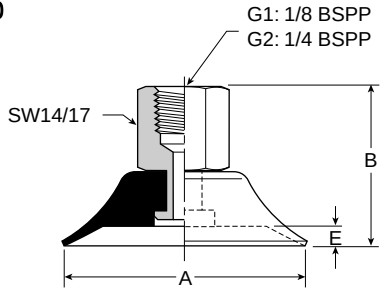
A

Dimensions

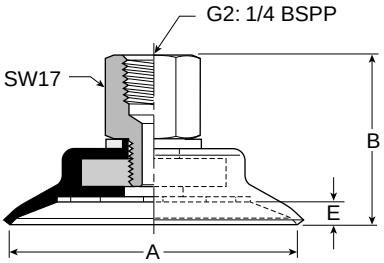
PFTF-5A thru
PFTF-15A



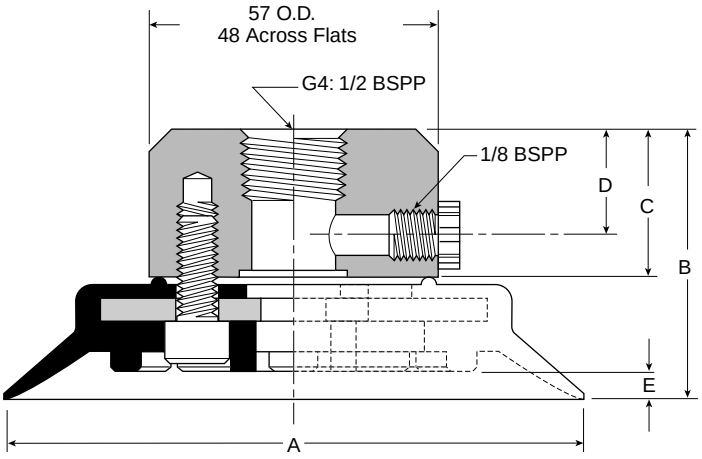
PFTF-20B thru
PFTF-50



PFTF-60 thru
PFTF-95



PFTF-120 thru
PFTF-200



Model Number	ØA	B	C	D	E
PFTF-5A-*-†	5	14,5	—	—	0,8
PFTF-6A-*-†	6	14,5	—	—	0,8
PFTF-8A-*-†	8	15	—	—	1,2
PFTF-10A-*-†	10	14,5	—	—	1,5
PFTF-15A-*-†	15	16	—	—	2
PFTF-20B-*-†	20	26,5	—	—	2,5
PFTF-25-*-†	25	28	—	—	3
PFTF-30-*-†	30	26	—	—	2
PFTF-35-*-†	35	28	—	—	3
PFTF-40-*-†	40	28	—	—	4
PFTF-50-*-†	50	29	—	—	4
PFTF-60-*-†	60	35,5	—	—	5
PFTF-80-*-†	80	37,5	—	—	6
PFTF-95-*-†	95	38	—	—	6
PFTF-120-*-†	120	46,5	24	13	6
PFTF-150-*-†	150	53,5	24	13	9
PFTF-200-*-†	200	58,5	24	13	13

Millimeter

* Cup Material
† Thread size

PFTK Vacuum Cup Assemblies

Model Number Index

PFTK - 2A - NBR - —

Cup Diameter [mm]			
2A	2	**25**	25
3.5A	3,5	**30**	30
5A	5	**35**	35
6A	6	**40**	40
8A	8	**50**	50
10A	10	**60**	60
15A	15	**80**	80
20B	20	**95**	95

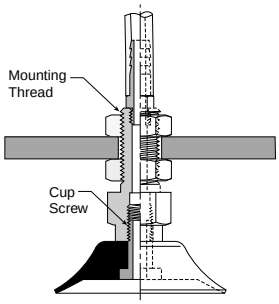
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request. Please see page 8 for material specifications.

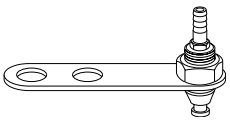
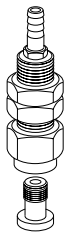
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PFG Cups

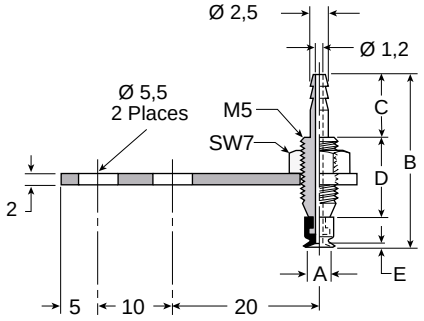
PFG Cup Diameter [mm]	FTK Part Number	Mounting Thread
 2A 3.5A	FTK-2A	M5x0,5 Male
 5A 6A 8A 10A 15A	FTK-5A	M9x1,0 Male
 20B 25 30 35 40	FTK-20B	M10x1,5 Male
50	FTK-50	M10x1,5 Male
 60 80 95	FTK-60-G1	M16x1,5 Male

Millimeter

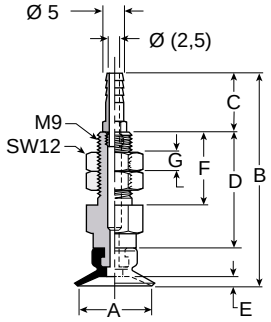
A

Dimensions

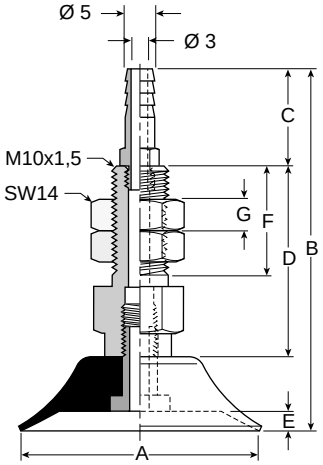
PFTK-2A thru
PFTK-3.5A



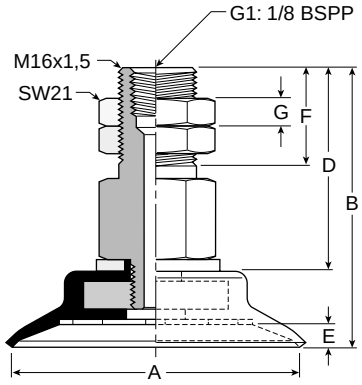
PFTK-5A thru
PFTK-15A



PFTK-20B thru
PFTK-50



PFTK-60 thru
PFTK-95



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PFTK-2A-*	2	23,5	8,5	11	0,5	—	—	8
PFTK-3.5A-*	3,5	23,5	8,5	11	0,5	—	—	8
PFTK-5A-*	5	30,5	10	14	0,8	15,5	3	11
PFTK-6A-*	6	30,5	10	14	0,8	15,5	3	11
PFTK-8A-*	8	31	10	14	1,2	15,5	3	11
PFTK-10A-*	10	46	16	22,5	1,5	15,5	3	15
PFTK-15A-*	15	46	16	22	1,9	15	3	20
PFTK-20B-*	20	48	16	22	2,3	15	5	20
PFTK-25-*	25	62	16	32	3	20	5	40
PFTK-30-*	30	60	16	32	2	20	5	40
PFTK-35-*	35	62	16	32	3	20	5	40
PFTK-40-*	40	62	16	32	3,5	20	5	40
PFTK-50-*	50	63	16	32	4	20	5	50
PFTK-60-*-†	60	58,5	—	42,5	5	20	6	130
PFTK-80-*-†	80	60,5	—	42,5	6	20	6	170
PFTK-95-*-†	95	61	—	42.5	6	20	6	220

Millimeter

* Cup Material
† Vacuum Port

PFYK Vacuum Cup Assemblies

Model Number Index

PFYK - 5A - NBR - —

Cup Diameter [mm]			
2A	2	**35**	35
3.5A	2	**40**	40
5A	5	**50**	50
6A	6	**60**	60
8A	8	**80**	80
10A	10	**95**	95
15A	15	**120**	120
20B	20	**150**	150
25	25	**200**	200
30	30		

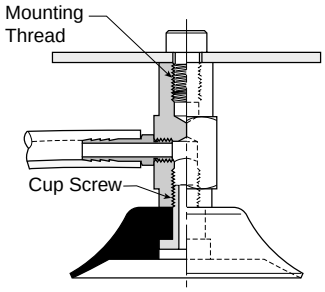
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request. Please see page 8 for material specifications.

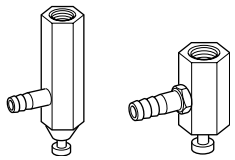
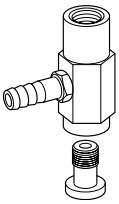
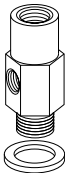
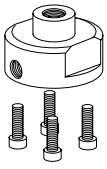
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PFG Cups

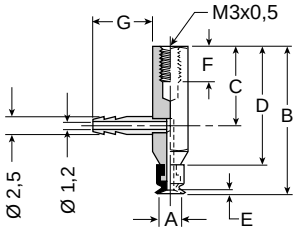
PFG Cup Diameter [mm]	FYK Part Number	Mounting Thread
 2A, 3.5A	FYK-2A	M3x0,5 Female
5A, 6A, 8A, 10A, 15A	FYK-5A	M4x0,7 Female
 20B, 25, 30, 35, 40	FYK-20B	M6x1,0 Female
50	FYK-50	M6x1,0 Female
 60, 80, 95	FYK-60-G1	M8x1,25 Female
 120, 150, 200	FYK-120-G1	M16x1,5 Female

Millimeter

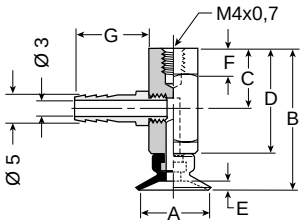
A

Dimensions

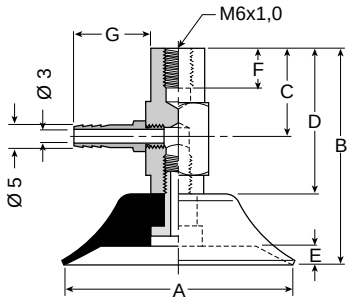
PFYK-2A thru
PFYK-3.5A



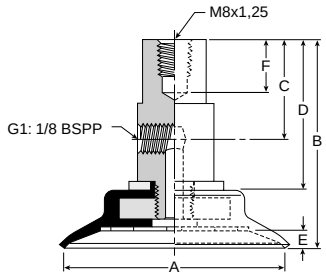
PFYK-5A thru
PFYK-15A



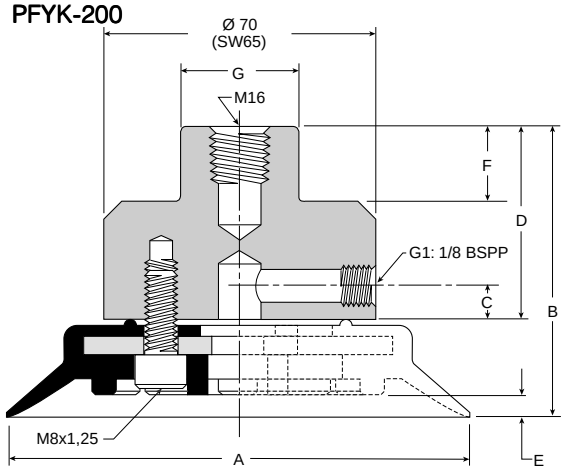
PFYK-20B thru
PFYK-50



PFYK-60 thru
PFYK-95



PFYK-120 thru
PFYK-200



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PFYK-2A-*	2	20	11	16	0,5	0,5	8,5	3
PFYK-3.5A-*	3,5	20	11	16	0,5	0,5	8,5	3
PFYK-5A-*	5	29	13	22,5	0,8	6	16	16
PFYK-6A-*	6	29	13	22,5	0,8	6	16	16
PFYK-8A-*	8	29,5	13	22,5	1,2	6	16	16
PFYK-10A-*	10	30	13	22,5	1,5	6	16	16
PFYK-15A-*	15	30	14	22	1,9	6	16	20
PFYK-20B-*	20	32	14	22	2,3	6	16	20
PFYK-25-*	25	46	20	32	3	8	16	40
PFYK-30-*	30	44	20	32	2	8	16	40
PFYK-35-*	35	46	20	32	3	8	16	40
PFYK-40-*	40	46	20	32	3,5	8	16	50
PFYK-50-*	50	47	20	32	4	8	16	55
PFYK-60-*-†	60	58,5	28	40	5	11	—	120
PFYK-80-*-†	80	60,5	28	40	6	11	—	160
PFYK-95-*-†	95	61	28	40	6	11	—	210
PFYK-120-*-†	120	75,5	12	50	6	20	Ø 30	640
PFYK-150-*-†	150	82,5	12	50	9	20	Ø 30	910
PFYK-200-*-†	200	87,5	12	50	13	20	Ø 30	1200

Millimeter
* Cup Material
† Vacuum Port

PFTYS Vacuum Cup Assemblies

Model Number Index

PFTYS | **2A** | **15** | **NBR** | **M3**

Cup Diameter [mm]		Stroke [mm]
2A	2	**3, 10, 15**
3.5A	3,5	
5A	5	
6A	6	
8A	8	
10A	10	
15A	15	
20B	20	**6, 15, 30**
25	25	
30	30	
35	35	
40	40	
50	50	
60	60	**30, 50, 70**
80	80	
95	95	
120	120	**20, 70**
150	150	
200	200	

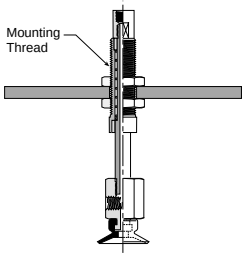
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request. Please see page 8 for material specifications.

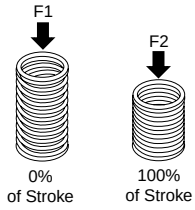
Vacuum Port	
M3	M3
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

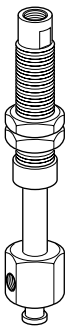
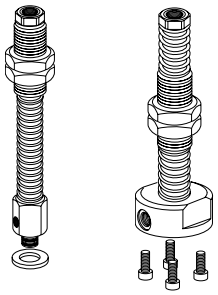
Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Compression Force



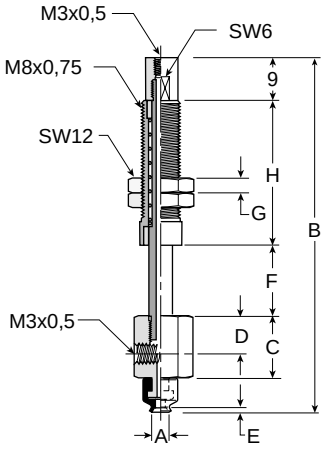
Bulkhead Level Compensator for PFG Cups

PFG Cup Diameter [mm]		FTYS Part Number	Vacuum Ports	F1 N	F2 N
	2A	FTYS-2A-3-M3	M3x0,5 Female	0,49	0,59
	3.5A	FTYS-2A-10-M3		0,49	0,59
		FTYS-2A-15-M3		0,49	0,59
	5A				
	6A	FTYS-5A-3-M5		0,49	0,59
	8A	FTYS-5A-10-M5	M5x0,8 Female	0,61	1,17
	10A	FTYS-5A-15-M5		0,64	1,17
	15A				
	20B				
	25	FTYS-20B-6-M5		2,5	3,4
	30	FTYS-20B-15-M5	M5x0,8 Female	2,5	4,9
	35	FTYS-20B-30-M5		2,9	5,9
	40				
	50	FTYS-50-6-M5		2,5	3,4
		FTYS-50-15-M5	M5x0,8 Female	2,5	4,9
		FTYS-50-30-M5		2,9	5,9
	60	FTYS-60-30-G1		6,8	15,6
	80	FTYS-60-50-G1	G1: 1/8 BSPP	8,3	19,6
	95	FTYS-60-70-G1		9,5	21
	120				
	150	FTYS-120-20-G2	G2: 1/4 BSPP	15,6	29
	200	FTYS-120-70-G2		14,7	29

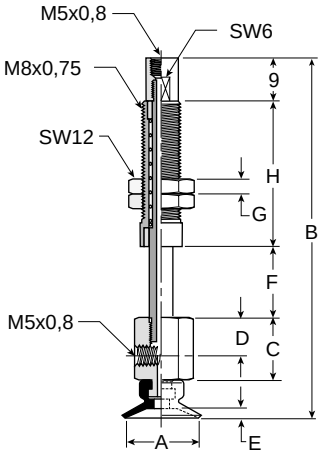
A

Dimensions

PFTYS2A3 thru
PFTYS3.5A15



PFTYS5A3 thru
PFTYS15A15

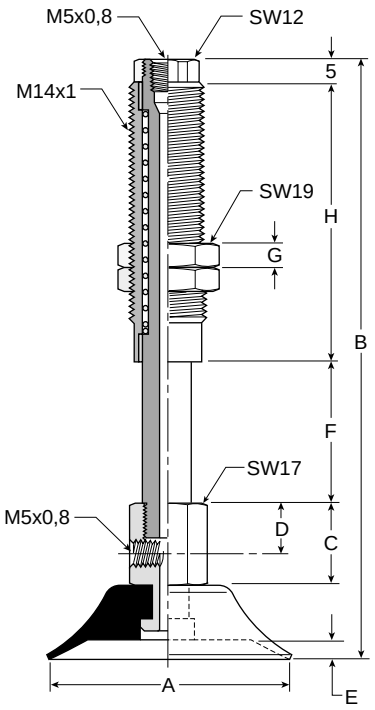


Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PFTYS2A3*†	2	50	11	7	0,5	3	3	23	6
PFTYS2A10*†	2	57	11	7	0,5	10	3	23	11
PFTYS2A15*†	2	69,5	11	7	0,5	15	3	30,5	15
PFTYS3.5A3*†	3,5	50	11	7	0,5	3	3	23	6
PFTYS3.5A10*†	3,5	57	11	7	0,5	10	3	23	11
PFTYS3.5A15*†	3,5	69,5	11	7	0,5	15	3	30,5	15
PFTYS5A3*†	5	54	13	8	0,8	3	3	23	7
PFTYS5A10*†	5	61,5	13	8	0,8	10	3	23	18,5
PFTYS5A15*†	5	74	13	8	0,8	15	3	30,5	21
PFTYS6A3*†	6	54,5	13	8	0,8	3	3	23	7
PFTYS6A10*†	6	61,5	13	8	0,8	10	3	23	18,5
PFTYS6A15*†	6	74	13	8	0,8	15	3	30,5	21
PFTYS8A3*†	8	55,5	13	8	1,2	3	3	23	7
PFTYS8A10*†	8	62	13	8	1,2	10	3	23	18,5
PFTYS8A15*†	8	74,5	13	8	1,2	15	3	30,5	21
PFTYS10A3*†	10	54	13	8	1,5	3	3	23	18
PFTYS10A10*†	10	63	13	8	1,5	10	3	23	18,5
PFTYS10A15*†	10	75	13	8	1,5	15	3	30,5	21
PFTYS15A3*†	15	56	13	8	2	3	3	23	18
PFTYS15A10*†	15	63,5	13	8	2	10	3	23	18,5
PFTYS15A15*†	15	75,5	13	8	2	15	3	30,5	21

Millimeter
* Cup Material
† Vacuum Port

Dimensions

PFTYS20B6 thru
PFTYS5030



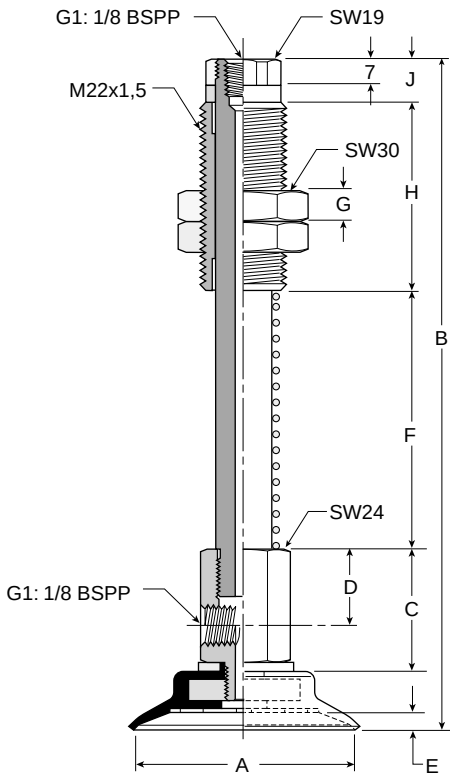
Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PFTYS20B6*†	20	76,5	17	10	2,3	6	5	36	65
PFTYS20B15*†	20	85,5	17	10	2,3	15	5	36	71
PFTYS20B30*†	20	122,5	17	10	2,3	30	5	58	96
PFTYS256*†	25	78	17	10	3	6	5	36	66
PFTYS2515*†	25	87	17	10	3	15	5	36	71
PFTYS2530*†	25	124	17	10	3	30	5	58	96
PFTYS306*†	30	76	17	10	2	6	5	36	67
PFTYS3015*†	30	85	17	10	2	15	5	36	72
PFTYS3030*†	30	122	17	10	2	30	5	58	97
PFTYS356*†	35	78	17	10	3	6	5	36	71
PFTYS3515*†	35	87	17	10	3	15	5	36	74
PFTYS3530*†	35	124	17	10	3	30	5	58	99
PFTYS406*†	40	78	17	10	3,5	6	5	36	71
PFTYS4015*†	40	87	17	10	3,5	15	5	36	76
PFTYS4030*†	40	124	17	10	3,5	30	5	58	101
PFTYS506*†	50	79	17	10	4	6	5	36	80
PFTYS5015*†	50	88	17	10	4	15	5	36	85
PFTYS5030*†	50	125	17	10	4	30	5	58	110

Millimeter
* Cup Material
† Vacuum Port

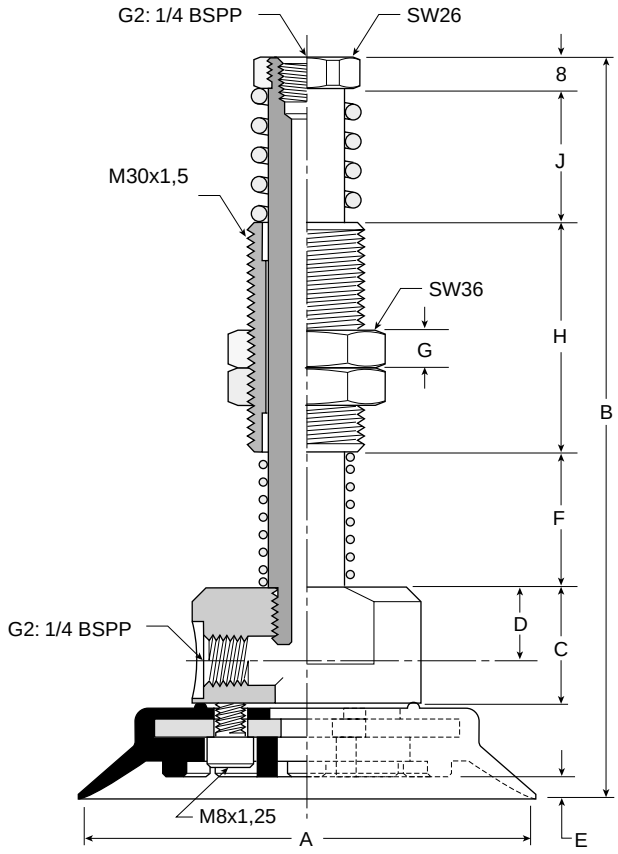
A

Dimensions

PFTYS6030 thru
PFTYS9570



PFTYS12020 thru
PFTYS20070



Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PFTYS6025*†	60	153	32,5	20	5	45	10	50	12	282
PFTYS6045*†	60	178	32,5	20	5	70	10	50	12	316
PFTYS6065*†	60	203	32,5	20	5	95	10	50	12	343
PFTYS8025*†	80	155	32,5	20	6	45	10	50	12	310
PFTYS8045*†	80	180	32,5	20	6	70	10	50	12	344
PFTYS8065*†	80	205	32,5	20	6	95	10	50	12	371
PFTYS9525*†	95	155,5	32,5	20	6	45	10	50	12	350
PFTYS9545*†	95	180,5	32,5	20	6	70	10	50	12	384
PFTYS9565*†	95	205,5	32,5	20	6	95	10	50	12	411
PFTYS12020*†	120	192	32,5	18	6	35	10	60	35	1165
PFTYS12070*†	120	257	32,5	18	6	100	10	60	35	1246
PFTYS15020*†	150	199	32,5	18	9	35	10	60	35	1389
PFTYS15070*†	150	264	32,5	18	9	100	10	60	35	1471
PFTYS20020*†	200	204	32,5	18	13	35	10	60	35	1755
PFTYS20070*†	200	269	32,5	18	13	100	10	60	35	1836

Millimeter
* Cup Material
† Vacuum Port

PFG Oval Vacuum Cups

Model Number Index

PFG - 2x4A - NBR

Cup Diameter [mm]	
2x4A	2x4
3.5x7A	3,5x7

Cup Material	
NBR	Nitrile Rubber
NBRE	Nitrile Anti-Static
SI	Silicone
SIE	Silicone Anti-Static

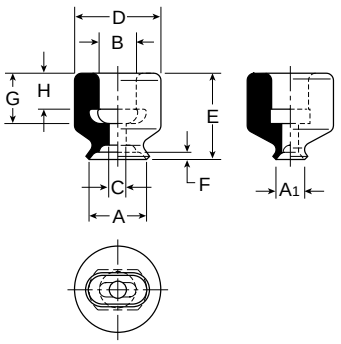
More materials on request.
Please see page 8 for material specifications.

Applications

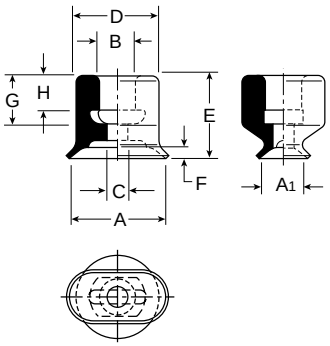
These suction cups are for applications where insufficient surface areas are available for standard round PFG cups to secure vacuum for transfer. The oval or rectangular design allows you to maximize the available space to properly lift the product in high speed automation. These cups are non-rotational.

Dimensions

PFG-2x4A



PFG -3.5x7A



Model Number	ØA	ØA$_1$	ØB	ØC	ØD	E	F	G	H
PFG-2x4A	4	2	2,6	1,2	6	6	0,5	3,5	2,5
PFG-3.5Ax7A	7	3,5	2,6	1,5	6	6	0,8	3,5	2,5

Millimeter

PFTK Vacuum Cup Assemblies

Model Number Index

PFTK - 2x4A - NBR

Cup Diameter
2x4A
3.5x7A

Cup Material	
NBR	Nitrile Rubber
NBRE	Nitrile ESD
SI	Silicone
SIE	Silicone ESD

More materials on request.
Please see page 8 for material specifications.

PFYK Vacuum Cup Assemblies

Model Number Index

PFYK - 2x4A - NBR

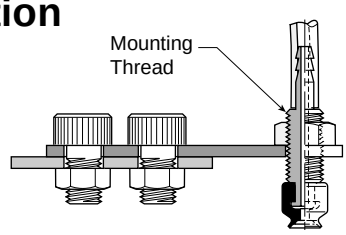
Cup Diameter
2x4A
3.5x7A

Cup Material	
NBR	Nitrile Rubber
NBRE	Nitrile ESD
SI	Silicone
SIE	Silicone ESD

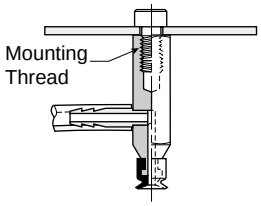
More materials on request.
Please see page 8 for material specifications.

A

Installation



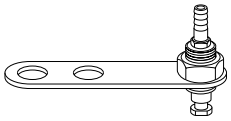
PFTK



PFYK

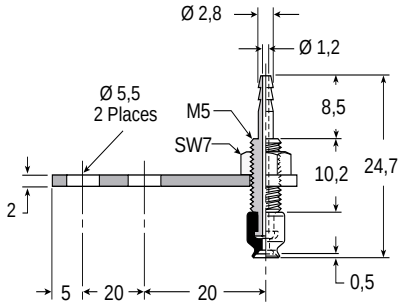
Note: When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

PFG Oval Cup with Top Stem Connection

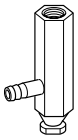
PFG Oval Cup Size [mm]	FTK Fitting Assembly	Tube ID	Mounting Thread
 2x4A 3,5x7A	FTK-2x4A/3,5x7A	2	M3x0,5 Male

Millimeter

PFTK-2x4A &
PFTK-3.5x7A

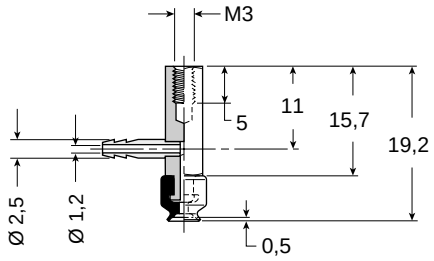


PFG Oval Cup with Side Stem Connection

PFG Oval Cup Size [mm]	FYK Fitting Part Number	Tube ID	Mounting Thread
 2x4A 3,5x7A	FYK-2x4A/3,5x7A	2	M3 Female

Millimeter

PFYK-2x4A &
PFYK-3.5x7A



PBG Bellows Vacuum Cups

Features

- **Bellows Design for Level Compensation Within Restricted Clearances**
- **Sheet Separation for Flexible and Stacked Products**
- **Soft Seal Lip for Flexible Products**
- **10 mm to 150 mm Diameters**

Applications

These cups are for curved, corrugated, lightly textured surfaces and flexible product. Under vacuum, the bellow cup will collapse on contact and lift the product for a short distance. This inherent performance facilitates lifting and destack operations by breaking the vacuum between stacked product. The bellow style adds level compensation for applications that have inconsistent stack heights or uneven surfaces. The inclusive 30-degree rotation of the bellow helps maintain the vacuum seal when lifting sheet products that flex. Because of it's shape however the bellows suction cup is not suitable for applications involving lifting vertical surfaces.

PBG Series Vacuum Cups

Versatile bellow cup design provides increased sealing lip and level compensation for products with irregular, smooth, curved surfaces.

PBTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PBTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket. Fitting Material: Aluminium.

PBYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt through a plate or "L" bracket to allow the tube connection from the side port. Nickel plated brass materials.

PBTF Series Female Thread Connector

Simple female connection for low profile positions secured to a plate or bracket. Fitting Material: Aluminium.

PBTYS Series Bulkhead Level Compensator

303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.

A

Model Number Index

PBG - 30 - NBR

Cup Diameter [mm]			
10A	10	**50**	50
15A	15	**75**	75
20B	20	**110**	110
30	30	**150**	150
40	40		

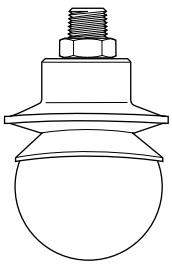
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

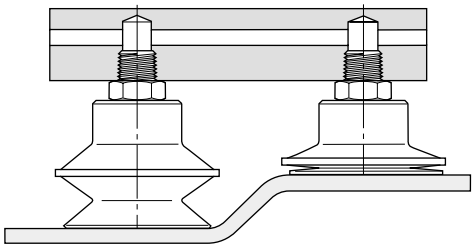
Application Guide

Bellows

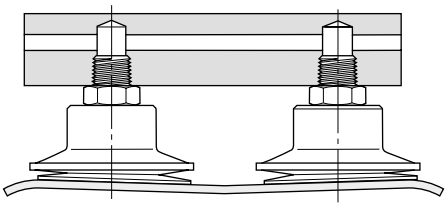
- Round Objects



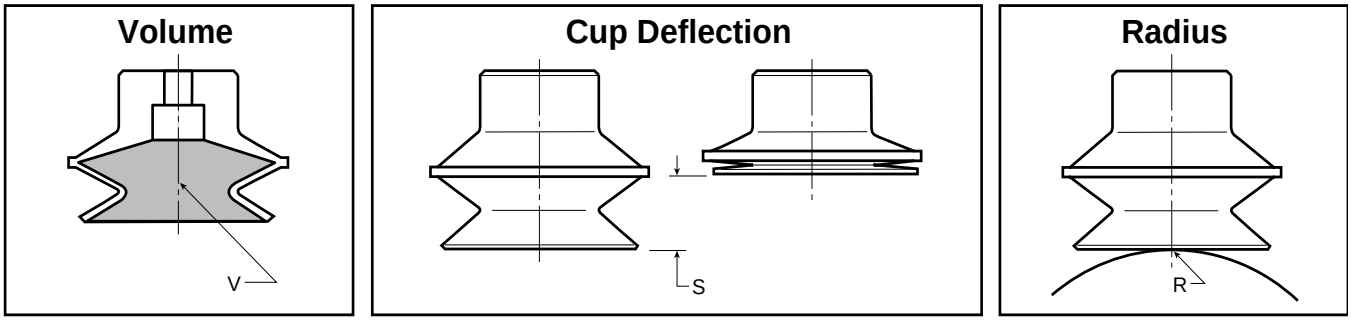
- Uneven Surfaces
- Curved Product
- Level Compensation



- Flexible Product
- Soft Seal Lip



Main Data for Bellows PBG Cups



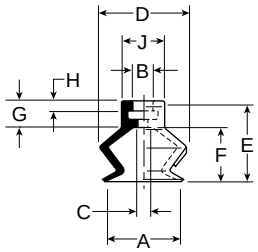
Model Number	Cup Diameter [mm]	Area [cm^2]	Volume [V] Liters	Lifting Force @60% [N]		Cup Deflection [S] [mm]	Radius [R] [mm]
							
PBG-10A-*	10	0,79	0,0002	4,80	—	4	4
PBG-15A-*	15	1,77	0,0007	10,80	—	6	6
PBG-20B-*	20	3,14	0,001	19,20	—	9	8
PBG-30-*	30	7,07	0,004	43,2	—	13	15
PBG-40-*	40	12,60	0,009	76,9	—	13	30
PBG-50-*	50	19,60	0,026	120	—	20	40
PBG-75-*	75	44,02	0,076	270	—	22	70
PBG-110-*	110	95,00	0,111	434	—	29	100
PBG-150-*	150	176,70	0,260	1081	—	38	130

* Cup Material

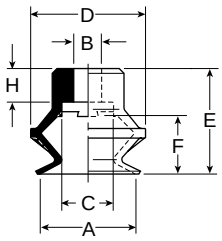
A

Dimensions

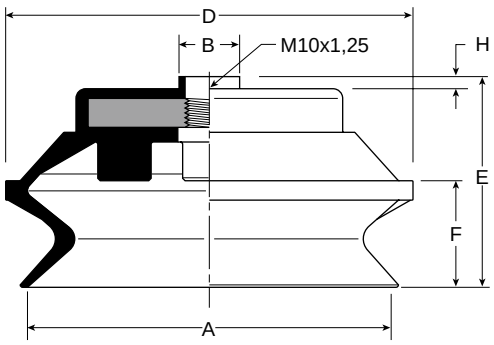
PBG-10A and
PBG-15A



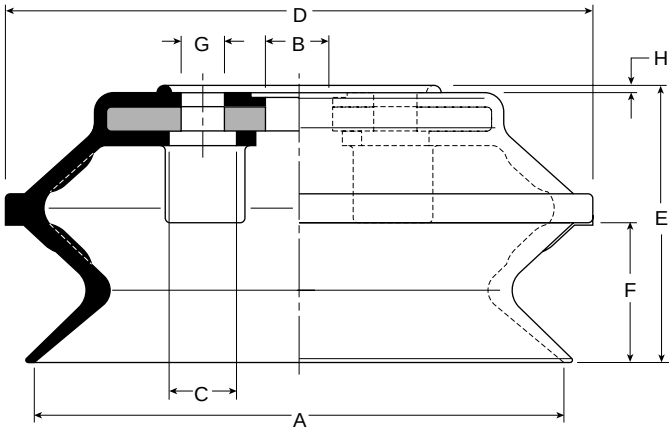
PBG-20B thru
PBG-50



PBG-75



PBG-110 and
PBG-150



Model Number	ØA	ØB	ØC	ØD	E	F	G	H	ØJ
PBG-10A-*	10,6	4	2	12,5	13,5	7,5	6	2	6
PBG-15A-*	15	4	4	17	16	10	6	2	6
PBG-20B-*	20	6	10,8	24	22	12	—	7	—
PBG-30-*	30	5,8	10,8	36	30,5	17	—	7	—
PBG-40-*	40	5,8	10,8	46	30,5	15,5	—	7	—
PBG-50-*	50	7,8	19,8	59,5	36,5	20	—	7	—
PBG-75-*	75	12,5	—	84	43,5	22	—	2,5	—
PBG-110-*	110	14	14	122	57,5	29	—	1,5	
PBG-150-*	150	20	14	167	76,5	38	4xØ 9xØ 40	1,5	—

Millimeter
* Cup Material

PBTM Vacuum Cup Assemblies

Model Number Index

PBTM - 10A - NBR - M5

Cup Diameter [mm]			
10A	10	**40**	40
15A	15	**50**	50
20B	20	**75**	75
30	30		

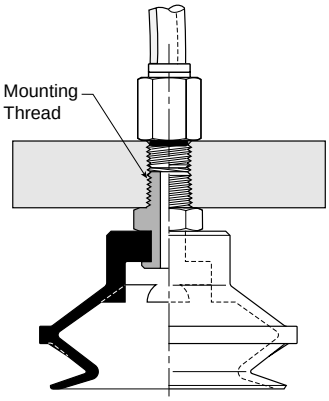
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request. Please see page 8 for material specifications.

Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Male Threaded Fitting for PBG Cups

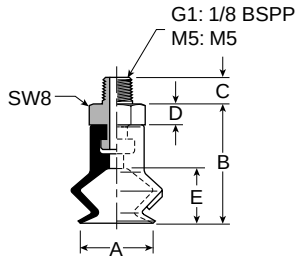
PBG Cup Diameter [mm]	FTM Fitting Part Number	Mounting Thread
10A	FTM-5A-M5	M5x0,8 Male
15A	FTM-5A-G1	1/8 BSPP Male
20B		
30	FTM-20B-G1	1/8 BSPP Male
40	FTM-20B-G2	1/4 BSPP Male
	FTM-50-G1	1/8 BSPP Male
50	FTM-50-G2	1/4 BSPP Male
75	FTM-60-G2	1/4 BSPP Male

Millimeter

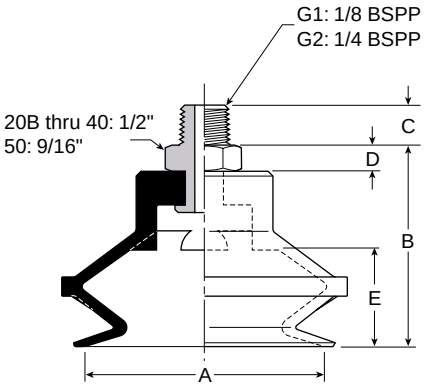
A

Dimensions

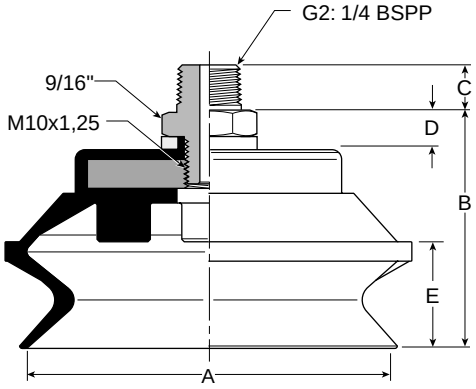
PBTM-10A thru
PBTM-15A



PBTM-20B thru
PBTM-50



PBTM-75



Model Number	ØA	B	C	D	E
PBTM-10A-*-†	10	17	4,5	3,5	7,5
PBTM-15A-*-†	15	19,5	4,5	3,5	10
PBTM-20B-*-†	20	27	8	5	12
PBTM-30-*-†	30	35,5	8	5	17
PBTM-40-*-†	40	35,5	8	5	15,5
PBTM-50-*-†	50	41,5	8	5	20
PBTM-75-*-†	95	50,5	10	7	22

Millimeter
* Cup Material
† Thread Size

PBTF Vacuum Cup Assemblies

Model Number Index

PBTF - 10A - NBR - M5

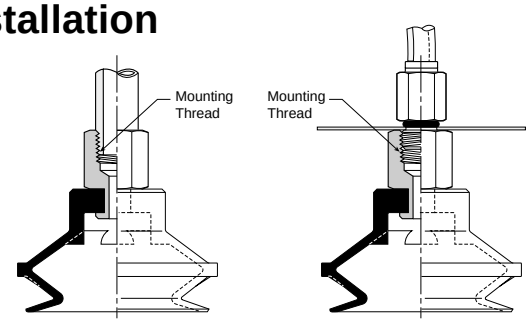
Cup Diameter [mm]			
10A	10	**50**	50
15A	15	**75**	75
20B	20	**110**	110
30	30	**150**	150
40	40		

Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

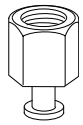
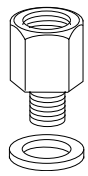
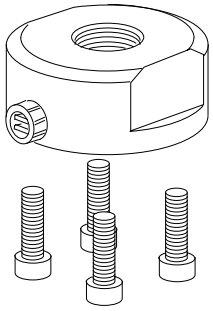
Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
G4	1/2 BSPP
See Chart Below	

Installation



Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

Female Threaded Fitting for PBG Cups

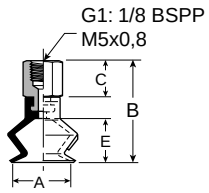
PBG Cup Diameter [mm]	FTF Fitting Part Number	Mounting Thread
 10A	FTF-5A-M5	M5x0,8 Female
15A	FTF-5A-G1	1/8 BSPP Female
20B		
30	FTF-20B-G1	1/8 BSPP Female
40	FTF-20B-G2	1/4 BSPP Female
50	FTF-50-G1	1/8 BSPP Female
	FTF-50-G2	1/4 BSPP Female
 75	FTF-60-G2	1/4 BSPP Female
 110		
150	FTF-120-G4	1/2 BSPP Female

Millimeter

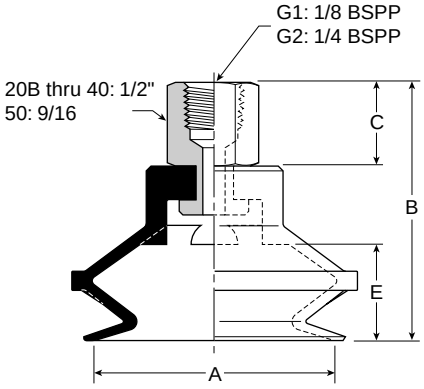
A

Dimensions

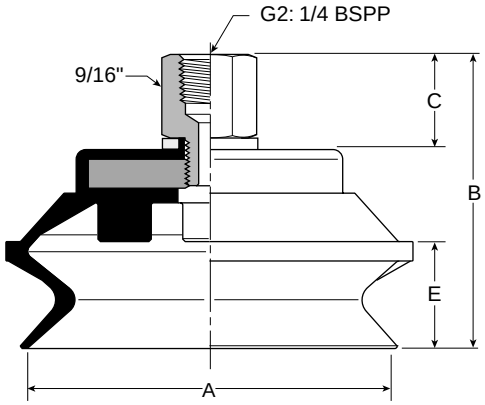
PBTF-10A thru
PBTF-15A



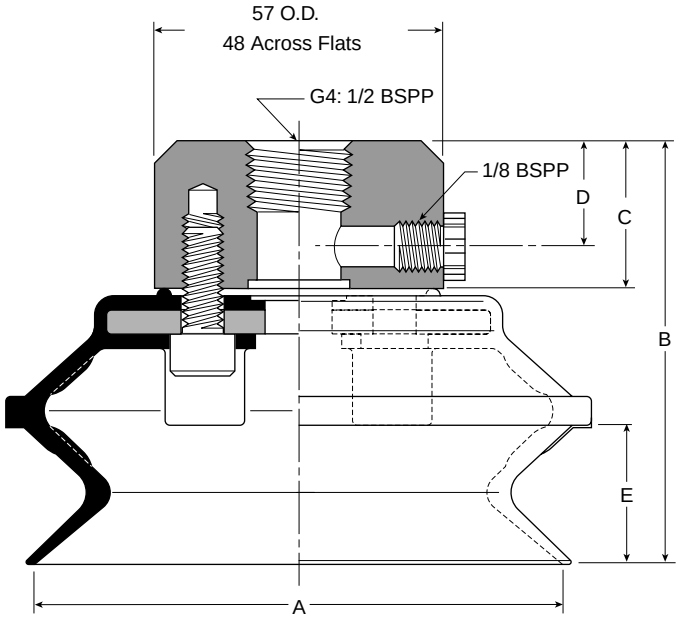
PBTF-20B thru
PBTF 50



PBTF-75



PBTF-110 thru
PBTF-150



Model Number	ØA	B	C	D	E
PBTF-10A-*-†	10	21,5	8	—	7,5
PBTF-15A-*-†	15	24	8	—	10
PBTF-20B-*-†	20	36	14	—	12
PBTF-30-*-†	30	44,5	14	—	17
PBTF-40-*-†	40	44,5	14	—	15,5
PBTF-50-*-†	50	50,5	14	—	20
PBTF-75-*-†	95	60,5	19,5	—	22
PBTF-110-*-†	120	78	24	13	29
PBTF-150-*-†	150	97	24	13	38

Millimeter
* Cup Material
† Thread Size

PBTK Vacuum Cup Assemblies

Model Number Index

PBTK - 10A - NBR - —

Cup Diameter [mm]			
10A	10	**40**	40
15A	15	**50**	50
20B	20	**75**	75
30	30		

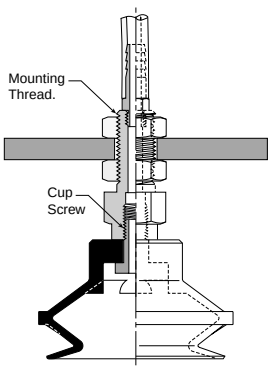
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

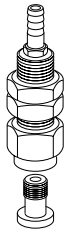
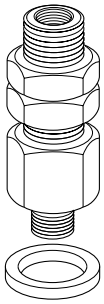
More materials on request.
Please see page 8 for material specifications.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PBG Cups

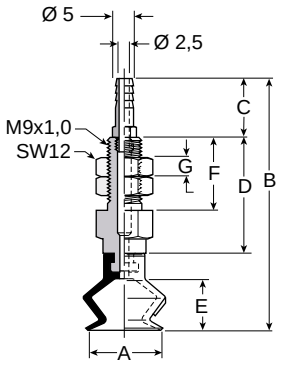
PBG Cup Diameter [mm]	FTK Part Number	Mounting Thread
 10A 15A	FTK-5A	M9x1,0 Male
 20B 30 40	FTK-20B	M10x1,25 Male
50	FTK-50	M10x1,25 Male
 75	FTK-60-G1	M16x1,5 Male

Millimeter

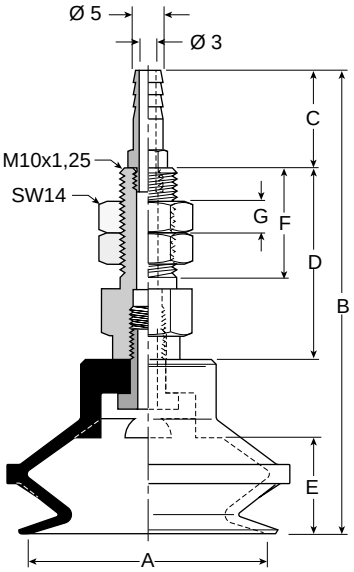
A

Dimensions

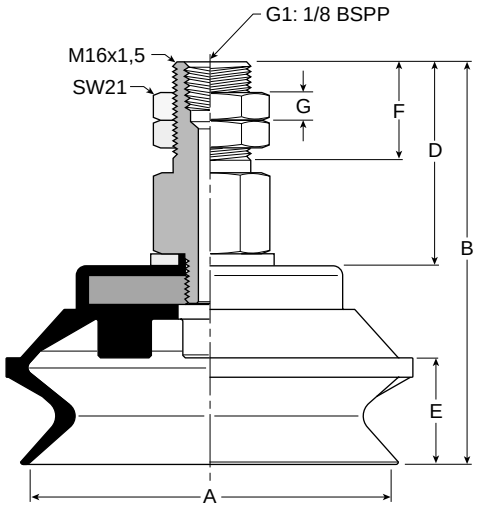
PBTK-10A thru
PBTK-15A



PBTK-20B thru
PBTK-50



PBTK-75



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PBTK-10A-*	10	52	10	22,5	7,5	15,5	3	15
PBTK-15A-*	15	54,5	10	22,5	10	15,5	3	15
PBTK-20B-*	20	57,5	16	22	12	15	5	21
PBTK-30-*	30	78,5	16	32	17	20	5	45
PBTK-40-*	40	78,5	16	32	15,5	20	5	48
PBTK-50-*	50	84,5	16	32	20	20	5	62
PBTK-75-*-†	95	83,5	—	42,5	22	—	6	186

Millimeter
* Cup Material
† Vacuum Port

PBYK Vacuum Cup Assemblies

Model Number Index

PBYK - 10A - NBR - —

Cup Diameter [mm]			
10A	10	**40**	40
15A	15	**50**	50
20B	20	**75**	75
30	30	**150**	150
40	40		

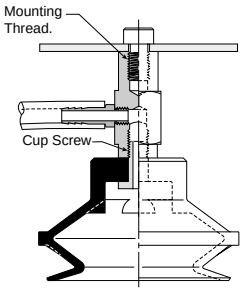
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

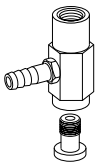
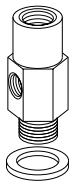
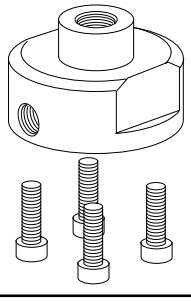
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PBG Cups

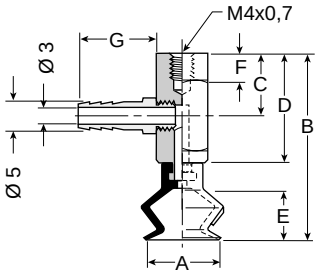
PBG Cup Diameter [mm]	FYK Part Number	Mounting Thread
 10A 15A	FYK-5A	M4x0,7 Female
 20B 30 40	FYK-20B	M6x1,0 Female
50	FYK-50	M6x1,0 Female
 75	FYK-60-G1	M8x1,25 Female
 110 150	FYK-120-G1	M16x1,5 Female

Millimeter

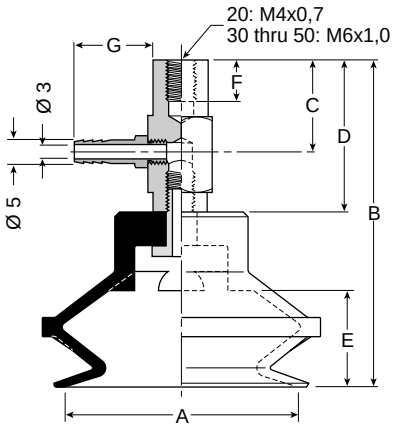
A

Dimensions

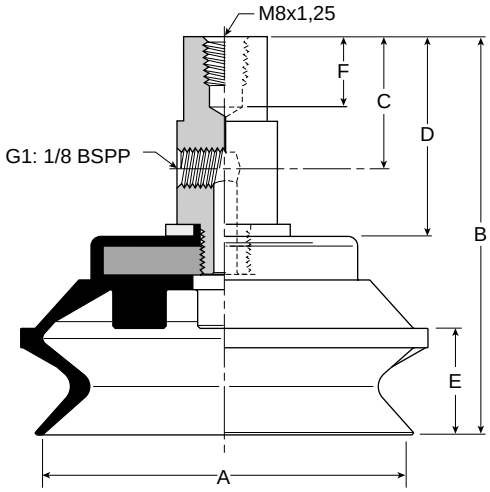
PBYK-10A thru
PBYK-15A



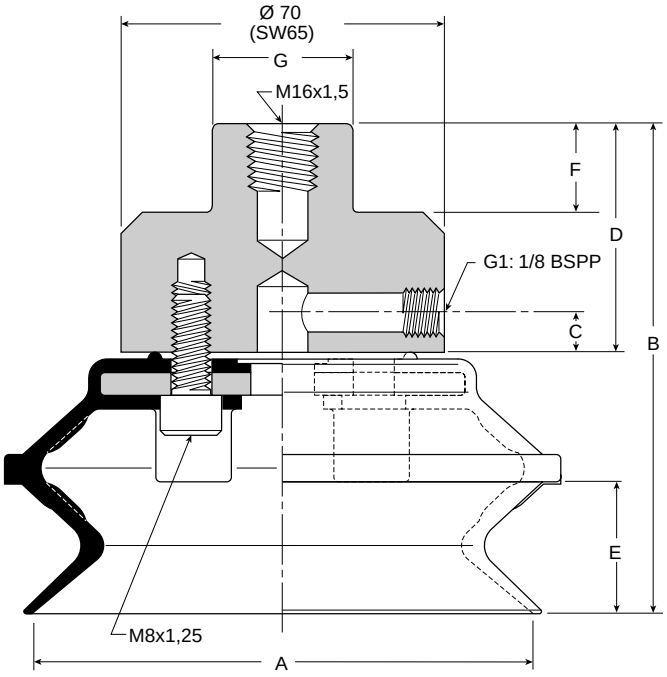
PBYK-20B thru
PBYK-50



PBYK-75



PBYK-110 thru



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PBYK-10A-*	10	36	13	22,5	7,5	6	16	16
PBYK-15A-*	15	38,5	13	22,5	10	6	16	16
PBYK-20B-*	20	41,5	14	22	12	6	16	21
PBYK-30-*	30	62,5	20	32	17	6	16	45
PBYK-40-*	40	62,5	20	32	15,5	6	16	58
PBYK-50-*	50	68,5	20	32	20	6	16	67
PBYK-75-*-†	95	83,5	28	42,5	22	11	—	176
PBYK-110-*-†	120	106	12	50	29	20	Ø 30	670
PBYK-150-*-†	150	125	12	50	38	20	Ø 30	1180

Millimeter
* Cup Material
† Vacuum Port

PBTYS Vacuum Cup Assemblies

Model Number Index

PBTYS **10A** **3** **NBR** **M5**

Cup Diameter [mm]	Stroke [mm]
10A 10 **15A** 15	**3, 10, 15**
20B 20 **30** 30 **40** 40 **50** 50	**6, 15, 30**
75 75	**30, 50, 70**
110 110 **150** 150	**20, 70**

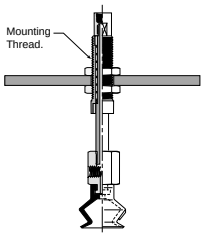
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

More materials on request.
Please see page 8 for material specifications.

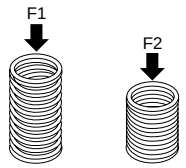
Vacuum Ports	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

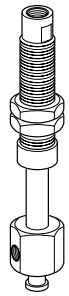
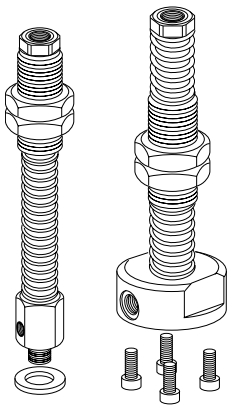
Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Compression Force



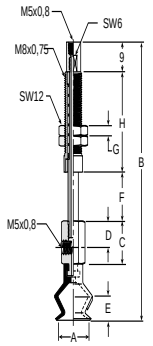
Bulkhead Level Compensator for PBG Cups

PBG Cup Diameter [mm]		FTYS Fitting Part Number	Vacuum Ports	F1 N	F2 N
	10A	FTYS-5A-3-M5		0,49	0,59
	15A	FTYS-5A-10-M5	M5x0,8 Female	0,49	0,59
		FTYS-5A-15-M5		0,49	0,59
	20B	FTYS-20B-6-M5		2,5	3,4
	30	FTYS-20B-15-M5	M5x0,8 Female	2,5	4,9
	40	FTYS-20B-30-M5		2,9	5,9
	50	FTYS-50-6-M5		2,5	3,4
		FTYS-50-15-M5	M5x0,8 Female	2,5	4,9
		FTYS-50-30-M5		2,9	5,9
	75	FTYS-60-30-G1		6,8	15,6
		FTYS-60-50-G1	G1: 1/8 BSPP	8,3	19,6
		FTYS-60-70-G1		9,5	21
	110	FTYS-120-20-G2		15,6	29
	150	FTYS-120-70-G2	G2: 1/4 BSPP	14,7	29

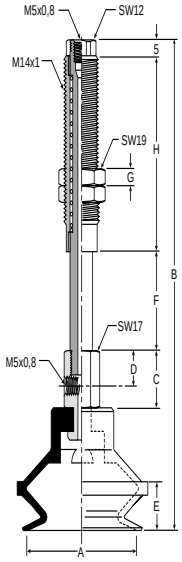
A

Dimensions

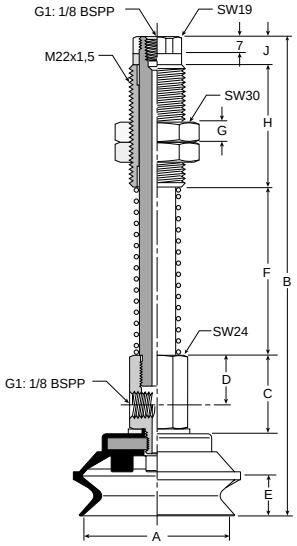
PBTYS10A3 thru PBTYS15A15



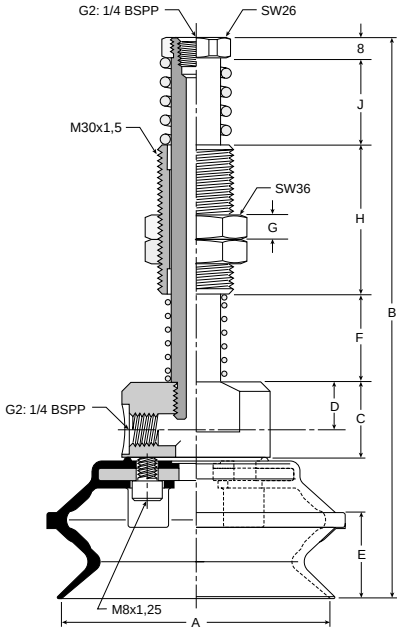
PBTYS20B6 thru PBTYS5030



PBTYS7530



PBTYS11020 thru PBTYS15070



Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PBTYS10A3*	10	61,5	13	8	7,5	3	3	23	—	18
PBTYS10A10*	10	68,5	13	8	7,5	10	3	23	—	18,5
PBTYS10A15*	10	81	13	8	7,5	15	3	30,5	—	21
PBTYS15A3*	15	64	13	8	10	3	3	23	—	18
PBTYS15A10*	15	71	13	8	10	10	3	23	—	18,5
PBTYS15A15*	15	83,5	13	8	10	15	3	30,5	—	21
PBTYS20B6*	20	90	17	10	12	6	5	36	—	67
PBTYS20B15*	20	99	17	10	12	15	5	36	—	72
PBTYS20B30*	20	136	17	10	12	30	5	58	—	97
PBTYS306*	30	94,5	17	10	17	6	5	36	—	72
PBTYS3015*†	30	103,5	17	10	17	15	5	36	—	97
PBTYS3030*†	30	140,5	17	10	17	30	5	58	—	102
PBTYS406*†	40	94,5	17	10	15,5	6	5	36	—	78
PBTYS4015*†	40	103,5	17	10	15,5	15	5	36	—	83
PBTYS4030*†	40	140,5	17	10	15,5	30	5	58	—	108
PBTYS506*†	50	100,5	17	10	20	6	5	36	—	92
PBTYS5015*†	50	109,5	17	10	20	15	5	36	—	97
PBTYS5030*†	50	146,5	17	10	20	30	5	58	—	122
PBTYS7525*†	75	178	32,5	20	22	45	10	50	12	339
PBTYS7545*†	75	203	32,5	20	22	70	10	50	12	373
PBTYS7565*†	75	228	32,5	20	22	95	10	50	12	400
PBTYS11020*†	110	224	30	18	29	35	10	60	35	1194
PBTYS11070*†	110	289	30	18	29	100	10	60	35	1276
PBTYS15020*†	150	243	30	18	38	35	10	60	35	1704
PBTYS15070*†	150	308	30	18	38	100	10	60	35	1786

Millimeter
* Cup Material
† Vacuum Port

PJG Short Bellows Vacuum Cups

Features

- **Short Bellows for Fast Response**
- **More Lip Seal Contact for Corrugated, Textured Surfaces**
- **Soft Sealing Lip**
- **6 mm to 80 mm**

Applications

The short stroke bellow suction cup has an extra thin sealing edge and shorter stroke versus the traditional bellows for faster response. The cups are good for corrugated and smooth surfaces.

PJG Series Vacuum Cups

Versatile bellow cup design provides increased sealing lip and level compensation for products with irregular, smooth, curved surfaces, or flexible sheets.

PJTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PJTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PJYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt through a plate or “L” bracket to allow the tube connection from the side port. Nickel plated brass materials.

PJTF Series Female Thread Connector

Simple female connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PJTYS Series Bulkhead Level Compensator

303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.

A

Model Number Index

PJG - 6 - NBR

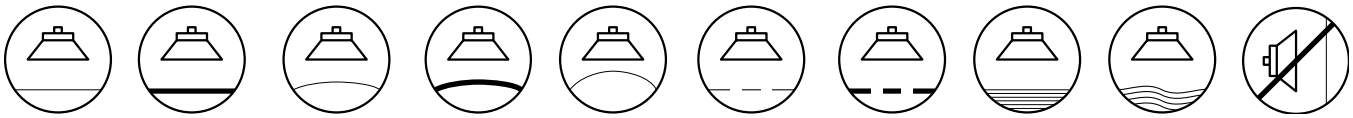
Cup Diameter [mm]			
6	6	**35**	35
8	8	**40**	40
10	10	**50**	50
15	15	**60**	60
20	20	**70**	70
25	25	**80**	80
30	30		

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

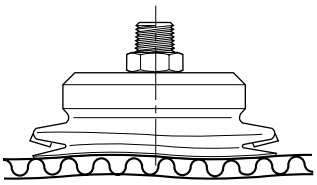
More materials on request.
Please see page 8 for material specifications.

Application Guide

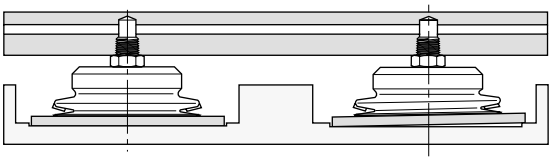
Short Bellows



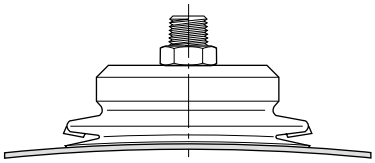
- High Speed Packaging



- Level Compensation for Small Electronic Components

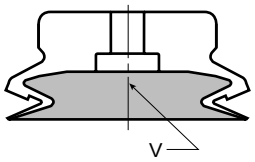


- Flexible Product
- Soft Seal Lip

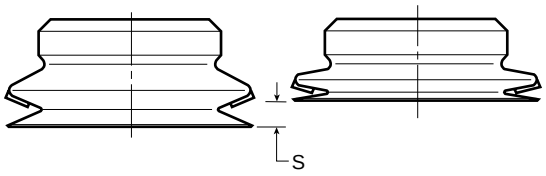


Main Data for Short Bellows PJG Cups

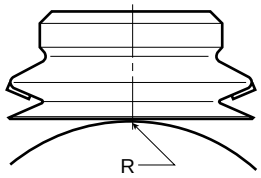
Volume



Cup Deflection



Radius



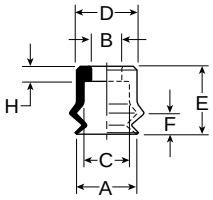
Model Number	Cup Diameter [mm]	Area [cm²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection (S) [mm]	Radius R [mm]
PJG-6-*	6	0,28	0,000016	1,70	—	4,2	4,0
PJG-8-*	8	0,50	0,00007	3,10	—	4,0	5,0
PJG-10-*	10	0,79	0,00017	4,80	—	3,0	6,0
PJG-15-*	15	1,77	0,0005	10,8	—	3,3	10,0
PJG-20-*	20	3,14	0,0012	19,2	—	5,5	13,0
PJG-25-*	25	4,91	0,0025	30,0	—	6,5	17,5
PJG-30-*	30	7,07	0,003	43,2	—	7,0	26,0
PJG-35-*	35	9,62	0,004	58,9	—	7,0	31,0
PJG-40-*	40	12,6	0,005	76,9	—	7,2	37,0
PJG-50-*	50	19,6	0,008	120	—	9,0	41,0
PJG-60-*	60	28,3	0,020	173	—	8,0	70,0
PJG-70-*	70	38,5	0,030	235	—	9,5	90,0
PJG-80-*	80	50,3	0,040	308	—	9,5	100,0

*Cup Material

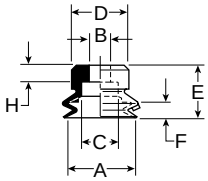
A

Dimensions

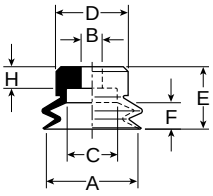
PJG-6 thru
PJG-8



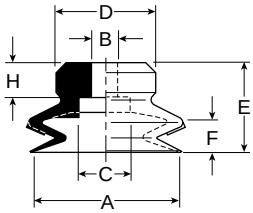
PJG-10 and
PJG-15



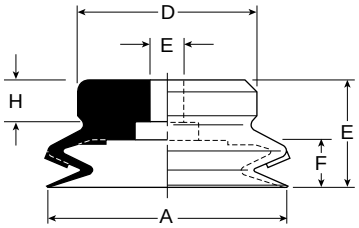
PJG-20



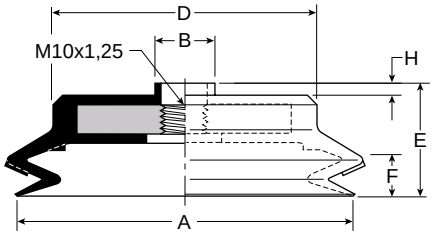
PJG-30 thru
PJG-40



PJG-50



PJG-60 thru
PJG-80



Model Number	ØA	ØB	ØC	ØD	E	F	H
PJG-6-*	6	4	6	7,5	9	4,2	2
PJG-8-*	8	4	6	8	9	4	2
PJG-10-*	10	4,6	7,8	11	9,5	3	3,5
PJG-15-*	15	4,6	7,8	12	11	3,3	3,5
PJG-20-*	20	4,6	10,8	15	13	5,5	4,5
PJG-25-*	25	4,6	10,8	17,5	15,5	6,5	4,5
PJG-30-*	30	5,8	10,8	20	18	7	7
PJG-35-*	35	5,8	10,8	25	18	7	7
PJG-40-*	40	5,8	10,8	30	18	7,2	7
PJG-50-*	50	7,8	19,8	40	20	9	7
PJG-60-*	60	12,5	—	45	22,5	8	2,5
PJG-70-*	70	12,5	—	55	23,5	9,5	2,5
PJG-80-*	80	12,5	—	68	23,5	9,5	2,5

Millimeter
* Cup Material

PJTM Vacuum Cup Assemblies

Model Number Index

PJTM - 10 - NBR - M5

Cup Diameter [mm]			
6	6	**50**	50
8	8	**60**	60
30	30	**70**	70
35	35	**80**	80
40	40		

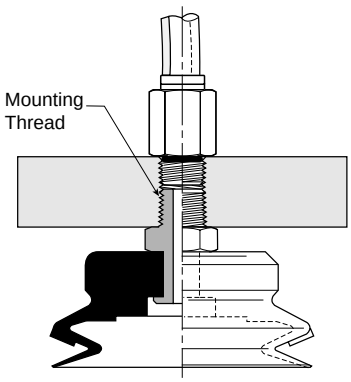
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

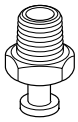
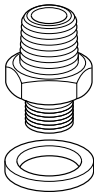
Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Male Threaded Fitting for PJG Cups

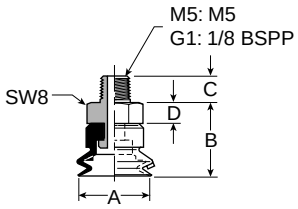
PJG Cup Diameter [mm]	FTM Fitting Part Number	Mounting Thread
 6	FTM-5A-M5	M5x0,8 Male
8	FTM-5A-G1	1/8 BSPP Male
 30		
35	FTM-20B-G1	1/8 BSPP Male
40	FTM-20B-G2	1/4 BSPP Male
50	FTM-50-G1	1/8 BSPP Male
	FTM-50-G2	1/4 BSPP Male
 60		
70	FTM-60-G2	1/4 BSPP Male
80		

Millimeter

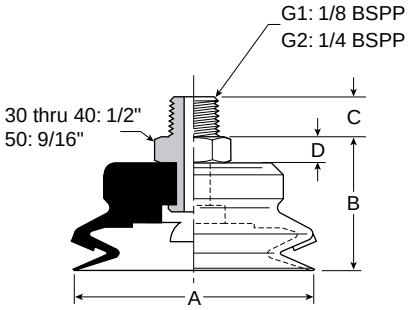
A

Dimensions

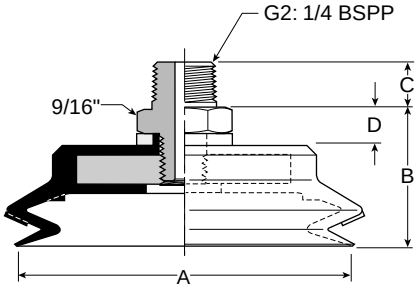
PJTM-6 thru
PJTM-8



PJTM-30 thru
PJTM-50



PJTM-60 thru
PJTM-80



Model Number	ØA	B	C	D
PJTM-6-*-†	6	12,5	4,5	3,5
PJTM-8-*-†	8	12,5	4,5	3,5
PJTM-30-*-†	30	23	8	5
PJTM-35-*-†	35	23	8	5
PJTM-40-*-†	40	23	8	5
PJTM-50-*-†	50	25	8	5
PJTM-60-*-†	60	27	10	7
PJTM-70-*-†	70	28	10	7
PJTM-80-*-†	80	28	10	7

Millimeter
* Cup Material
† Thread Size

PJTF Vacuum Cup Assemblies

Model Number Index

PJTF - 10 - NBR - M5

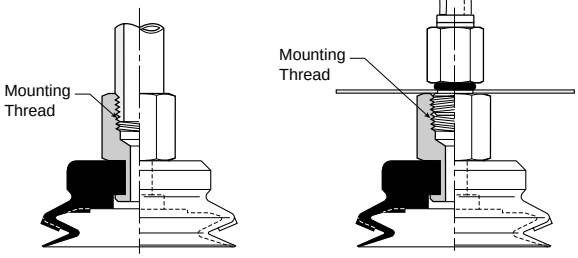
Cup Diameter [mm]			
6	6	**50**	50
8	8	**60**	60
30	30	**70**	70
35	35	**80**	80
40	40		

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request. Please see page 8 for material specifications.

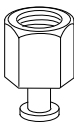
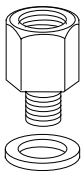
Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation



Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

Female Threaded Fitting for PJG Cups

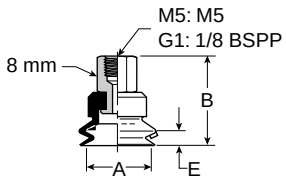
PJG Cup Diameter [mm]	FTF Fitting Part Number	Mounting Thread
 6	FTF-5A-M5	M5x0,8 Female
8	FTF-5A-G1	1/8 BSPP Female
 30		
35	FTF-20B-G1	G1/8 Female
40		
50	FTF-50-G1	G1/8 Female
	FTF-50-G2	G1/4 Female
 60		
70	FTF-60-G2	G1/4 Female
80		

Millimeter

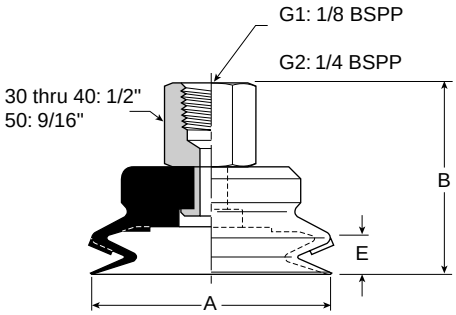
A

Dimensions

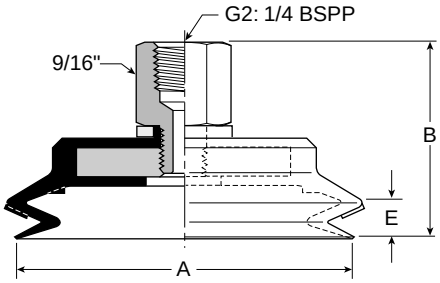
PJTF-6 thru
PJTF-8



PJTF-30 thru
PJTF-50



PJTF-60 thru
PJTF-80



Model Number	ØA	B	E
PJTF-6-*-†	6	14	4
PJTF-8-*-†	8	14	4,2
PJTF-30-*-†	30	32	7
PJTF-35-*-†	30	32	7
PJTF-40-*-†	40	32	7,2
PJTF-50-*-†	50	34	9
PJTF-60-*-†	60	39,5	8
PJTF-70-*-†	70	40,5	9,5
PJTF-80-*-†	80	40,5	9,5

Millimeter
* Cup Material
† Thread Size

PJTK Vacuum Cup Assemblies

Model Number Index

PJTK - 10 - NBR - —

Cup Diameter [mm]			
6	6	**50**	50
8	8	**60**	60
30	30	**70**	70
35	35	**80**	80
40	40		

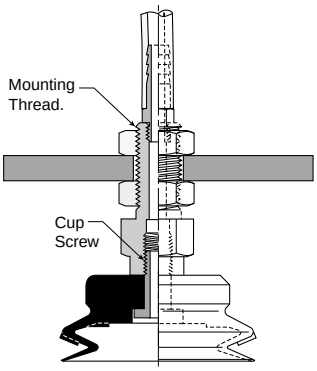
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

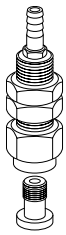
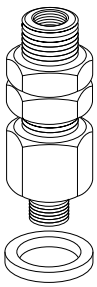
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PJG Cups

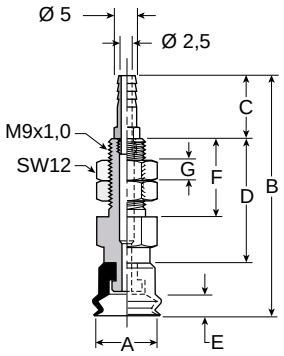
PJG Cup Diameter [mm]	FTK Part Number	Mounting Thread
 6, 8	FTK-5A	M9x1,0 Male
 30, 35, 40	FTK-20B	M10x1,5 Male
50	FTK-50	M10x1,5 Male
 60, 70, 80	FTK-60-G1	M16x1,5 Male

Millimeter

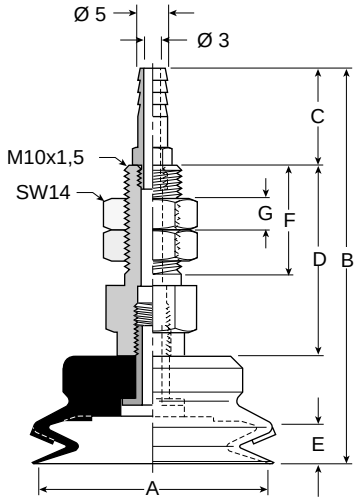
A

Dimensions

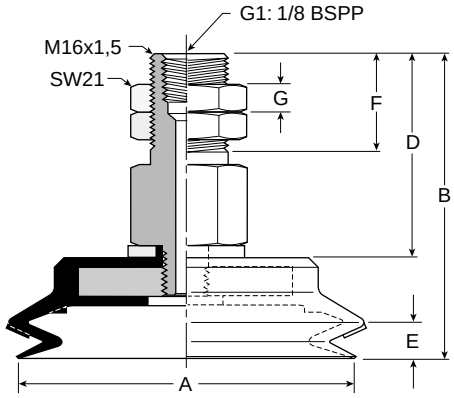
PJTK-6 thru
PJTK-8



PJTK-30 thru
PJTK-50



PJTK-60 thru
PJTK-80



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PJTK-6-*	6	33	10	14	4,2	12	3	11
PJTK-8-*	8	33	10	14	4	12	3	11
PJTK-10-*	10	47,5	16	22	3	15	3	14
PJTK-15-*	15	49	16	22	3,3	15	3	15
PJTK-20-*	20	51	16	22	5,5	15	5	17
PJTK-25-*	25	53,5	16	22	6,5	15	5	19
PJTK-30-*	30	66	16	32	7	20	5	42
PJTK-35-*	35	66	16	32	7	20	5	44
PJTK-40-*	40	66	16	32	7,2	20	5	44
PJTK-50-*	50	68	16	32	9	20	5	58
PJTK-60-*-†	60	62,5	—	42,5	8	20	6	144
PJTK-70-*-†	70	63,5	—	42,5	9,5	20	6	163
PJTK-80-*-†	80	63,5	—	42,5	9,5	20	6	190

Millimeter
* Cup Material
† Vacuum Port

PJYK Vacuum Cup Assemblies

Model Number Index

PJYK - 30 - NBR - —

Cup Diameter [mm]			
6	6	**50**	50
8	8	**60**	60
30	30	**70**	70
35	35	**80**	80
40	40		

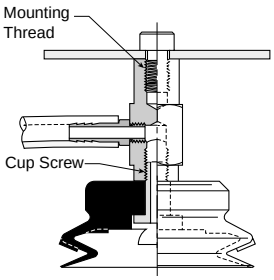
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

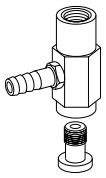
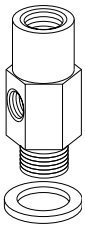
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PJG Cups

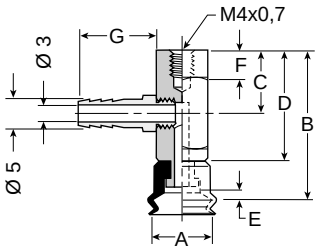
PJG Cup Diameter [mm]	FYK Part Number	Mounting Thread
 6, 8	FYK-5A	M4x0,7 Female
 30, 35, 40	FYK-20B	M6x1,0 Female
50	FYK-50	M6x1,0 Female
 60, 70, 80	FYK-60-G1	8x1,25 Female

Millimeter

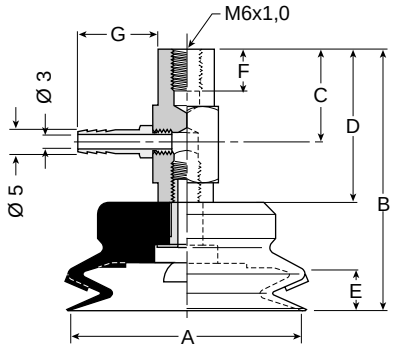
A

Dimensions

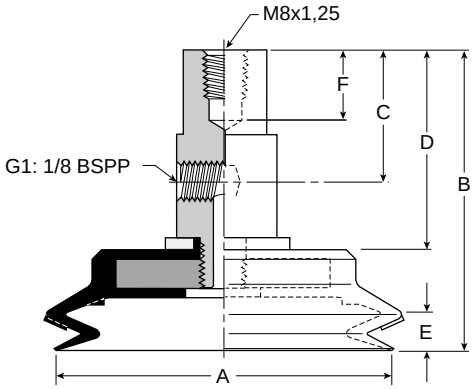
PJYK-6 and
PJYK-8



PJYK-30 thru
PJYK-50



PJYK-60 thru
PJYK-80



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PJYK-6-*	6	31,5	13	22,5	4,2	6	16	16
PJYK-8-*	8	31,5	13	22,5	4,2	6	16	16
PJYK-10-*	10	31,5	14	22	3	6	16	17
PJYK-15-*	15	33	14	22	3,3	6	16	18
PJYK-20-*	20	35	14	22	5,5	6	16	20
PJYK-25-*	25	37,5	14	22	6,5	6	16	22
PJYK-30-*	30	50	20	32	7	8	16	46
PJYK-35-*	35	50	20	32	7	8	16	48
PJYK-40-*	40	50	20	32	7,2	8	16	48
PJYK-50-*	50	52	20	32	9	8	16	62
PJYK-60-*-†	60	62,5	28	42,5	8	11	—	139
PJYK-70-*-†	70	63,5	28	42,5	9,5	11	—	158
PJYK-80-*-†	80	63,5	28	42,5	9,5	11	—	185

Millimeter
* Cup Material
† Vacuum Port

PJTYS Vacuum Cup Assemblies

Model Number Index

PJTYS | **10** | **3** | **NBR** | **M5**

Cup Diameter [mm]		Stroke [mm]
6	6	**3, 10, 15**
8	8	
10	10	
15	15	
20	20	**6, 15, 30**
25	25	
30	30	
35	35	
40	40	
50	50	
60	60	**30, 50, 70**
70	70	
80	80	

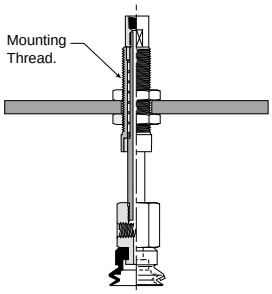
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

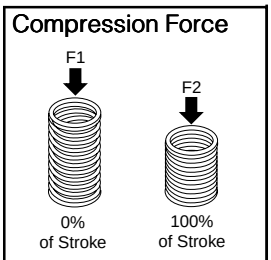
More materials on request. Please see page 8 for material specifications.

Vacuum Port	
M5	M5
G1	1/8 BSPP
See Chart Below	

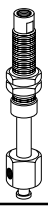
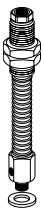
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.





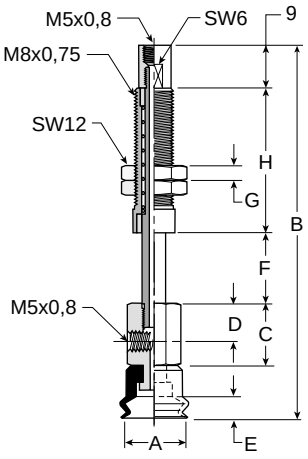
Bulkhead Level Compensator for PJG Cups

PJG Cup Diameter [mm]		FTYS Fitting Part Number	Vacuum Ports	F1 N	F2 N
	6	FTYS-5A-3-M5	M5x0,8 Female	0,49	0,59
	8	FTYS-5A-10-M5		0,61	1,17
		FTYS-5A-15-M5		0,64	1,17
	10	JTYS-10-3-M5	M5x0,8 Female	0,49	0,59
	15	JTYS-10-10-M5		2,5	4,9
		JTYS-10-15-M5		2,9	5,9
	20	JTYS-20-6-M5	M5x0,8 Female	2,5	3,4
	25	JTYS-20-15-M5		2,5	4,9
		JTYS-20-30-M5		2,9	5,9
	30	FTYS-20B-6-M5	M5x0,8 Female	2,5	3,4
	35	FTYS-20B-15-M5		2,5	4,9
	40	FTYS-20B-30-M5		2,9	5,9
	50	FTYS-50-6-M5	M5x0,8 Female	2,5	3,4
		FTYS-50-15-M5		2,5	4,9
		FTYS-50-30-M5		2,9	5,9
	60	FTYS-60-30-G1	G1: 1/8 BSPP	6,8	15,6
	70	FTYS-60-50-G1		8,3	19,6
	80	FTYS-60-70-G1		9,5	21

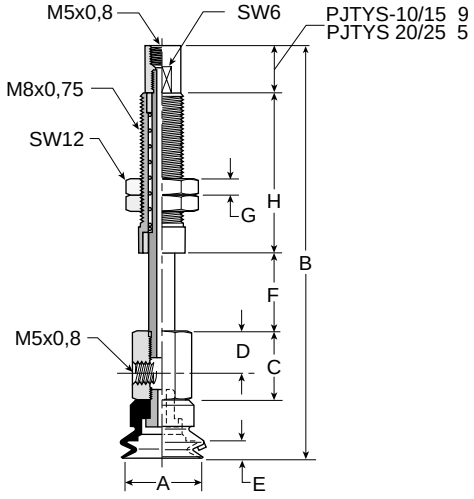
A

Dimensions

PJTYS63 thru
PJTYS815



PJTYS103 thru
PJTYS2515

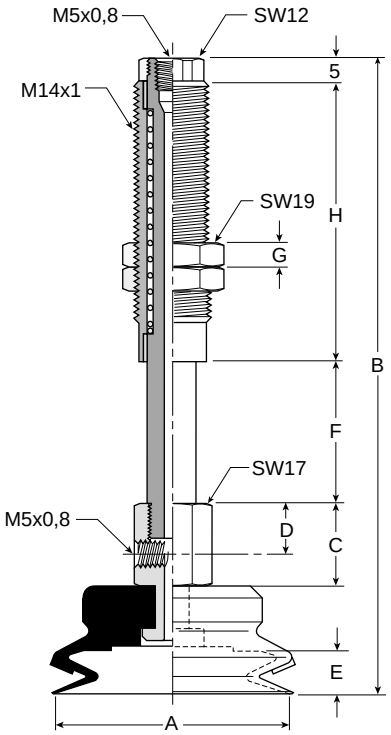


Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PJTYS63*†	6	57	13	8	4,2	3	3	23	7
PJTYS610*†	6	64	13	8	4,2	10	3	23	9
PJTYS615*†	6	76,5	13	8	4,2	15	3	30,5	11
PJTYS83*†	8	57	13	8	4	3	3	23	7
PJTYS810*†	8	64	13	8	4	10	3	23	9
PJTYS815*†	8	76,5	13	8	4	15	3	30,5	11
PJTYS103*†	10	57	13	8	3	3	5	23	30,5
PJTYS1010*†	10	64	13	8	3	10	5	23	31
PJTYS1015*†	10	76,5	13	8	3	15	5	30,5	33,5
PJTYS153*†	15	59	13	8	3,3	3	5	23	31
PJTYS1510*†	15	66	13	8	3,3	10	5	23	32
PJTYS1515*†	15	78	13	8	3,3	15	5	30,5	34,5
PJTYS206*†	20	69	17	10	5,5	6	5	36	66
PJTYS2015*†	20	78	17	10	5,5	15	5	36	71
PJTYS2030*†	20	115	17	10	5,5	30	5	58	96
PJTYS256*†	25	71,5	17	10	6,5	6	5	36	68
PJTYS2515*†	25	80,5	17	10	6,5	15	5	36	73
PJTYS2530*†	25	117,5	17	10	6,5	30	5	58	98

Millimeter
** Cup Material
† Vacuum Port

Dimensions

PJTYS306 thru
PJTYS5030



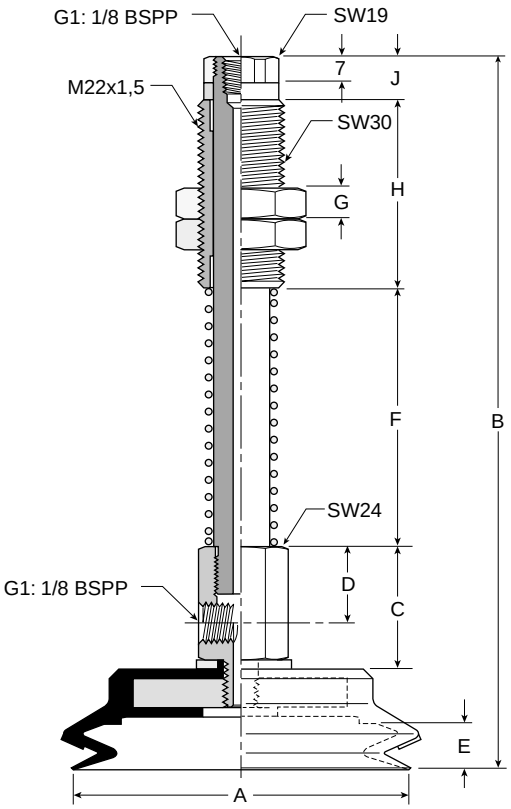
Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PJTYS306*†	30	82	17	10	7	6	5	36	—	69
PJTYS3015*†	30	91	17	10	7	15	5	36	—	74
PJTYS3030*†	30	128	17	10	7	30	5	58	—	99
PJTYS356*†	35	82	17	10	7	6	5	36	—	71,5
PJTYS3515*†	35	91	17	10	7	15	5	36	—	76,5
PJTYS3530*†	35	128	17	10	7	30	5	58	—	101,5
PJTYS406*†	40	82	17	10	7,2	6	5	36	—	73,5
PJTYS4015*†	40	91	17	10	7,2	15	5	36	—	78,5
PJTYS4030*†	40	128	17	10	7,2	30	5	58	—	103,5
PJTYS506*†	50	84	17	10	9	6	5	36	—	89
PJTYS5015*†	50	93	17	10	9	15	5	36	—	94
PJTYS5030*†	50	130	17	10	9	30	5	58	—	119

Millimeter
** Cup Material
† Vacuum Port

A

Dimensions

PJTYS6030 thru
PJTYS8070



Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PJTYS6025*†	60	157	30	20	8	45	10	50	12	294
PJTYS6045*†	60	182	30	20	8	70	10	50	12	328
PJTYS6065*†	60	207	30	20	8	95	10	50	12	355
PJTYS7025*†	70	158	30	20	9,5	45	10	50	12	309
PJTYS7045*†	70	183	30	20	9,5	70	10	50	12	346
PJTYS7065*†	70	208	30	20	9,5	95	10	50	12	370
PJTYS8025*†	80	158	30	20	9,5	45	10	50	12	338
PJTYS8045*†	80	183	30	20	9,5	70	10	50	12	372
PJTYS8065*†	80	208	30	20	9,5	95	10	50	12	399

Millimeter
** Cup Material
† Vacuum Port

PCG
Multiple Bellows Vacuum Cups

Features

- **Soft Touch**
- **Extra Level Compensation**
- **Flexible Sealing Lip for Irregular Curved Surfaces**
- **5 mm to 90 mm in Diameter**

Applications

These multiple bellow cups are designed for applications that require additional level compensation, more flexibility, or minimum back pressure for a “soft touch”. The multiple bellow has a soft sealing edge good for a variety of sensitive applications; such as food packaging, CD / DVD, medical packaging, and highly irregular curved surfaces. Cups can also be used to assist with sheet separation in destack operations.

PCG Series Vacuum Cups

2-1/2 bellows design minimizes contact pressure applied to the product. The soft seal lip and touch allows the cup to conform to the product’s surface to make a vacuum seal.

PCTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PCTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PCYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt through a plate or “L” bracket to allow the tube connection from the side port. Nickel plated brass materials.

PCTF Series Female Thread Connector

Simple female connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

A

Model Number Index

PCG - 5 - NBR

Cup Diameter [mm]			
5	5	**20**	20
7	7	**30**	30
10	10	**40**	40
15	15	**60**	60
18	18	**90**	90

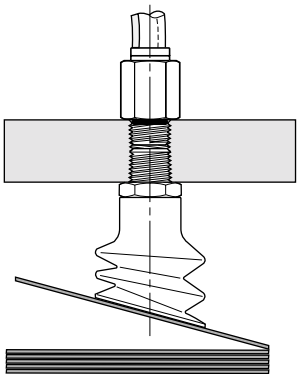
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane*

More materials on request.
Please see page 8 for material specifications.
* Not available for Ø 90.

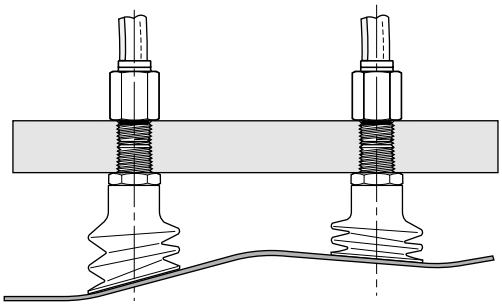
Application Guide

2-1/2 Bellows

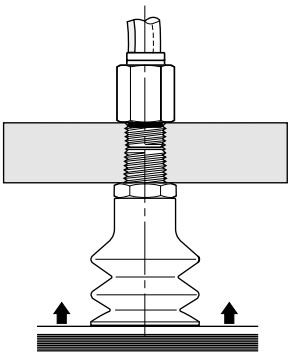
- Destack Perimeter Separation



- Level Compensation for applications where Level Compensators do not have adequate space

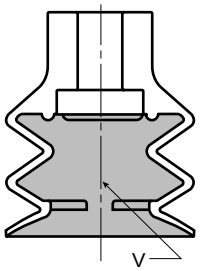


- Controlling downstroke lifts product on contact

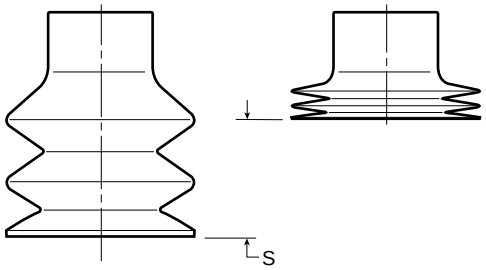


Main Data for 2-1/2 Bellows PJG Cups

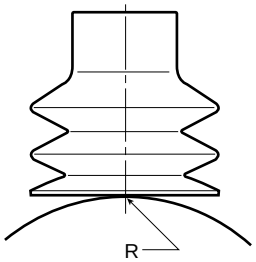
Volume



Cup Deflection



Radius



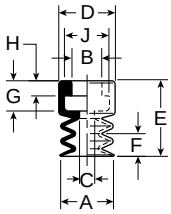
Model Number	Cup Diameter [mm]	Area [cm²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
							
PCG-5-*	5	0,20	0,00003	1,20	—	3	3,5
PCG-7-*	7	0,39	0,00004	2,40	—	3	4,0
PCG-10-*	10	0,79	0,0001	4,80	—	3	5,0
PCG-15-*	15	1,77	0,0009	10,8	—	10	6,0
PCG-18-*	18	2,55	0,001	15,6	—	10	7,0
PCG-20-*	20	3,14	0,002	19,2	—	10	8,0
PCG-30-*	30	7,07	0,009	43,2	—	14,5	20,0
PCG-40-*	40	12,6	0,018	76,9	—	22	30,0
PCG-60-*	60	28,3	0,072	173	—	27	55,0
PCG-90-*	90	63,6	0,1639	389	—	42	80,0

* Cup Material

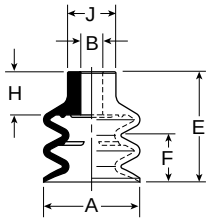
A

Dimensions

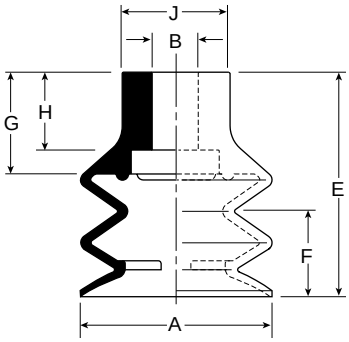
PCG-5 and
PCG-7



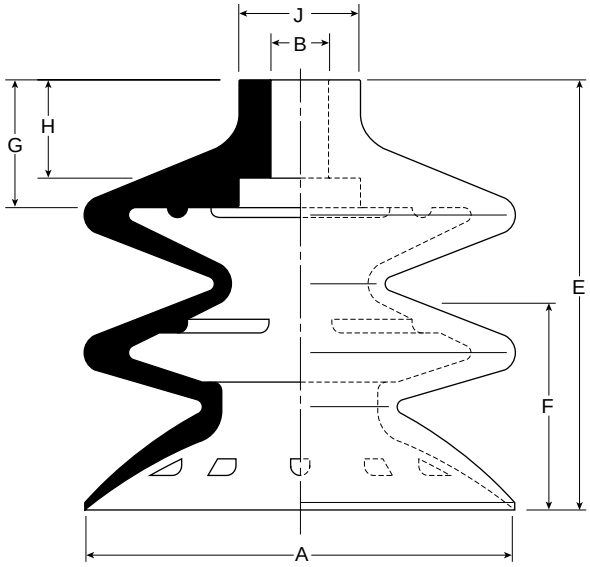
PCG-10 thru
PCG-20



PCG-30 thru
PCG-60



PCG-90



Model Number	ØA	ØB	ØC	ØD	E	F	G	H	J
PCG-5-*	5	4	2	7,5	9,5	3	4	2	6
PCG-7-*	7	4	2	7,5	10	3	4	2	6
PCG-10-*	9	5	—	—	15	3	7	—	9
PCG-15-*	15,2	5	—	—	22	10	9	—	10
PCG-18-*	18,6	5	—	—	23	10	9	—	10
PCG-20-*	20	5	—	—	23	10	9	—	10
PCG-30-*	32	8	—	—	37,5	14,5	17	13	18
PCG-40-*	42	8	—	—	46	22	17	13	20
PCG-60-*	62	8	—	—	55	27	18	13	21,5
PCG-90-*	88	12	—	—	87,5	42	26	20	25

Millimeter
* Cup Material

PCTM Vacuum Cup Assemblies

Model Number Index

PCTM - 5 - NBR - M5

Cup Diameter [mm]			
5	5	**20**	20
7	7	**30**	30
10	10	**40**	40
15	15	**60**	60
18	18	**90**	90

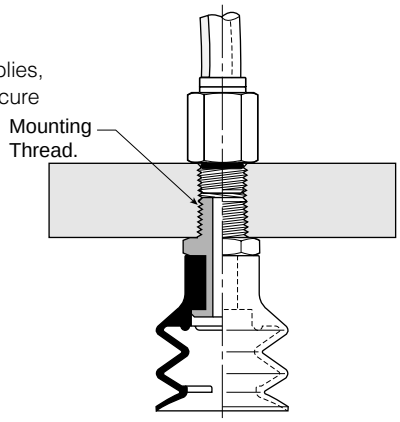
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane*

More materials on request. Please see page 8 for material specifications.
* Not available for Ø 90.

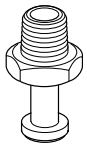
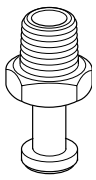
Mounting Thread	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Male Threaded Fitting for PCG Cups

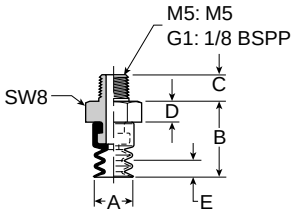
PCG Cup Diameter [mm]	FTM & CTM Part Number	Mounting Thread
 5	FTM-5A-M5	M5x0,8 Male
7	FTM-5A-G1	1/8 BSPP Male
 10		
15	CTM-10-M5	M5x0,8 Male
18	CTM-10-G1	1/8 BSPP Male
20		
 30		
40	CTM-30-G1	1/8 BSPP Male
60	CTM-30-G2	1/4 BSPP Male
 90	CTM-90-G2	1/4 BSPP Male

Millimeter

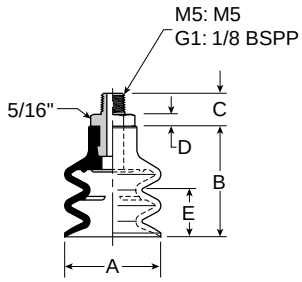
A

Dimensions

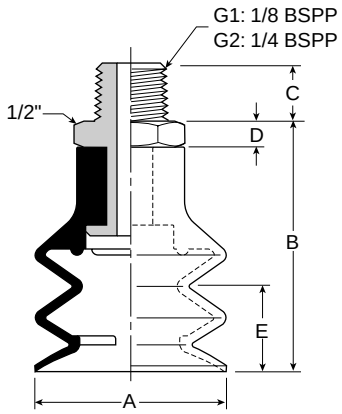
PCTM-5 and
PCTM-7



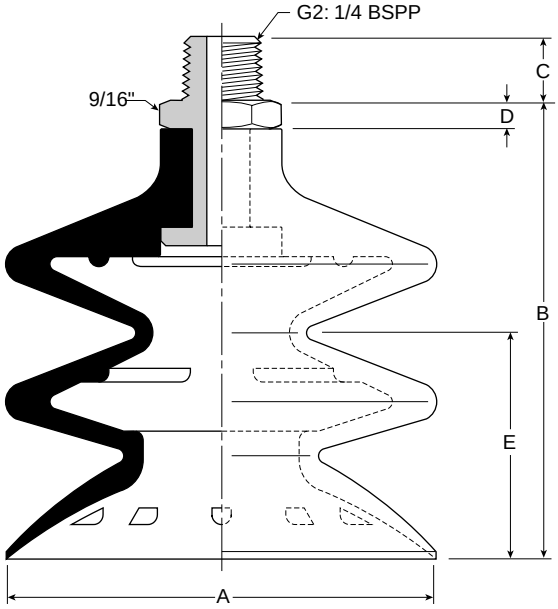
PCTM-10 thru
PCTM-20



PCTM-30 thru
PCTM-60



PCTM-90



Model Number	ØA	B	C	D	E
PCTM-5-*-†	5	13	4,5	3,5	3
PCTM-7-*-†	7	13,5	4,5	3,5	3
PCTM-10-*-†	9	17,5	4,5	2,5	3
PCTM-15-*-†	15,2	25,5	4,5	2,5	10
PCTM-18-*-†	18,6	25,5	4,5	2,5	10
PCTM-20-*-†	20	25,5	4,5	2,5	10
PCTM-30-*-†	32	42,5	8	5	14,5
PCTM-40-*-†	42	51	8	5	22
PCTM-60-*-†	62	60	8	5	27
PCTM-90-*-†	88	92,5	10	5	42

Millimeter
* Cup Material
† Thread Size

PCTF Vacuum Cup Assemblies

Model Number Index

PCTF - 5 - NBR - G1

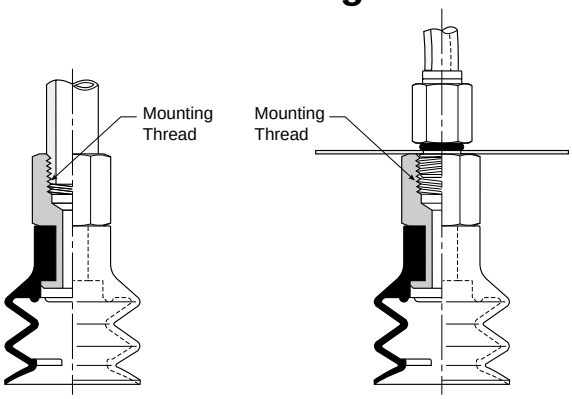
Cup Diameter [mm]			
5	5	**20**	20
7	7	**30**	30
10	10	**40**	40
15	15	**60**	60
18	18	**90**	90

Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane*

More materials on request. Please see page 8 for material specifications.
* Not available for Ø 90.

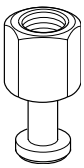
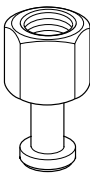
Mounting Thread	
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation Mounting



Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

Female Threaded Fitting for PCG Cups

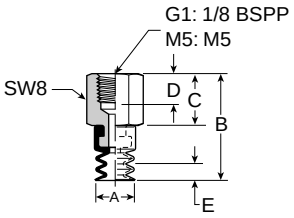
PCG Cup Diameter [mm]		FTF & CTF Part Number	Mounting Thread
	5	FTF-5A-M5	M5x0,8 Female
	7	FTF-5A-G1	1/8 BSPP Female
	10 15 18 20	CTF-10-G1	1/8 BSPP Female
	30		
	40	CTF-30-G1	1/8 BSPP Female
	60	CTF-30-G2	1/4 BSPP Female
	90	CTF-90-G2	1/4 BSPP Female

Millimeter

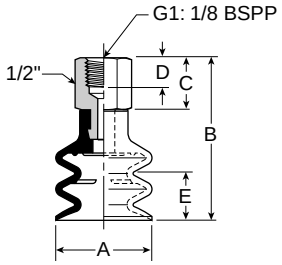
A

Dimensions

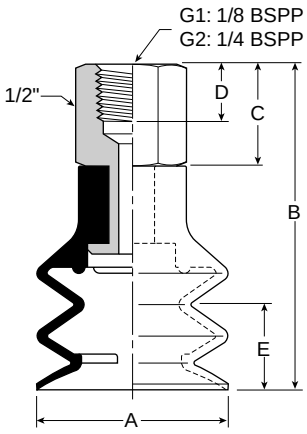
PCTF-5 and
PCTF-7



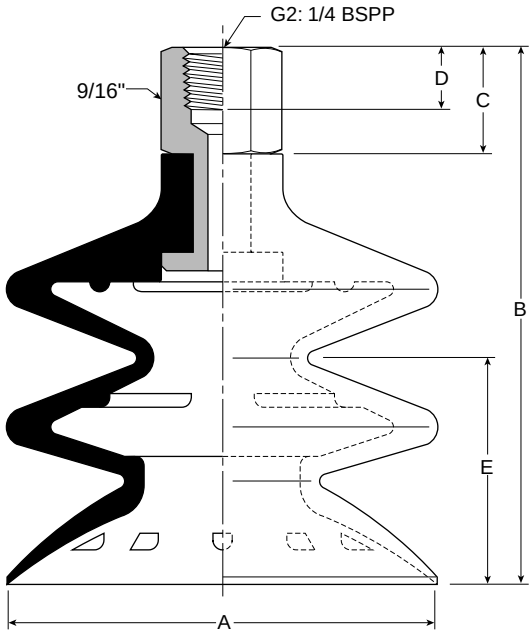
PCTF-10 thru
PCTF-20



PCTF-30 thru
PCTF-60



PCTF-90



Model Number	ØA	B	C	D	E
PCTF5*†	5	21,5	12	8	3
PCTF7*†	7	22	12	8	3
PCTF10*†	9	27	12	8	3
PCTF15*†	15,2	35	12	8	10
PCTF18*†	18,6	35	12	8	10
PCTF20*†	20	35	12	8	10
PCTF30*†	32	51,5	14	8	14,5
PCTF40*†	42	60	14	8	22
PCTF60*†	62	69	14	8	27
PCTF90*†	88	105	17,5	10	42

Millimeter
* Cup Material
† Thread Size

PCTK Vacuum Cup Assemblies

Model Number Index

PCTK - 5 - NBR - —

Cup Diameter [mm]			
5	5	**20**	20
7	7	**30**	30
10	10	**40**	40
15	15	**60**	60
18	18	**90**	90

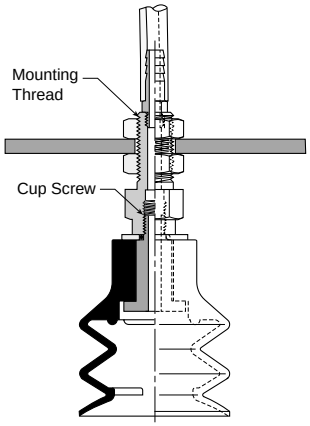
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane*

Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

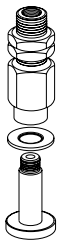
More materials on request.
Please see page 8 for material specifications.
* Not available for Ø 90.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PCG Cups

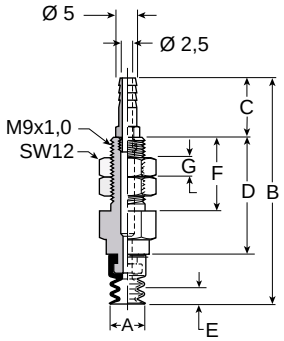
PCG Cup Diameter [mm]	FTK & CTK Part Number	Mounting Thread
 5 7	FTK-5A	M9x1 Male
 10 15 18 20	CTK-10	M8x1,25 Male
 30 40 60	CTK-30	M10x1,5 Male
 90	CTK-90-G1	M16x1,5 Male

Millimeter

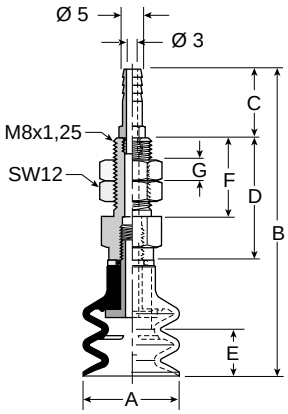
A

Dimensions

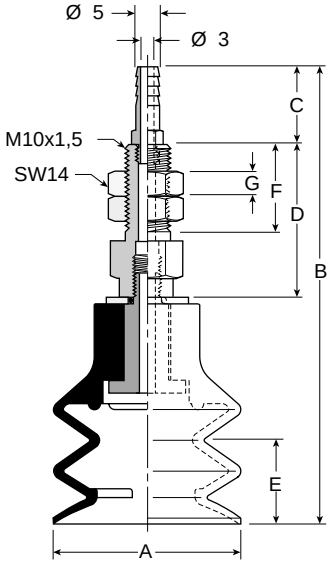
PCTK-5 and PCTK-7



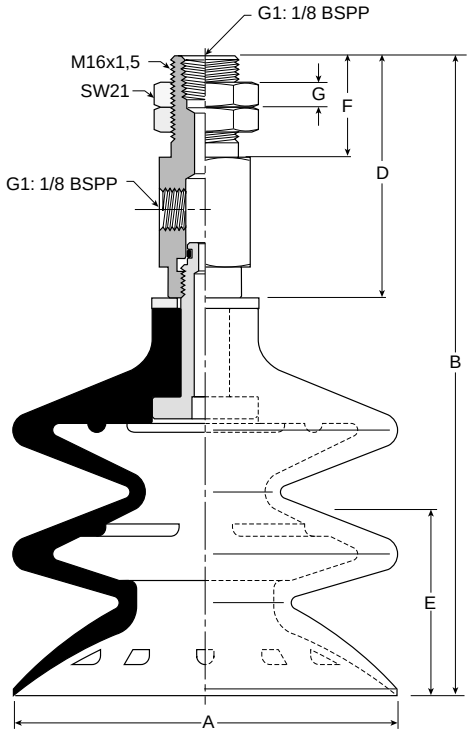
PCTK-10 thru PCTK-20



PCTK-30 thru PCTK -60



PCTK-90



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PCTK-5-*	5	33,5	10	14	3	12	3	11
PCTK-7-*	7	34	10	14	3	12	3	11
PCTK-10-*	9	56,2	16	22,5	3	15	4	22
PCTK-15-*	15,2	64,2	16	22	10	15	4	22
PCTK-18-*	18,6	64,2	16	22	10	15	4	22
PCTK-20-*	20	64,2	16	22	10	15	4	22
PCTK-30-*	32	86,8	16	32	14,5	20	5	46
PCTK-40-*	42	95,3	16	32	22	20	5	55
PCTK-60-*	62	104,3	16	32	27	20	5	85
PCTK-90-*-†	88	144,8	—	42,5	42	23	6	300

Millimeter
* Cup Material
† Vacuum Port

PCYK Vacuum Cup Assemblies

Model Number Index

PCYK - 5 - NBR - —

Cup Diameter [mm]			
5	5	**20**	20
7	7	**30**	30
10	10	**40**	40
15	15	**60**	60
18	18	**90**	90

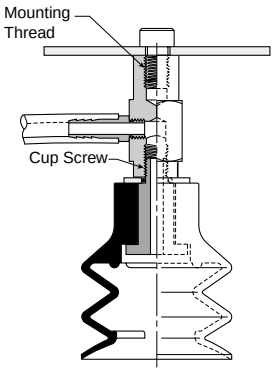
Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane*

Vacuum Port	
Blank	Barb
G1	1/8 BSPP
See Chart Below	

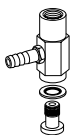
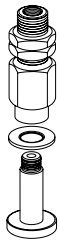
More materials on request.
Please see page 8 for material specifications.
* Not available for Ø 90.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PCG Cups

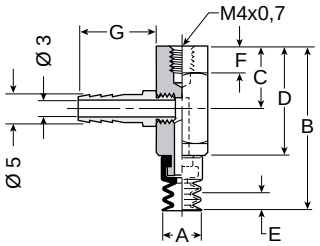
PCG Cup Diameter [mm]	FYK & CYK Part Number	Mounting Thread
 5 7	FYK-5A	M4x0,7 Female
 10 15 18 20	CYK-10	M4x0,7 Female
 30 40 60	CYK-30	M6x1,0 Female
 90	CYK-90-G1	M16x1,5 Female

Millimeter

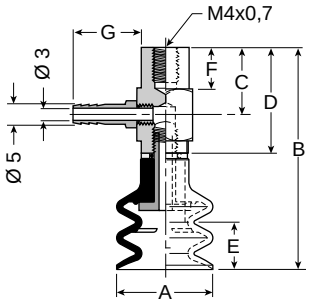
A

Dimensions

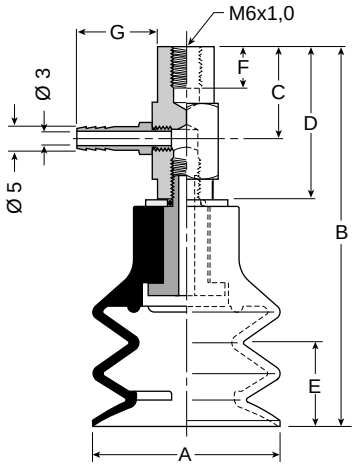
PCYK-5 and
PCYK-7



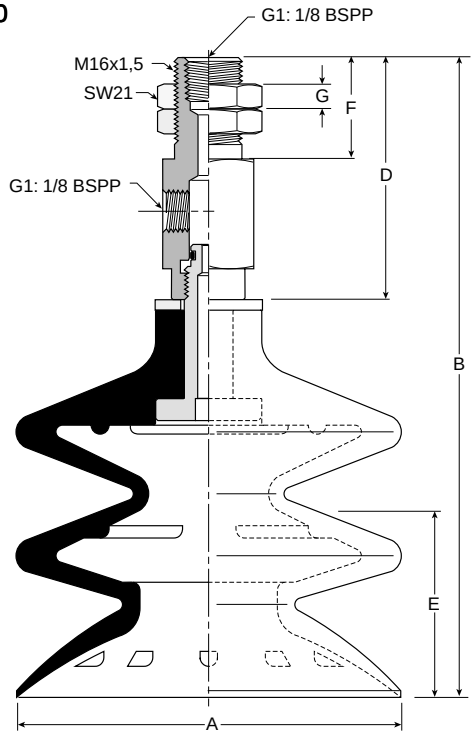
PCYK-10 thru
PCYK-20



PCYK-30 thru
PCYK-60



PCYK-90



Model Number	ØA	B	C	D	E	F	G	Wt [g]
PCYK-5-*	5	32	13	22,5	3	6	16	16
PCYK-7-*	7	32,5	13	22,5	3	6	16	16
PCYK-10-*	9	40,2	14	22	3	6	16	22
PCYK-15-*	15,2	48,2	14	22	10	6	16	22
PCYK-18-*	18,6	48,2	14	22	10	6	16	22
PCYK-20-*	20	48,2	14	22	10	6	16	22
PCYK-30-*	32	70,8	20	32	14,5	8	16	46
PCYK-40-*	42	79,3	20	32	22	8	16	55
PCYK-60-*	62	88,3	20	32	27	8	16	85
PCYK-90-*	88	144,8	23	55	42	11	—	300

Millimeter
* Cup Material
† Thread Size

PKG Automotive Vacuum Cups

Features

- **Flat Design To Prevent Deforming Product**
- **Cup Replacement Simplied**
- **Recyclable Rubber**
- **Lower Maintenace Cost**
- **Soft Durometers**
- **Silicon Free**
- **40 mm to 110 mm Diameters**

PKG Series Vacuum Cups

The PKG is a single edge deep cup for products with a radius. The PKFG is a single lip design with a grooved foot pattern to prevent vacuum from deforming thin products. The PKJG is a single bellow cup designed to work with flexible and curved products. All of these designs incorporate a grooved and textured underside to increase frictional and holding forces. The cup assembly has a variety of connector designs to replace only the cup to minimize operating expenses.

Applications

The PKG Cups are well suited for all operations within automotive manufacturing; sheet metal destack, body assembly, press transfer, final assembly, fixtures.

PKGF Female Adapter Series

Simple female connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium.

PKFT Adapter Series

Simple adapter connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium. O-Ring-210 Buna.

PKGT Adapter Series

Simple adapter connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium. O-Ring-210 Buna.

PKJF Female Adapter Series

Simple female connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium.

PKFF Female Adapter Series

Simple female connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium.

PKJT Adapter Series

Simple adapter connection for low profile positions secured to a plate or bracket. Male screw to secure cup has an internal hex for easy assembly.
Fitting Material: Aluminium. O-Ring-210 Buna.

A

Model Number Index (Cups Only)

PKG - 60 - NBR

Cup Diameter [mm]	
60	60
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

PKG

PKFG - 75 - NBR

Cup Diameter [mm]	
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

PKFG

PKJG - 40 - NBR

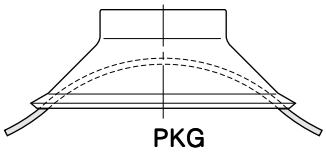
Cup Diameter [mm]	
40	40
50	50
60	60
80	80
110	110

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

PKJG

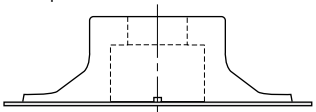
Application Guide

- Deep Cup for External Curves
- Slip Resistant Foot Pattern



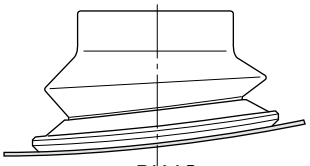
PKG

- No Deformation
- Thin Flat Sheets
- Slip Resistant Foot Pattern



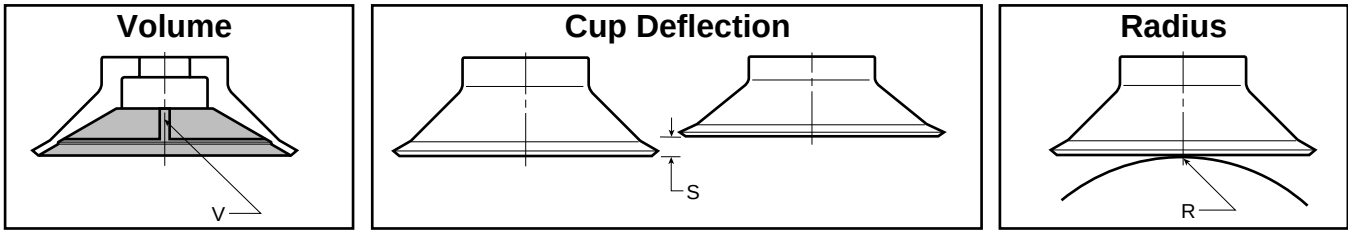
PKFG

- Bellows for Any Curves
- Slip Resistant Foot Pattern

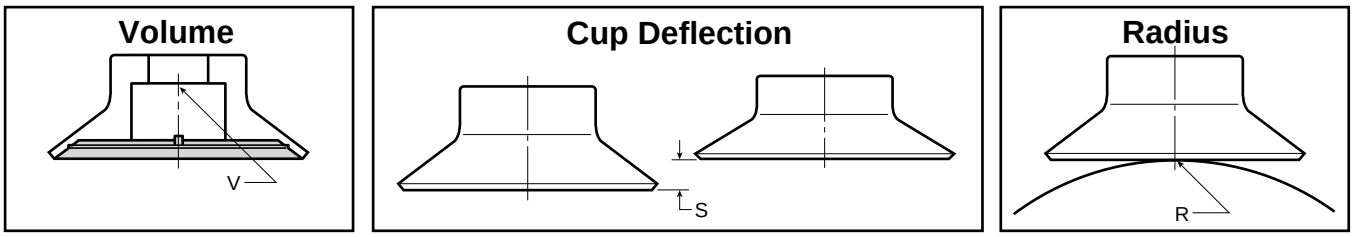


PKJG

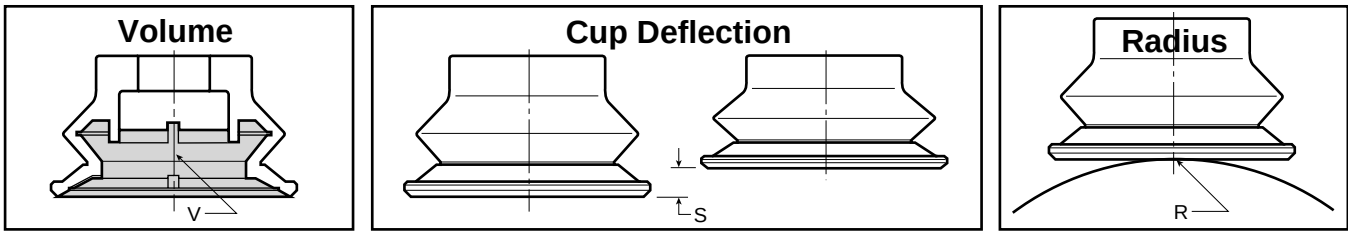
Main Data for PKG Suction Cups



Main Data for PKFG Suction Cups



Main Data for PKJG Suction Cups



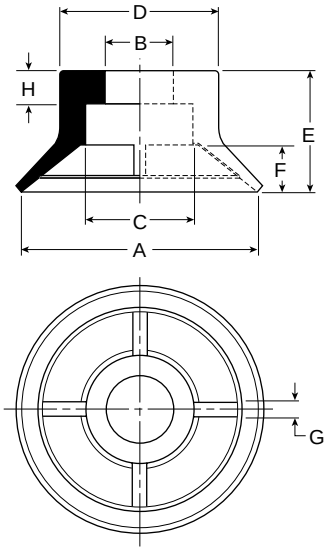
Model Number	Cup Diameter [mm]	Area [cm²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PKG-60-*	60	28,3	0,06	173	86,5	9	60
PKG-75-*	75	44,2	0,07	270	135	13	100
PKG-100-*	100	78,5	0,09	480	240	17,3	150
PFKG-75-*	75	44,2	0,03	270	65,0	5	140
PFKG-100-*	100	78,5	0,05	480	113	8	200
PKJG-40-*	40	12,6	0,02	76,9	—	10,5	30
PKJG-50-*	50	19,6	0,03	120	—	19	40
PKJG-60-*	60	28,3	0,04	173	—	14	52
PKJG-80-*	80	50,3	0,05	308	—	17	70
PKJG-110-*	110	95,0	0,07	581	—	23	130

* Cup Material

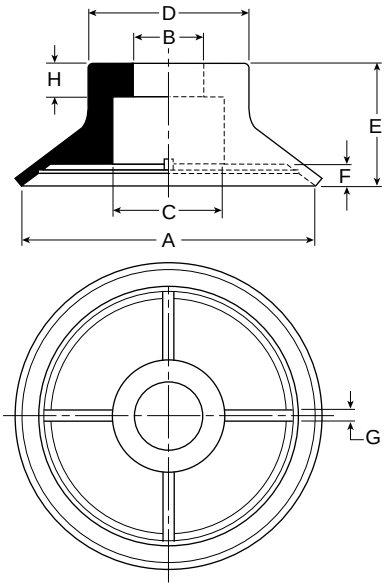
A

Dimensions

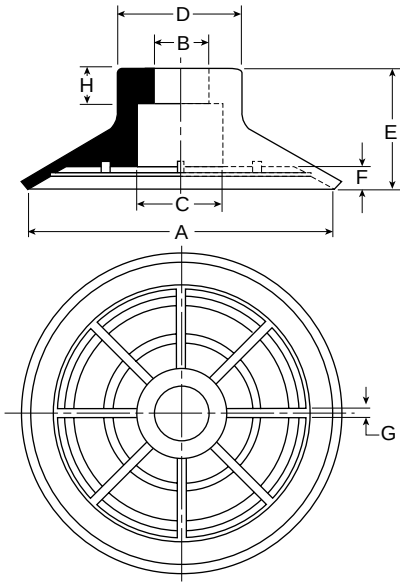
PKG-60 thru
PKG-100



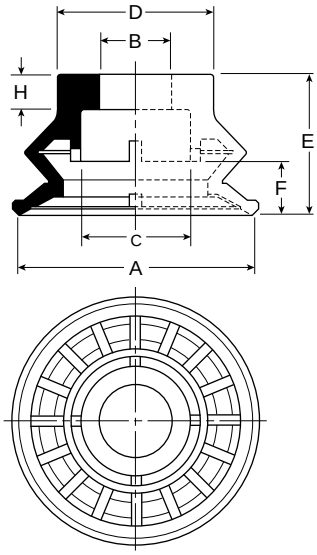
PKFG-75



PKFG-100



PKJG-40 thru
PKJG-110



Model Number	ØA	ØB	ØC	ØD	E	F	G	H
PKG-60-*	60	18,5	28	40	31	9	3	9
PKG-75-*	75	18,5	28	40	32	13	3	9
PKG-100-*	100	18,5	28	40	39	17,3	4	9
PKFG-75-*	75	18,5	28	40	32	5	3	9
PKFG-100-*	100	18,5	28	40	39	8	4	9
PKJG-40-*	40	18,5	28	40	35	10,5	—	9,5
PKJG-50-*	50	18,5	28	40	35	19	—	9
PKJG-60-*	60	18,5	28	40	35	14	—	9
PKJG-80-*	80	18,5	28	40	39	17	—	9
PKJG-110-*	110	18,5	28	40	50	23	—	9

Millimeter
* Cup Material

PKGF Vacuum Cup Assemblies

Model Number Index

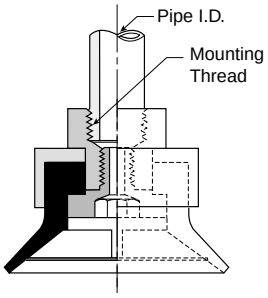
PKGF - 60 - NBR - G3

Cup Diameter [mm]	
60	60
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

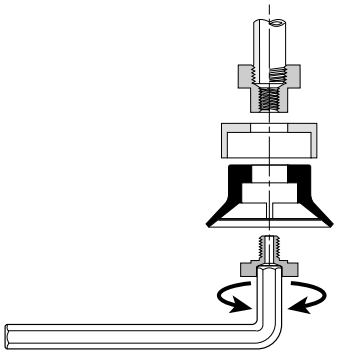
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

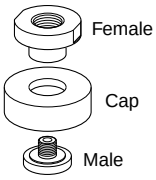


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

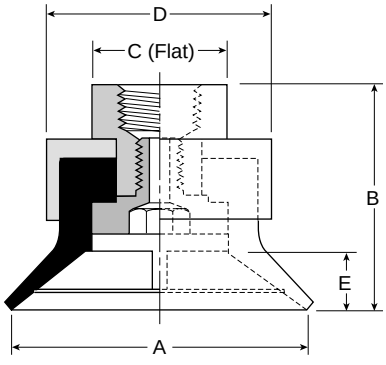


Female Adapter for PKG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	TN-PK-F-G3	3/8 BSPP	Female Port
	TN-PK-100-M10	M10x1,5	Male Screw
	PKG-C-6710	—	Cap

Dimensions

PKGF-60 thru
PKGF-100



Model Number	ØA	B	C	D	E
PKGF-60-*-†	60	46,9	28	46	9
PKGF-75-*-†	75	47,8	28	46	13
PKGF-100-*-†	100	54,9	28	46	17,3

Millimeter
* Cup Material
† Thread Size

A

PKGT Vacuum Cup Assemblies

Model Number Index

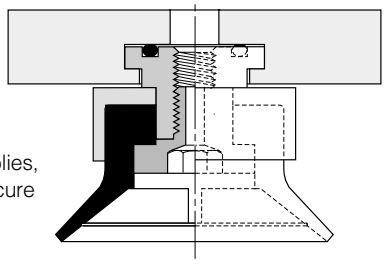
PKGT - 60 - NBR

Cup Diameter [mm]	
60	60
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

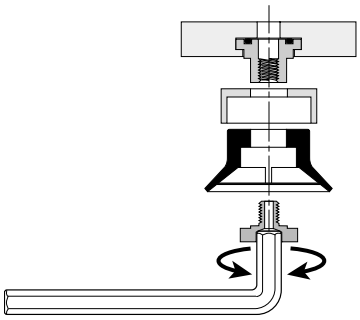
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

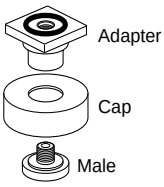


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

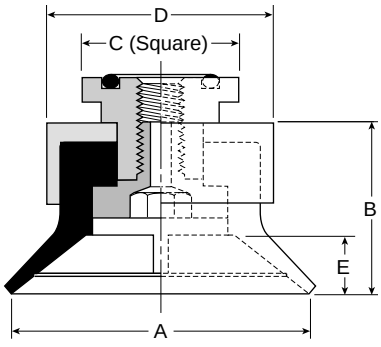


Adapter for PKG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
 Adapter / Cap / Male	TN-PK-T	—	Adapter / O-ring
	PKG-C-6710	—	Cap
	TN-PK-100-M10	M10x1,5	Male Screw

Dimensions

PKGT-60 and
PKGT-100



Model Number	ØA	B	C	D	E
PKGT-60-*	60	34	28	46	1,1
PKGT-75-*	75	35	28	46	1,1
PKGT-100-*	100	42	28	46	1,3

Millimeter
* Cup Material

PKFF Vacuum Cup Assemblies

Model Number Index

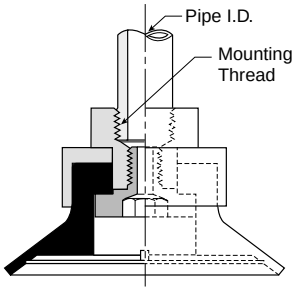
PKFF - 75 - NBR - G3

Cup Diameter [mm]	
60	60
75	75

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

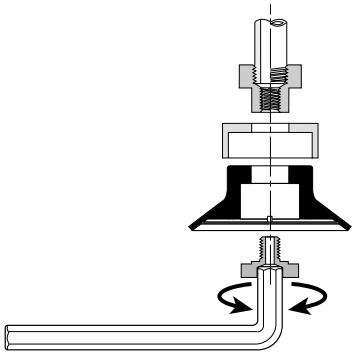
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

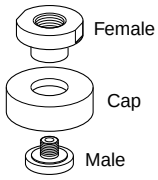


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

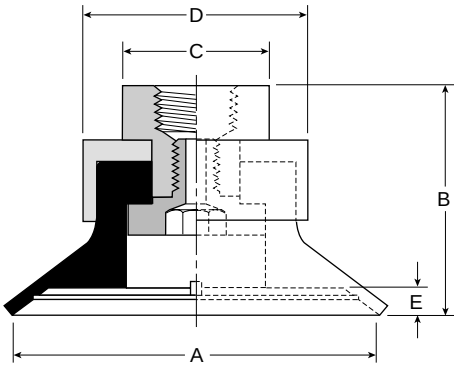


Female Adapter for PKFG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	TN-PK-F-G3	3/8 BSPP	Female Port
	TN-PK-100-M10	M10x1,5	Male Screw
	PKG-C-6710	—	Cap

Dimensions

PKFF-75 thru
PKFF-100



Model Number	ØA	B	C	D	E
PKFF-75-*-†	40	48,5	28	46	5
PKFF-100-*-†	50	55,5	28	46	8

Millimeter
* Cup Material
† Thread Size

A

PKFT Vacuum Cup Assemblies

Model Number Index

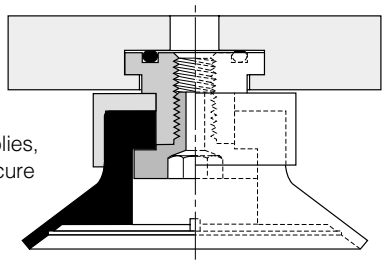
PKFT - 75 - NBR

Cup Diameter [mm]	
60	60
75	75

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

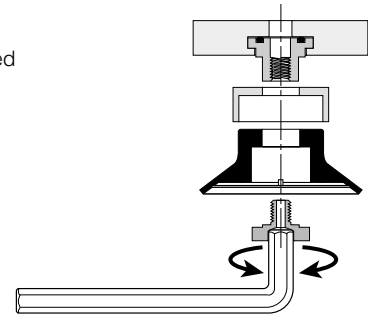
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

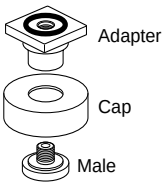


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

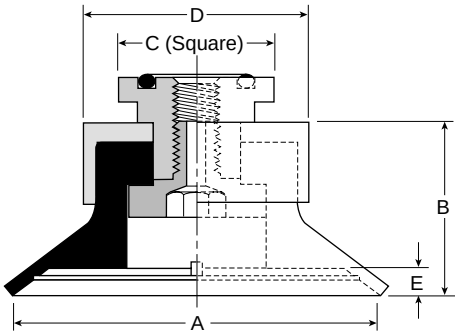


Adapter for PKFG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	TN-PK-T	—	Adapter / O-ring
	PKG-C-6710	—	Cap
	TN-PK-100-M10	M10x1,5	Male Screw

Dimensions

PKFT-75 thru
PKFT-10



Model Number	ØA	B	C	D	E
PKFT-75-*	40	35	28	46	5
PKFT-100-*	50	42	28	46	8

Millimeter
* Cup Material

PKJF Vacuum Cup Assemblies

Model Number Index

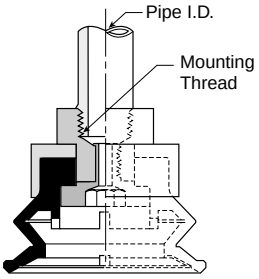
PKJF - 60 - NBR - G3

Cup Diameter [mm]	
40	40
50	50
60	60
80	80
110	110

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

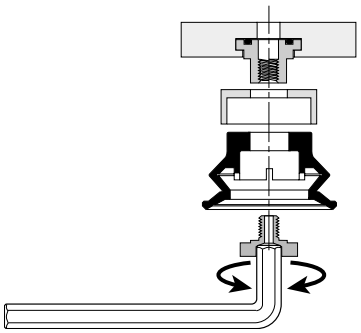
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

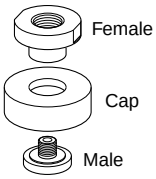


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

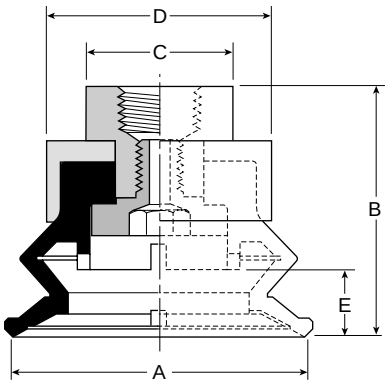


Female Adapter for PKJG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	TN-PK-F-G3	3/8 BSPP	Female Port
	TN-PK-100-M10	M10x1,5	Male Screw
	PKG-C-6710	—	Cap

Dimensions

PKJF-75 thru
PKJF-100



Model Number	ØA	B	C	D	E
PKJF-40-*-†	40	51,5	28	46	10,5
PKJF-50-*-†	50	51,5	28	46	19
PKJF-60-*-†	60	51,5	28	46	14
PKJF-80-*-†	80	55,5	28	46	17
PKJF-110-*-†	110	66,5	28	46	23

Millimeter
* Cup Material
† Thread Size

A

PKJT Vacuum Cup Assemblies

Model Number Index

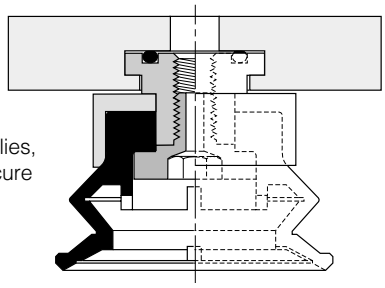
PKJT - 60 - NBR

Cup Diameter [mm]	
40	40
50	50
60	60
80	80
110	110

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

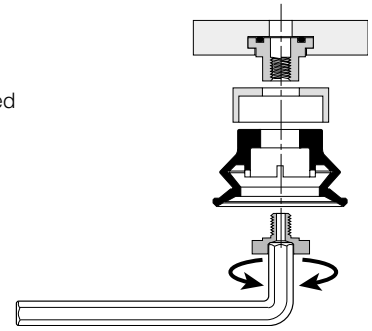
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

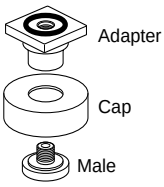


Note:
Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

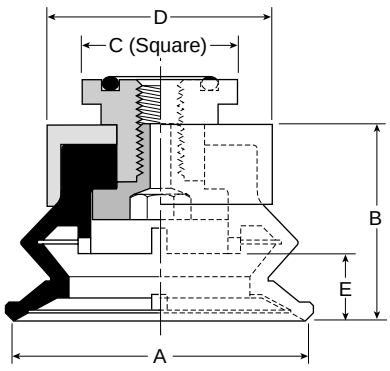


Adapter for PKJG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	TN-PK-T	—	Adapter / O-ring
	PKG-C-6710	—	Cap
	TN-PK-100-M10	M10x1,5	Male Screw

Dimensions

PKJT-40 thru
PKJT-110



Model Number	ØA	B	C	D	E
PKJT-40-*	40	38	28	46	10,5
PKJT-50-*	50	38	28	46	19
PKJT-60-*	60	38	28	46	14
PKJT-80-*	80	42	28	46	17
PKJT-110-*	110	53	28	46	23

Millimeter
* Cup Material

PUGB Flat Swivel Vacuum Cups

Features

- **Internal Swivel Joint Design**
- **30° Inclusive Angle for Flexible Products**
- **Increased Stability for Horizontal Lifts**
- **Lower Maintenance Costs**
- **10 mm to 200 mm Diameters**

Applications

The single edge swivel cup is for smooth surfaces with slightly curved surfaces or flexible sheets with substantial weights. Typically, lift capacities and break away forces are higher for flat cups which may be necessary for good stability during lift and transfer. The position of the internal swivel joint minimizes moments during lift and transfer. Maintenance costs are minimized by replacing only the cup portion of the assembly.

PUGB Series Vacuum Cups

30° inclusive swivel, single lip cup for smooth, slightly curved surfaces and flexible products. Rigid construction provides good stability against acceleration and deceleration forces during product transfer.

PUTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PUTYS Series Bulkhead Level Compensator

303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.

PUYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt thru a plate or “L” bracket to allow the tube connection from the side port. Nickel plated brass materials.

A

Model Number Index

PUG - 10 - NBR

Cup Diameter [mm]			
10	10	**50**	50
15	15	**60**	60
20	20	**80**	80
25	25	**100**	100
30	30	**120**	120
35	35	**150**	150
40	40	**200**	200

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

Model Number Index

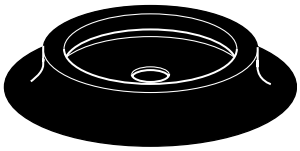
PUGB - 10 - NBR

Cup Diameter [mm]			
10	10	**50**	50
15	15	**60**	60
20	20	**80**	80
25	25	**100**	100
30	30	**120**	120
35	35	**150**	150
40	40	**200**	200

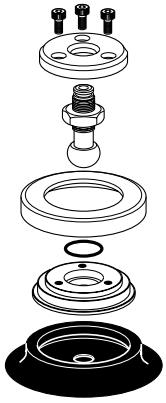
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

PUG Cup

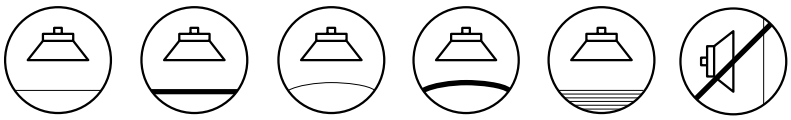


PUGB Assembly

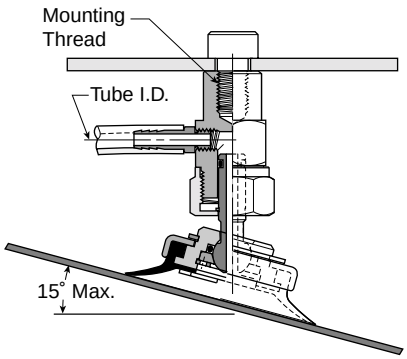


Application Guide

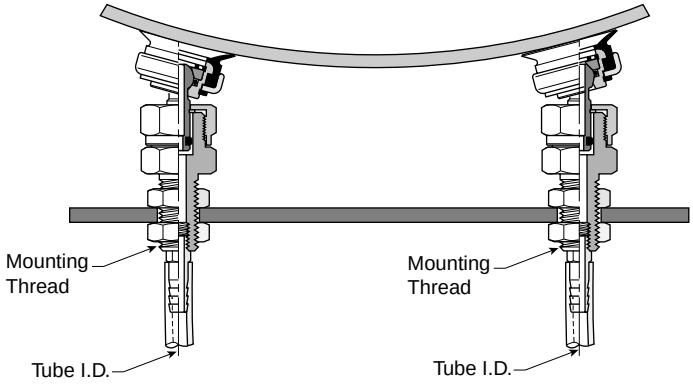
Swivel Bellows



- Angles Pickup

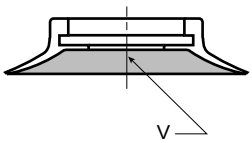


- Fixtures for Curved Product

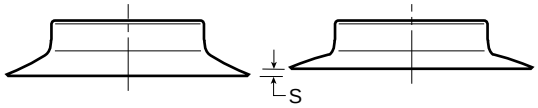


Main Data for Swivel Bellows PUG Cups

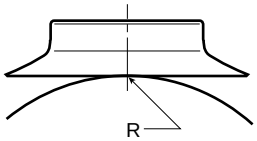
Volume



Cup Deflection



Radius



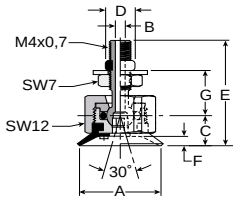
Model Number	Cup Diameter [mm]	Area [cm²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
							
PUGB-10-*	10	0,79	0,00007	4,80	—	1	6
PUGB-15-*	15	1,77	0,0004	10,8	—	1,4	6
PUGB-20-*	20	3,14	0,0008	19,2	—	2	9
PUGB-25-*	25	4,91	0,0013	30,0	—	2,5	17
PUGB-30-*	30	7,07	0,0018	43,2	—	2	26
PUGB-35-*	35	9,62	0,0026	58,9	—	3	31
PUGB-40-*	40	12,6	0,0040	76,9	—	3	37
PUGB-50-*	40	19,6	0,0070	120	—	4	41
PUGB-60-*	60	28,3	0,0090	173	—	5	70
PUGB-80-*	80	50,3	0,025	308	—	6	100
PUGB-100-*	100	78,5	0,045	480	—	6	150
PUGB-120-*	120	113,1	0,078	692	—	8	365
PUGB-150-*	150	177,0	0,177	1081	—	10	380
PUGB-200-*	200	314,0	0,425	1922	—	12	430

* Cup Material

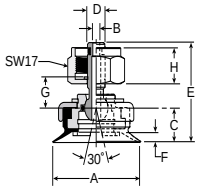
A

Dimensions

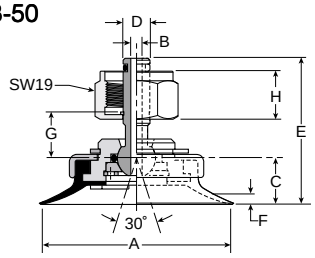
PUGB-10 and PUGB-15



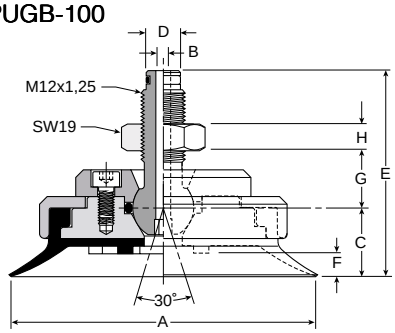
PUGB-20 thru PUGB-35



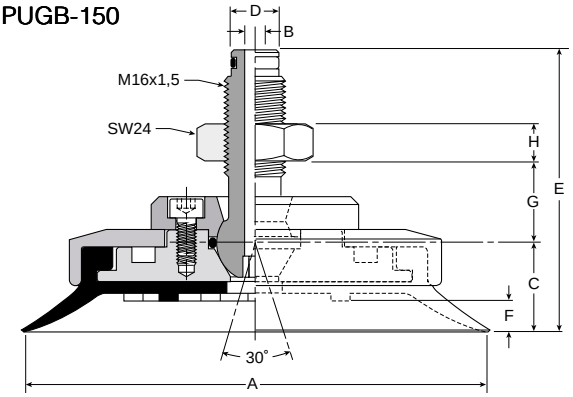
PUGB-40 and PUGB-50



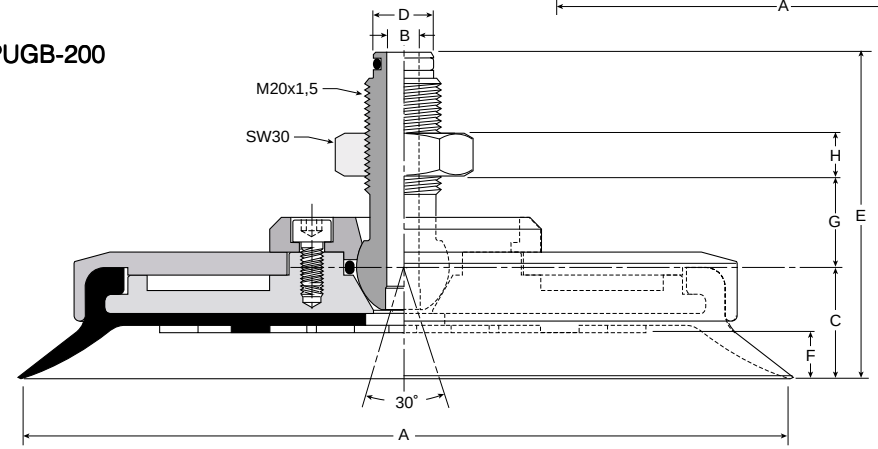
PUGB-60 thru PUGB-100



PUGB-120 thru PUGB-150



PUGB-200



Model Number	ØA	ØB	C	ØD	E	F	G	H
PUGB-10-*	10	1,8	5	5,5	20	1	5	—
PUGB-15-*	15	1,8	6	5,5	21	1,4	5	—
PUGB-20-*	20	2,3	9	6	28	2	9,05	10,5
PUGB-25-*	25	2,3	9,5	6	28,5	2,5	9,05	10,5
PUGB-30-*	30	2,3	10	6	29	2	9,05	10,5
PUGB-35-*	35	2,3	11	6	30	3	9,05	10,5
PUGB-40-*	40	3,0	11	7	37	3	12,05	12,5
PUGB-50-*	50	3,0	12	7	38	4	12,05	12,5
PUGB-60-*	60	3,9	16	9	52	5	15	7
PUGB-80-*	80	3,9	18	9	54	6	15	7
PUGB-100-*	100	3,9	18	9	54	6	15	7
PUGB-120-*	120	5,9	23	13	73	8	20	10
PUGB-150-*	150	5,9	25	13	75	10	20	10
PUGB-200-*	200	7,9	29	16	85	12	20	12

Millimeter

* Cup Material

PUTK Vacuum Cup Assemblies

Model Number Index

PUTK - 10 - NBR

Cup Diameter [mm]			
10	10	**30**	30
15	15	**35**	35
20	20	**40**	40
25	25	**50**	50

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

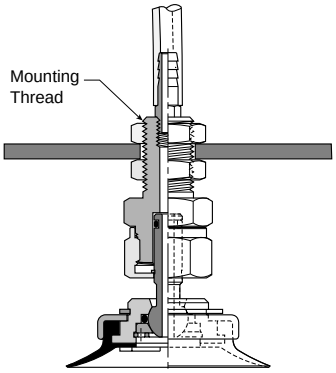
PUTYK - 60 - NBR - G1

Cup Diameter [mm]			
60	60	**120**	120
80	80	**150**	150
100	100	**200**	200

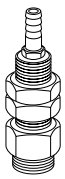
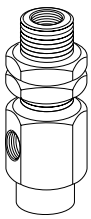
Vacuum Port	
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PUGB Cups

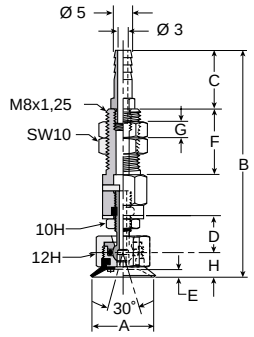
PUGB Cup Diameter [mm]	UTK Fitting Part Number	Mounting Thread
 10 15	UTK-10	M8x1,25 Male
 20 25 30 35	UTK-20	M10x1,5 Male
40 50	UTK-40	M14x1,5 Male
 60 80 100	UTYK-60-G1	M16x1,5 Male
120 150	UTYK-120-G1	M22x1,5 Male
200	UTYK-200-G2	M22x1,5 Male

Millimeter

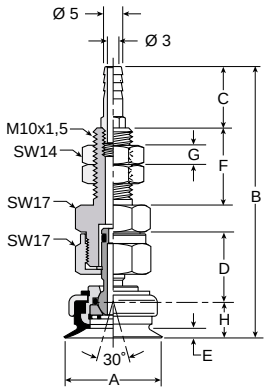
A

Dimensions

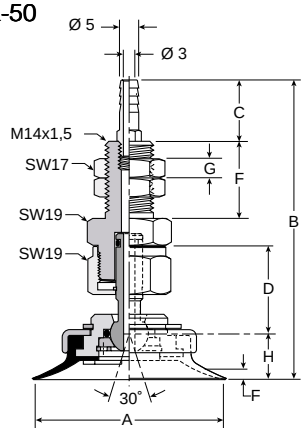
PUTK-10 and PUTK-15



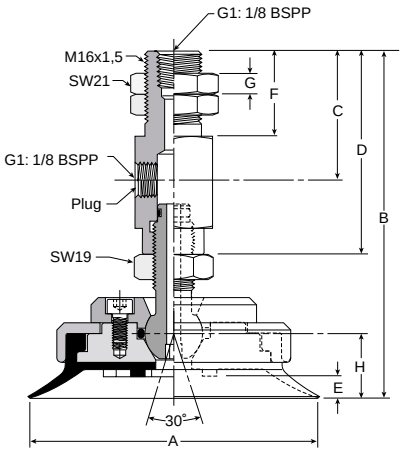
PUTK-20 thru PUTK-35



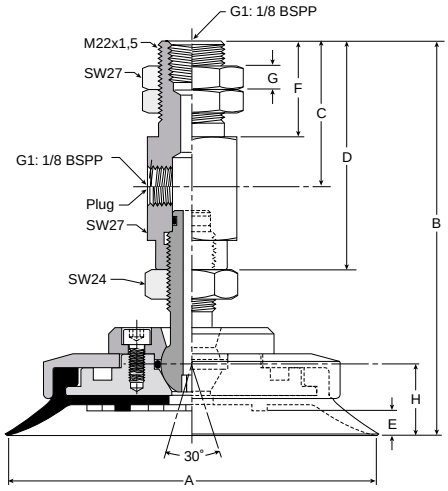
PUTK-40 and PUTK-50



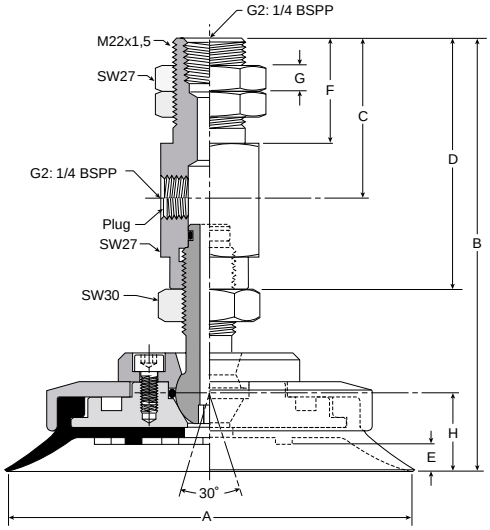
PUTYK-60 thru PUTYK-100



PUTYK-120 thru PUTYK-150



PUTYK-200



Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PUTK-10-*	10	56	16	9	1	16	4	4	20
PUTK-15-*	15	57	16	9	1,4	16	4	4	20
PUTK-20-*	20	70	16	18	2	20	5	13	66
PUTK-25-*	25	70,5	16	18	2,5	20	5	13,5	66
PUTK-30-*	30	71	16	18	2	20	5	14	71
PUTK-35-*	35	72	16	18	3	20	5	15	71
PUTK-40-*	40	77	16	23	3	20	5	11	118
PUTK-50-*	50	78	16	23	4	20	5	12	121
PUTYK-60-*	60	93	16	48	5	23	6	16	352
PUTYK-80-*	80	95	35	55	6	23	6	18	444
PUTYK-100-*	100	95	35	55	6	23	6	18	568
PUTYK-120-*	120	128	46	75	8	32	8	23	63
PUTYK-150-*	150	130	46	75	10	32	8	25	1107
PUTYK-200-*	200	140	46	71	12	32	8	29	2340

Millimeter

* Cup Material

PUYK Vacuum Cup Assemblies

Model Number Index

PUYK - 10 - NBR

Cup Diameter [mm]			
10	10	**30**	30
15	15	**35**	35
20	20	**40**	40
25	25	**50**	50

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

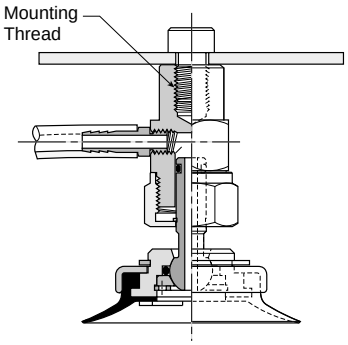
PUTYK - 60 - NBR - G1

Cup Diameter [mm]			
60	60	**120**	120
80	80	**150**	150
100	100	**200**	200

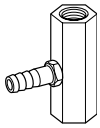
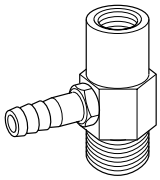
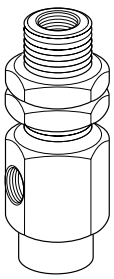
Vacuum Port	
Blank	Barb
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PUGB Cups

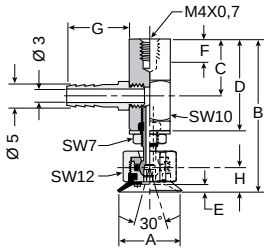
PUGB Cup Diameter [mm]	UYK Fitting Part Number	Mounting Thread
 10 15	UYK-10	M4x0,7 Female
 20 25 30 35	UYK-20	M6x1 Female
40 50	UYK-40	M8x1,25 Female
 60 80 100	UTYK-60-G1	M16x1,5 Male
120 150	UTYK-120-G1	M22x1,5 Male
200	UTYK-200-G2	M22x1,5 Male

Millimeter

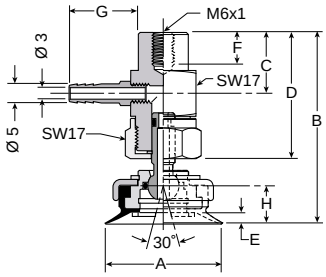
A

Dimensions

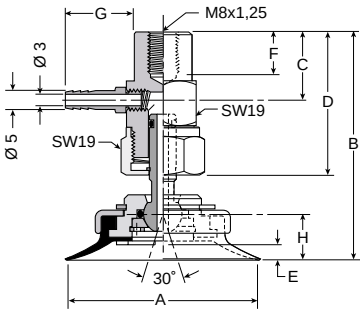
PUYK-10 thru
PUYK-15



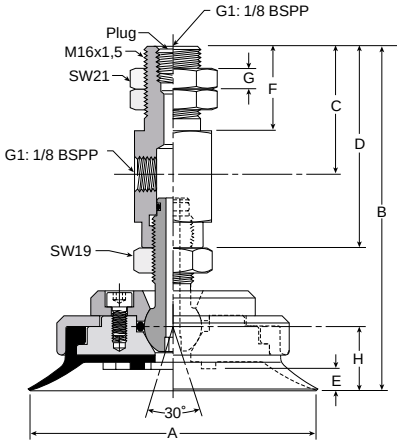
PUYK-20 thru
PUYK-35



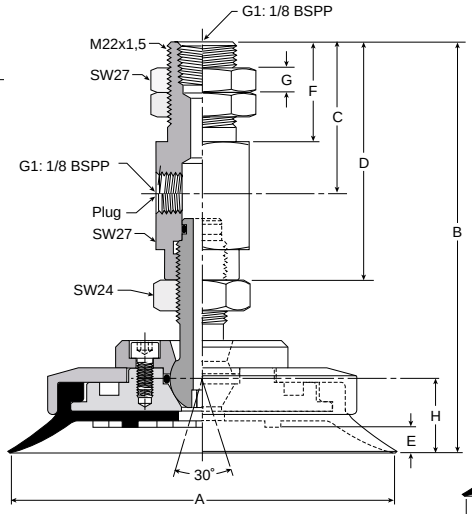
PUYK-40 and
PUYK-50



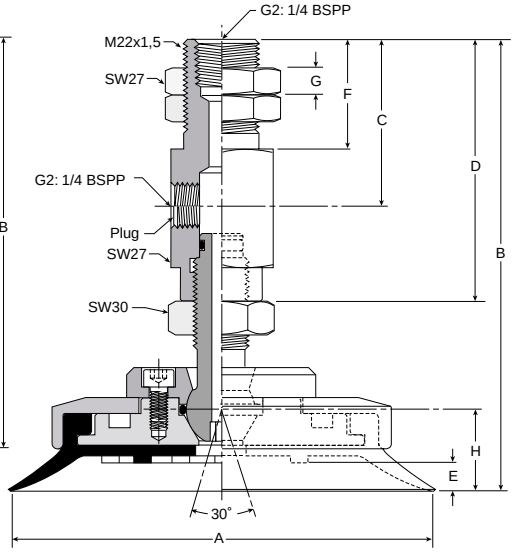
PUTYK-60 thru
PUTYK-100



PUTYK-120 thru
PUTYK-150



PUTYK-200



Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PUYK-10*	10	36,5	14	22,5	1	6	21	5	20
PUYK-15-*	15	37,5	14	22,5	1,4	6	21	5	20
PUYK-20-*	20	49	16	33	2	8	24,5	9	66
PUYK-25-*	25	49,5	16	33	2,5	8	24,5	9,5	66
PUYK-30-*	30	50	16	33	2	8	24,5	10	73
PUYK-35-*	35	51	16	33	3	8	24,5	11	73
PUYK-40-*	40	59	18	38	3	10	25,5	11	116
PUYK-50-*	50	60	18	38	4	10	25,5	12	117
PUTYK-60-*	60	93	35	55	5	23	6	16	352
PUTYK-80-*	80	95	35	55	6	23	6	18	444
PUTYK-100-*	100	95	35	55	6	23	6	18	568
PUTYK-120-*	120	128	46	75	8	32	8	23	63
PUTYK-150-*	150	130	46	75	10	32	8	25	1107
PUTYK-200-*	200	140	46	79	12	32	8	29	2340

Millimeter
* Cup Material

PUTYS Vacuum Cup Assemblies

Model Number Index

PUTYS | **10** | **3** | **NBR** | **M5**

Cup Diameter [mm]		Stroke [mm]
10	10	**3, 10, 15**
15	15	
20	20	**6, 15, 30**
25	25	
30	30	
35	35	
40	40	
50	50	
60	60	**10, 30, 50**
80	80	
100	100	
120	120	**20, 50**
150	150	
200	200	

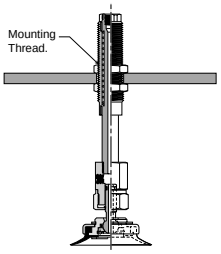
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

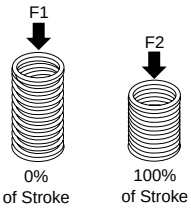
Vacuum Ports	
M5	M5
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

Installation

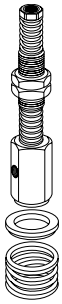
Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Compression Force



Bulkhead Level Compensator for PUGB Cups

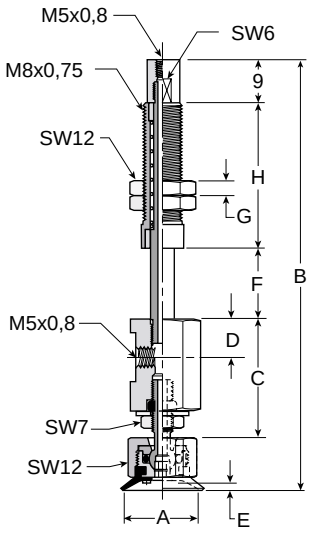
PUGB Cup Diameter [mm]		UTYS Part Number	Vacuum Ports	F1 N	F2 N
	10	UTYS-10-3-M5	M5x0,8 Female	0,49	0,59
	15	UTYS-10-10-M5		0,49	0,59
		UTYS-10-15-M5		0,49	0,59
	20	UTYS-20-6-M5	M5x0,8 Female	2,5	3,4
	25	UTYS-20-15-M5		2,5	4,9
	30	UTYS-20-30-M5		2,9	5,9
	35				
	40	UTYS-40-6-M5	M5x0,8 Female	2,5	3,4
	50	UTYS-40-15-M5		2,5	4,9
		UTYS-40-30-M5		2,9	5,9
	60	UTYS-60-25-G1	G1: 1/8 BSPP	6,8	15,6
	80	UTYS-60-45-G1		8,3	19,6
	100	UTYS-60-65-G1		9,5	21
	120	UTYS-120-20-G2	G2: 1/4 BSPP	15,6	29
	150	UTYS-120-70-G2		14,7	29
	200	UTYS-200-20-G2	G2: 1/4 BSPP	15,6	29
		UTYS-200-70-G2		14,7	29

Millimeter

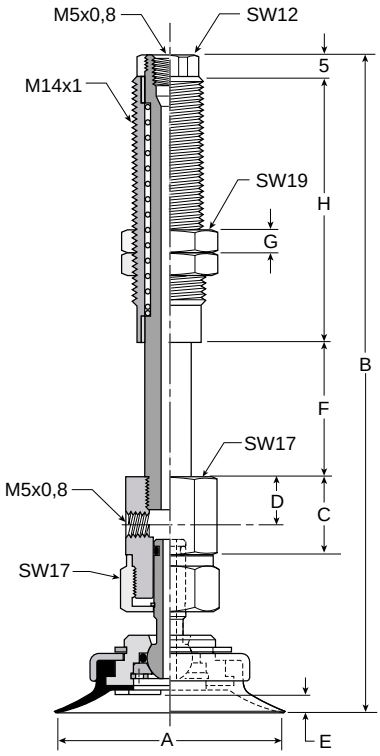
A

Dimensions

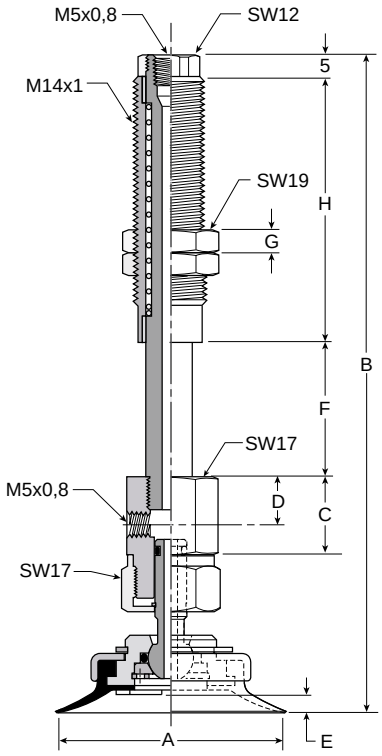
PUTYS103 thru PUTYS1515



PUTYS206 thru PUTYS3530



PUTYS406 thru PUTYS5030



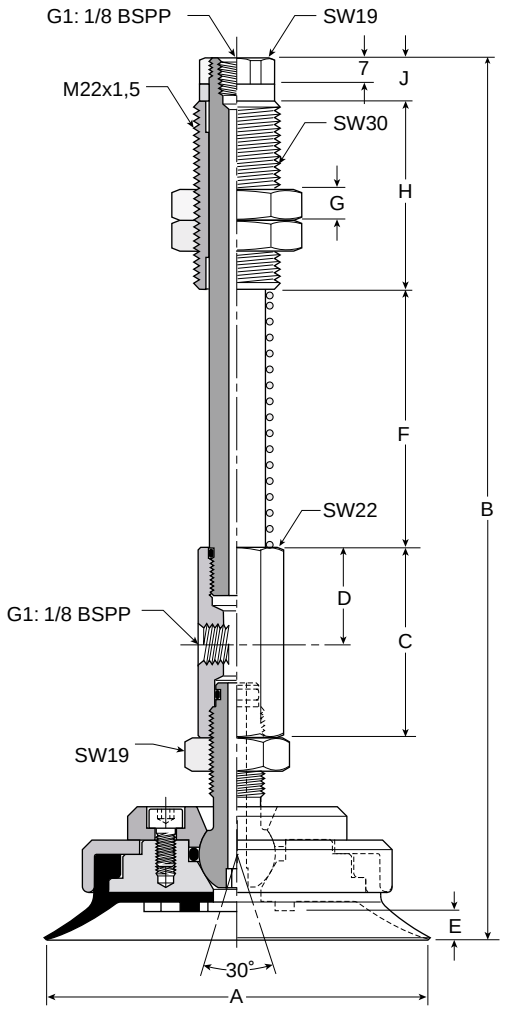
Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PUTYS103*	10	67,5	18,5	8	1	3	3	23	25
PUTYS1010*	10	74,5	18,5	8	1	10	3	23	26
PUTYS1015*	10	87	18,5	8	1	15	3	30,5	28
PUTYS153*	15	68,5	18,5	8	1,4	3	3	23	25
PUTYS1510*	15	75,5	18,5	8	1,4	10	3	23	26
PUTYS1515*	15	88	18,5	8	1,4	15	3	30,5	28
PUTYS206*	20	89,5	16	10	2	6	5	36	89
PUTYS2015*	20	98,5	16	10	2	15	5	36	94
PUTYS2030*	20	135,5	16	10	2	30	5	58	119
PUTYS256*	20	90	16	10	2,5	6	5	36	89
PUTYS2515*	20	99	16	10	2,5	15	5	36	94
PUTYS2530*	20	136	16	10	2,5	30	5	58	119
PUTYS306*	30	90,5	16	10	2	6	5	36	94
PUTYS3015*	30	99,5	16	10	2	15	5	36	99
PUTYS3030*	30	136,5	16	10	2	30	5	58	124
PUTYS356*	30	91,5	16	10	3	6	5	36	94
PUTYS3515*	30	100,5	16	10	3	15	5	36	99
PUTYS3530*	30	137,5	16	10	3	30	5	58	124
PUTYS406*	40	97,5	17	10	3	6	5	36	123
PUTYS4015*	40	106,5	17	10	3	15	5	36	128
PUTYS4030*	40	143,5	17	10	3	30	5	58	153
PUTYS506*	50	98,5	17	10	4	6	5	36	123
PUTYS5015*	50	107,5	17	10	4	15	5	36	128
PUTYS5030*	50	144,5	17	10	4	30	5	58	154

Millimeter

* Cup Material

Dimensions

PUTYS6010 thru
PUTYS10050

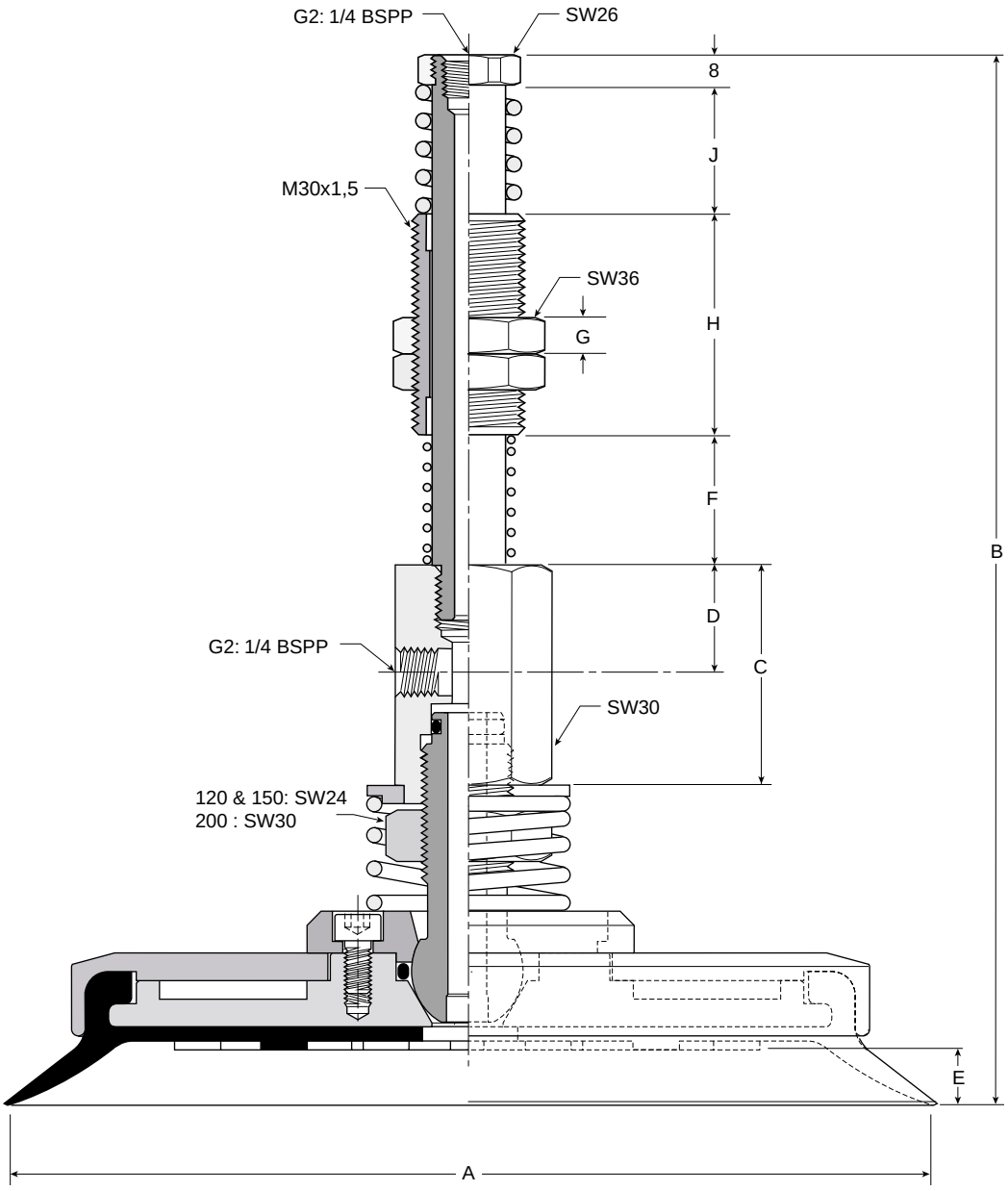


Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PUTYS6025*	60	185	40	20	5	45	10	50	12	487
PUTYS6045*	60	210	40	20	5	70	10	50	12	521
PUTYS6065*	60	235	40	20	5	90	10	50	12	548
PUTYS8025*	80	187	40	20	6	45	10	50	12	559
PUTYS8045*	80	212	40	20	6	70	10	50	12	595
PUTYS8065*	80	237	40	20	6	90	10	50	12	620
PUTYS10025*	30	187	40	20	6	45	10	50	12	729
PUTYS10045*	30	212	40	20	6	70	10	50	12	756
PUTYS10065*	30	237	40	20	6	90	10	50	12	1414

Millimeter
* Cup Material

Dimensions

PUTYS12020 thru
PUTYS20070



Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PUTYS12020*	120	251	60	27	8	35	10	60	35	1414
PUTYS12070*	120	316	60	27	8	100	10	60	35	1495
PUTYS15020*	120	253	60	27	10	35	10	60	35	1640
PUTYS15070*	120	318	60	27	10	100	10	60	35	1721
PUTYS20020*	120	279	60	27	12	35	10	60	35	2780
PUTYS20070*	120	324	60	27	12	100	10	60	35	2861

Millimeter
* Cup Material

PFOG Grooved Vacuum Cups

Features

- **Vacuum Grooves On Underside Increases Holding Area**
- **Resists Acceleration and Deceleration Shear**
- **Shear Resistance Is Increased By 25%**
- **20 mm to 40 mm Diameters**

Applications

The anti-slip flat cups are for pick-and- place applications that require an increased holding force without having to increase the diameter of the cup. The grooved foot pattern channels the vacuum flow to the cup's outer diameter which increases resistance to the shear force by 25% over conventional flat pads. These cups are perfect for high speed press transfer of small to medium sized stamped metal products with oily surfaces. This cup also works well with corrugated product.

PFOG Series Vacuum Cups

Special grooved flat cup with single lip provides increases vacuum flow area. Increased holding force resists against slipping of products with oily surfaces. Increased holding force also works well with corrugated product.

PFOTK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

PFOTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PFOYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt through a plate or "L" bracket to allow the tube connection from the side port. Nickel plated brass materials.

PFOTF Series Female Thread Connector

Simple female connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PFOTYS Series Bulkhead Level Compensator

303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.

A

Model Number Index

PFOG - 20 - NBR

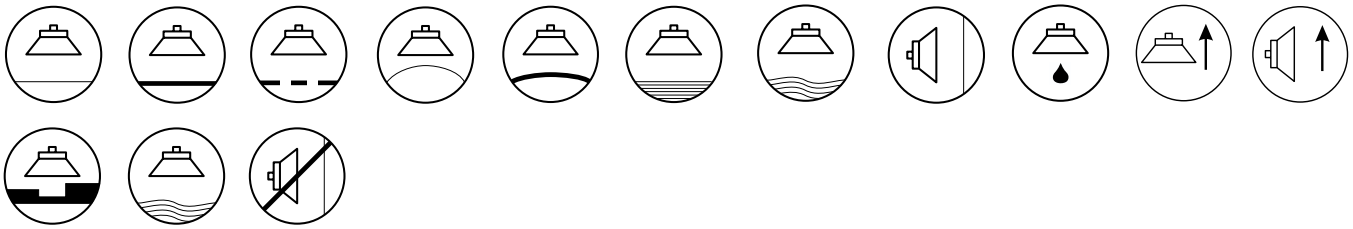
Cup Diameter [mm]	
20	20
25	25
30	30
35	35
40	40

Cup Material	
NBR	Nitrile Rubber
U	Urethane

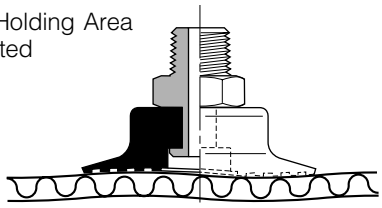
More materials on request.
Please see page 8 for material specifications.

Selection Guide

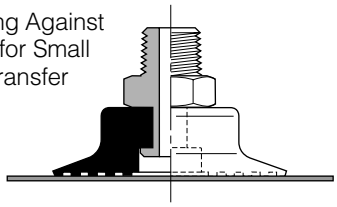
Anti-Slip Flat Cups



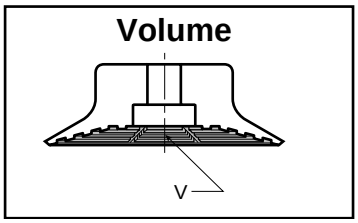
- Increased Holding Area for Corrugated

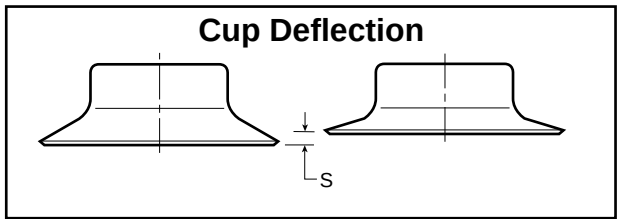


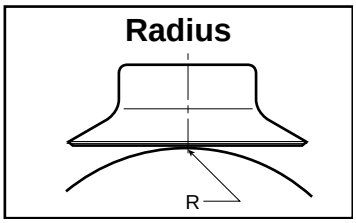
- Resists Slipping Against Oily Surfaces for Small Sheet Metal Transfer



Main Data for Anti-Slip PFOG Suction Cups



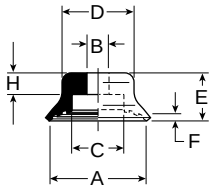




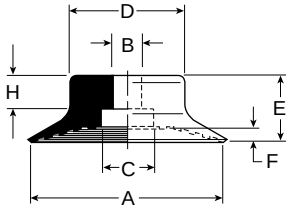
Model Number	Cup Diameter [mm]	Area [cm²]	Volume [V] liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PFOG-20	20	3,14	0,0008	18,0	11,25	2,3	4,0
PFOG-25	25	4,91	0,0013	29,0	18,0	3,0	17,5
PFOG-30	30	7,07	0,0018	42,0	26,0	2,0	26,0
PFOG-35	35	9,62	0,0026	57,0	35,0	3,0	37,0
PFOG-40	40	12,60	0,0040	74,0	46,0	3,5	41,0

Dimensions

PFOG-20



PFOG-25 thru PFOG-40



Model Number	ØA	ØB	ØC	ØD	E	F	H
PFOG-20-*	20	4,6	11	15	10	1,5	4,5
PFOG-25-*	25	6	11	16	14	1,1	7
PFOG-30-*	30	6	11	14	12	1,3	7
PFOG-35-*	35	6	11	21	12	1,6	7
PFOG-40-*	40	6	11	24	14	2,8	7

Millimeter
* Cup Material

A

PFOTM Vacuum Cup Assemblies

Model Number Index

PFOTM - 25 - NBR - G1

Cup Diameter [mm]
25 25
30 30
35 35
40 40

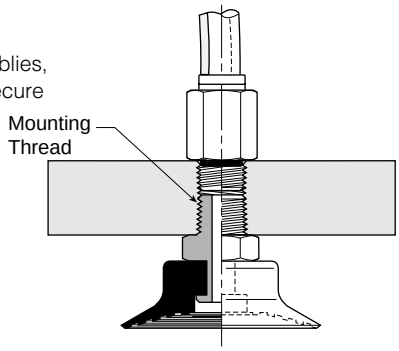
Cup Material
NBR Nitrile Rubber
U Urethane

More materials on request.
Please see page 8 for material specifications.

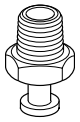
Mounting Thread
G1 1/8 BSPP
G2 1/4 BSPP
See Chart Below

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



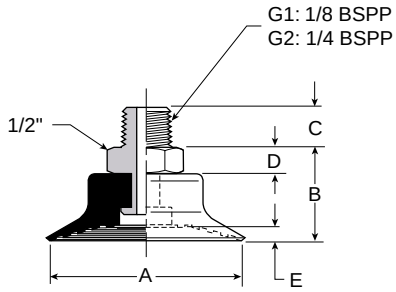
Male Threaded Fitting for PFOG Cups

PFOG Cup Diameter [mm]	FTM Part Number	Mounting Thread
 25		
30	FTM-20B-G1	1/8 BSPP
35	FTM-20B-G2	1/4 BSPP
40		

Millimeter

Dimensions

PFOTM-25-1/8 thru
PFOTM-40-1/8



Model Number	ØA	B	C	D	E
PFOTM-25-*-†	25	19	8	5	1,1
PFOTM-30-*-†	30	17	8	5	1,3
PFOTM-35-*-†	35	19	8	5	1,6
PFOTM-40-*-†	40	19	8	5	2,8

Millimeter
* Cup Material
† Thread Size

PFOTF Vacuum Cup Assemblies

Model Number Index

PFOTF - 25 - NBR - G1

Cup Diameter [mm]
25 25
30 30
35 35
40 40

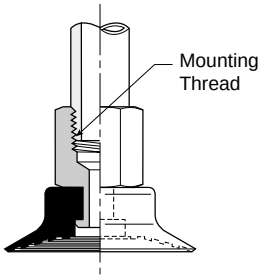
Cup Material
NBR Nitrile Rubber
U Urethane

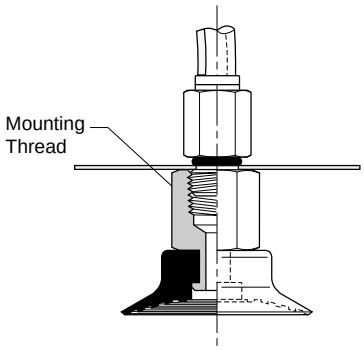
More materials on request.
Please see page 8 for material specifications.

Mounting Thread
G1 1/8 BSPP
G2 1/4 BSPP
See Chart Below

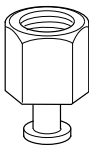
Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.





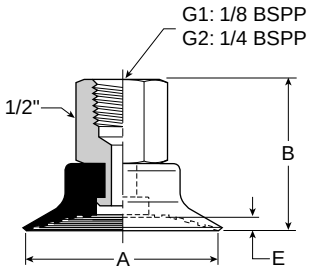
Female Threaded Fitting for PFOG Cups

PFOG Cup Diameter [mm]	FTF Part Number	Mounting Thread
 25		
30	FTF-20B-G1	1/8 BSPP
35	FTF-20B-G2	1/4 BSPP
40		

Millimeter

Dimensions

PFOTF-25-1/8F thru
PFOTF-40-1/8F



Model Number	ØA	B	E
PFOTF-25-*-†	25	28	1,1
PFOTF-30-*-†	30	26	1,3
PFOTF-35-*-†	35	28	1,6
PFOTF-40-*-†	40	28	2,8

Millimeter
* Cup Material
† Thread Size

A

PFOTK Vacuum Cup Assemblies

Model Number Index

PFOTK - 25 - NBR

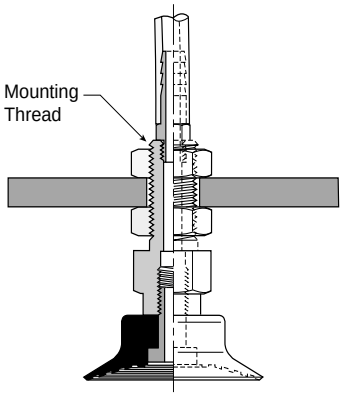
Cup Diameter [mm]	
20	20
25	25
30	30
35	35
40	40

Cup Material	
NBR	Nitrile Rubber
U	Urethane

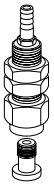
More materials on request.
Please see page 8 for material specifications.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



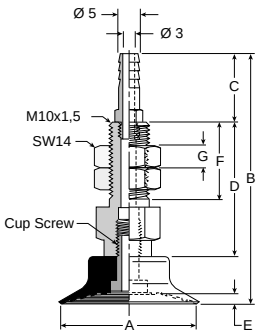
Barbed Bulkhead for PFOG Cups

PFOG Cup Diameter [mm]	FTK Part Number	Mounting Thread
 25 30 35 40	FTK-20B	M10x1,5 Female

Millimeter

Dimensions

PFOTK-25 thru
PFOTK-40



Model Number	ØA	B	C	D	E	F	G
PFOTK-25-*	25	62	16	32	1,1	20	5
PFOTK-30-*	30	60	16	32	1,3	20	5
PFOTK-35-*	35	62	16	32	1,6	20	5
PFOTK-40-*	40	62	16	32	2,8	20	5

Millimeter
* Cup Material

PFOYK Vacuum Cup Assemblies

Model Number Index

PFOYK - 25 - NBR

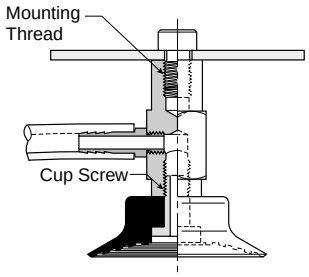
Cup Diameter [mm]
25 25
30 30
35 35
40 40

Cup Material	
NBR	Nitrile Rubber
U	Urethane

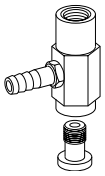
More materials on request.
Please see page 8 for material specifications.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



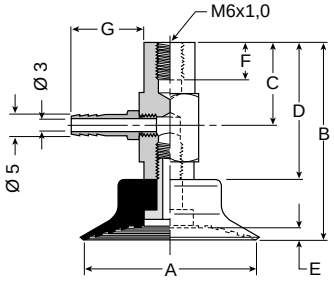
90° Barbed Adapter for PFOG Cups

PFOG Cup Diameter [mm]	FYK Part Number	Min. Tube ID	Mounting Thread
 25 30 35 40	FYK-20B	4	M6x1,0 Female

Millimeter

Dimensions

PFOYK-25 thru PFOYK-40



Model Number	ØA	B	C	D	E	F	G
PFOYK-25-*	25	46	20	32	1,1	10	16
PFOYK-30-*	30	44	20	32	1,3	10	16
PFOYK-35-*	35	44	20	32	1,6	10	16
PFOYK-40-*	40	46	20	32	2,8	10	16

Millimeter
* Cup Material

A

PFOTYS Vacuum Cup Assemblies

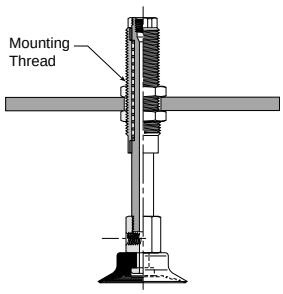
Model Number Index

PFOTYS 25 6 NBR

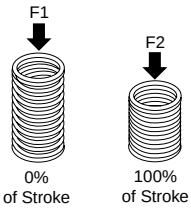
Cup Diameter [mm]		Stroke
25	25	**6, 15, 30**
30	30	
35	35	
40	40	

Cup Material	
NBR	Nitrile Rubber
U	Urethane

More materials on request.
Please see page 8 for material specifications.



Compression Force



Installation

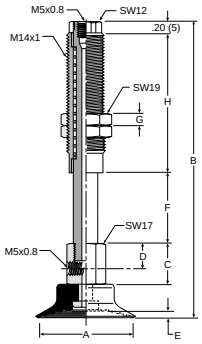
Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

Bulkhead Level Compensator Fitting for PFOG Cups

PFOG Cup Diameter [mm]	TYS Part Number	Mounting Thread	Port Thread	F1 N	F2 N
 25	FTYS-20B-6	M14x1,0	M5x0,8	2,5	3,4
30	FTYS-20B-15			2,5	4,9
35	FTYS-20B-30			2,9	5,9
40					

Dimensions

PFOTYS25 thru
PFOTYS40



Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PFOTYS256*	25	78	17	10	1,1	6	5	36	66
PFOTYS2515*	25	87	17	10	1,1	15	5	36	71
PFOTYS2530*	25	124	17	10	1,1	30	5	58	96
PFOTYS306*	30	76	17	10	1,3	6	5	36	67
PFOTYS3015*	30	85	17	10	1,3	15	5	36	72
PFOTYS3030*	30	122	17	10	1,3	30	5	58	97
PFOTYS356*	35	76	17	10	1,6	6	5	36	71
PFOTYS3515*	35	85	17	10	1,6	15	5	36	74
PFOTYS3530*	35	122	17	10	1,6	30	5	58	99
PFOTYS406*	40	78	17	10	2,8	6	5	36	71
PFOTYS4015*	40	87	17	10	2,8	15	5	36	76
PFOTYS4030*	40	124	17	10	2,8	30	5	58	101

Millimeter
* Cup Material

PCD Ring Vacuum Cups

Features

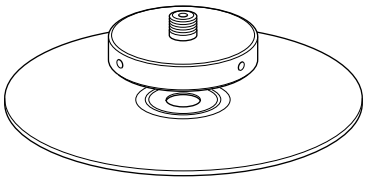
- **Ring Design**
- **Stable Compensation for Transfer**
- **Minimum Contact**
- **28 mm to 50 mm Diameters**

Applications

These ring suction cups are popular in CD / DVD manufacturing and semi-conductor wafer handling applications. The small edge design minimizes contact with the product. The short stroke minimizes response time and provides stability during transfer in high speed production.

PCD Series Vacuum Cups

Ring suction cups with quality, friendly materials. Inherent symetrical design provides stability during high speed transfer.



PCDM Series Male Thread Connector

Simple male connection for low profile applications.
Material: Aluminium.

PCDF Series Female Thread Connector

Simple female connection for low profile applications.
Material: Aluminium.

A

Model Number Index

PCD - 23 - NBR

Cup I.D. [mm]	
20	20
23	23
29.5	29,5
34	34
38	38
46	46

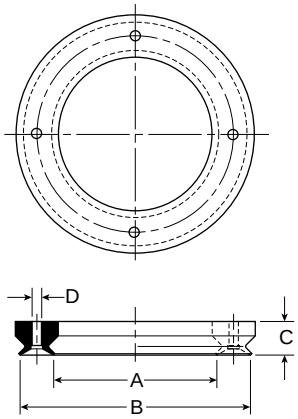
Cup Material	
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

Dimensions

Model Number	ØA	B	C	D
PCD20*	20	33	6,5	2
PCD23*	23	37	5	3
PCD29,5*	29,5	43,5	5	3
PCD34*	34	48	7	2
PCD38*	38	52	5	3
PCD46*	46	58	7	2

Millimeter
* Cup Material



PCDM & PCDF Vacuum Cup Assemblies

Model Number Index

PCD M - 23 - NBR

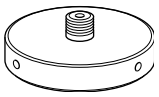
Thread Connection
M Male
F Female

Cup **I.D.** [mm]	
20	20
23	23
29.5	29,5
34	34
38	38
46	46

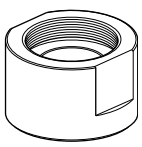
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

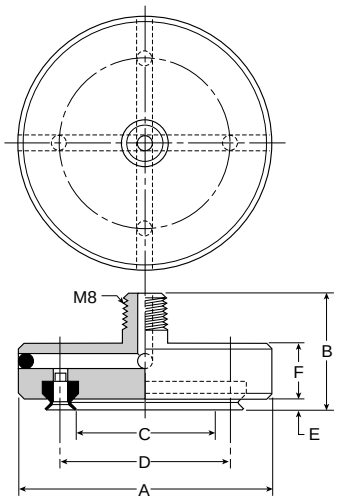
Male Holder for PCD Cups

PCD Cup Diameter [mm]	Holder Part Number	Mounting Thread
 20	CDM-20	M8x1,25
23	CDM-23	M8x1,25
29,5	CDM-29.5	M8x1,25
34	CDM-34	M8x1,25
38	CDM-38	M8x1,25
46	CDM-46	M8x1,25

Female Holder for PCD Cups

PCD Cup Diameter [mm]	Holder Part Number	Vacuum Port	Mounting Thread
 20	CDF-20	M5 Female	M30x1,0
23	CDF-23	M5 Female	M30x1,0
29,5	CDF-29,5	M5 Female	M30x1,0
34	CDF-34	M5 Female	M30x1,0
38	CDF-38	M5 Female	M30x1,0

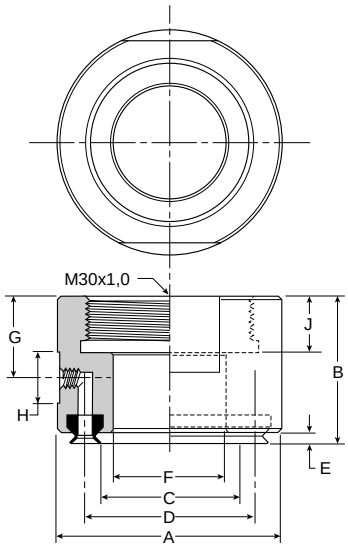
A



PCDM Dimensions

Model Number	ØA	B	C	D	E	F
PCDM-20-*	40	22	20	26	3	10
PCDM-23-*	45	21,5	23	30	2,5	10
PCDM-29,5-*	50	21,5	29,5	36,5	2,5	10
PCDM-34-*	58	21,5	34	41	2,9	10
PCDM-38-*	60	21,5	38	45	2,5	10
PCDM-46-*	69	22	46	58	3	10

Millimeter
* Cup Material



PCDF Dimensions

Model Number	ØA	B	C	D	E	F	G	H	J
PCDF-20-*	40	24,5	20	26	3	16	14,5	11,5	10
PCDF-23-*	40	24	23	30	2,5	20	14,5	9	10
PCDF-29,5-*	46,5	24	29,5	36,5	2,5	6,5	14,5	9	10
PCDF-34-*	52	26	34	41	3	28,5	14,5	9	10
PCDF-38-*	56	25,4	38	45	2,5	28,5	14,5	9	10

Millimeter
* Cup Material

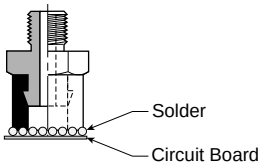
PDG Sponge Vacuum Cups

Features

- **ESD Sponge Material**
- **Conforms to Product**
- **Electronic Assembly and Packaging**
- **4 mm to 15 mm Diameters**

Applications

These sponge cups are for small lightweight products where flat surfaces are unavailable for conventional flat cups. The 20 durometer sponge material easily conforms to the product surface creating an adequate vacuum level for transfer; like BGA or CSP chips. The cups are available in silicon static dissipative materials.



PDG Series Vacuum Cups

Sponge cup for lightweight product having irregular or uneven surfaces where vacuum leakage is a concern. The sponge material conforms to the surface minimizing vacuum leakage.

PDTM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

Specifications

Suction Cup Material	CRE	SIE
Operating Temperature [°C]	-30 to +140	-60 to +250
Color	Black	Black
Hardness, Shore A [°Sh]	20 ±5	20 ±5
Electrical Resistance [Ωcm]	10^4 to 10^5	10^4 to 10^5
Wear Resistance	• • • • •	• • •
Tear Strength	• •	• •
Aging Resistance	• • • •	• • • •
Ozone Resistance	• • • •	• • • •
Acid Resistance	• • •	• • • • •
Alkali Resistance	• • • • •	• • •
Chemical Resistance	• • • •	• •
Mechanical Resistance	• • • • •	• •

• • • • • • = excellent; • • • • • = very good; • • • • = good;
• • • = medium; • • = poor; • = not recommended

Model Number Index (Cup Only)

PDG - 4 - CRE

Cup Diameter [mm]
4 4
6.5 6,5
8 8
9.5 9,5
12 12
15 15

Cup Material
CRE Chloroprene ESD
SIE Silicone ESD

More materials on request.
Please see page 8 for material specifications.

Model Number Index

PDTM - 4 - CRE - M5

Cup Diameter [mm]
4 4
6.5 6,5
8 8
9.5 9,5
12 12
15 15

Cup Material
CRE Chloroprene ESD
SIE Silicone ESD

More materials on request.
Please see page 8 for material specifications.

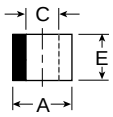
Fitting Thread
M5 M5
See Chart Below

Male Fitting for PDG Cups

PDG Cup Diameter [mm]	DTM Part Number	Tube ID	Mounting Thread
4	DTM-4-M5	2,5	M5x0,8 Male
6,5	DTM-6,5-M5	2,5	M5x0,8 Male
8	DTM-8-M5	2,5	M5x0,8 Male
9,5	DTM-9,5-M5	2,5	M5x0,8 Male
12	DTM-12-M5	2,5	M5x0,8 Male
15	DTM-15-M5	2,5	M5x0,8 Male

Millimeter

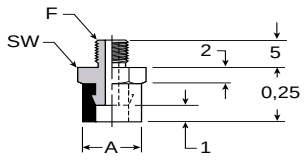
Dimensions



Model Number	ØA	ØC	E
PDG-4-*	4	1,5	4,5
PDG-6,5-*	6,5	3,2	4,5
PDG-8-*	8	3,2	4,5
PDG-9,5-*	9,5	4	4,5
PDG-12-*	12	4	4,5
PDG-15-*	15	5	4,5

Millimeter
* Cup Material

Dimensions



Model Number	ØA	F	SW
PDTM-4-*-†	4	M5	4
PDTM-6,5-*-†	6,5	M5	6,5
PDTM-6,5-*-†	6,5	10-32	12
PDTM-8-*-†	8	M5	8
PDTM-8-*-†	8	10-32	12
PDTM-9,5-*-†	9,5	M5	9,5
PDTM-9,5-*-†	9,5	10-32	12
PDTM-12-*-†	12	M5	12
PDTM-15-*-†	15	M5	15

Millimeter
* Cup Material
† Thread Size

PAG
Foil, Paper, Film Vacuum Cups

Features

- **Ultra Thin Lip Design**
- **Cup Conforms to Product**
- **10 mm to 50 mm Diameter**

Applications

The PKG Cups are ideal for paper feeding, plastic bags and foil. The choice between the 20A & 20B, 30 & 30B is application dependent. The 20A & 30B cups have a thinner lip design than the 20B & 30 cups. This thinner lip design is more suited to products with micron thickness.

PAG Series Vacuum Cups

These cups have an ultra thin edge that creates the vacuum seal by conforming to the shape of the product. The complete foot pattern to the center of the cup prevents the vacuum from deforming or “puckering’ thin, flexible products.

PATM Series Male Thread Connector

Simple male connection for low profile positions secured to a plate or bracket.

Fitting Material: Aluminium.

PAYK Series 90° Barbed Adapter

Side stem connectors allow you to secure the stem with a bolt through a plate or “L” bracket to allow the tube connection from the side port. Nickel plated brass materials.

PATK Series Barbed Bulkhead

Top stem connectors secured with jam nuts and allow tubing connections at the top side. Nickel plated brass materials.

A

Model Number Index

PAG - 30 - NBR

Cup Diameter [mm]	
10A	10
15A	15
20A	20
25	25
30	30
40	40
50	50

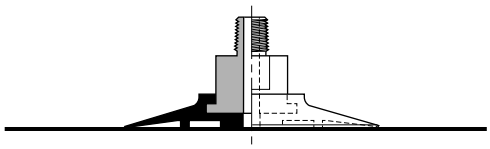
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request.
Please see page 8 for material specifications.

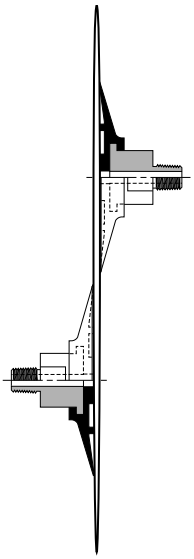
Application Guide

Thin - Smooth Surfaces

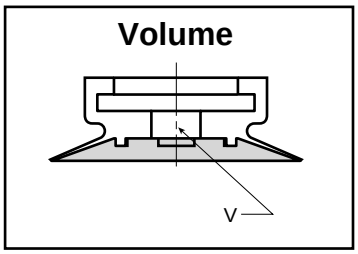
- Products With Smooth Surfaces
- Products With Micron Thickness

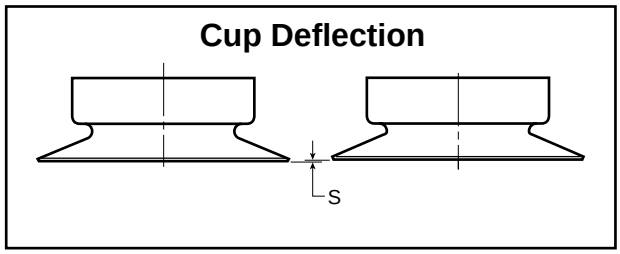


- When Opening Plastic or Paper Bags, Offset Cups



Main Data for PAG Cups





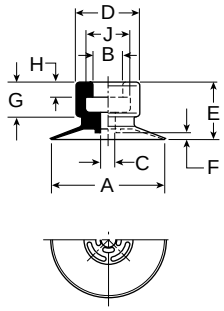
Model Number	Cup Diameter [mm]	Area [cm²]	Cup Deflection [S] [mm]
PAG-10A-*	10	0,79	0,6
PAG-15A-*	15	1,77	0,9
PAG-20A-*	20	3,14	1,2
PAG-25-*	25	4,91	1,5
PAG-30-*	30	7,07	1,8
PAG-40-*	40	12,60	2,4
PAG-50-*	40	19,60	3,0

Millimeter
* Cup Material

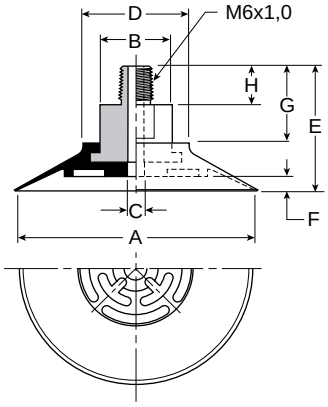
A

Dimensions

PAG-10A and
PAG-20A



PAG-25 thru
PAG-50



Model Number	ØA	ØB	ØC	ØD	E	F	G	H	J
PAG-10A-*	10	4	2	8,5	7,5	0,6	4	2	6
PAG-15A-*	15	4	2	8,5	7,5	0,9	4	2	6
PAG-20A-*	20	4	2	9	10	1,2	4	2	6
PAG-25-*	25	26	3	22	26	1,5	16	8	—
PAG-30-*	30	26	3	22	26	1,8	16	8	—
PAG-40-*	40	26	3	22	26	2,4	16	8	—
PAG-50-*	50	26	3	22	26	3	16	8	—

Millimeter
* Cup Material

PATM Vacuum Cup Assemblies

Model Number Index

PATM - 10A - NBR - M5

Cup Diameter [mm]	
10A	10
15A	15
20A	20

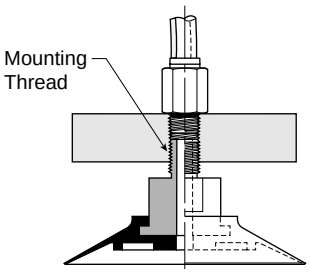
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

More materials on request. Please see page 8 for material specifications.

Mounting Thread
M5 M5
See Chart Below

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Male Fitting for PAG Cups

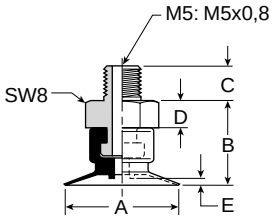
PAG Cup Diameter [mm]	FTM Part Number	Mounting Thread
10A 15A 20A	FTM-5A-M5	M5X0,8 Male

Millimeter

A

Dimensions

PATM-10A thru
PATM-20A



Model Number	ØA	B	C	D	E	F	G	H
PATM-10A-*-†	10	11	4,5	3,5	0,6	—	—	—
PATM-15A-*-†	15	11	4,5	3,5	0,9	—	—	—
PATM-20A-*-†	20	13,5	4,5	3,5	1,2	—	—	—

Millimeter
* Cup Material
† Thread Size

PATK Vacuum Cup Assemblies

Model Number Index

PATK - 10A - NBR

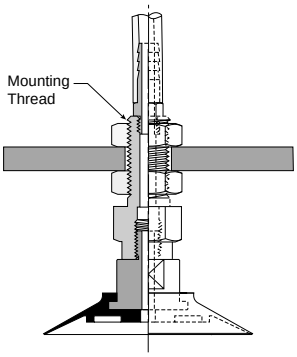
Cup Diameter [mm]	
10A	10
15A	15
20A	20
25	25
30	30
40	40
50	50

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

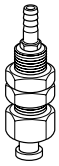
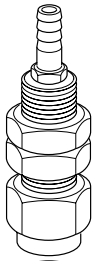
More materials on request.
Please see page 8 for material specifications.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Barbed Bulkhead for PAG Cups

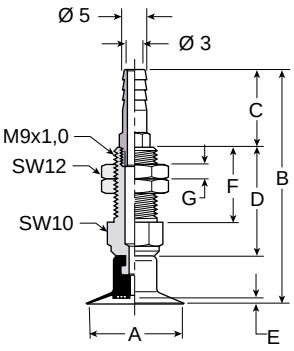
PAG Cup Diameter [mm]	FTK Part Number	Mounting Thread
 10A 15A 20A	FTK-5A	M9x1,0 Male
 25 30 40 50	FTK-20B	M10x1,5 Male

Millimeter

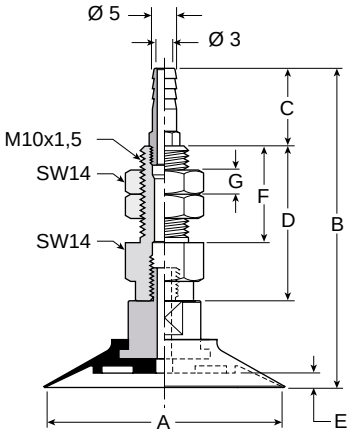
A

Dimensions

PATK-10A thru
PATK-20A



PATK-25 thru
PATK-50



Model Number	ØA	B	C	D	E	F	G
PATK-10A-*	10	46	16	22,5	0,6	15,5	3
PATK-15A-*	15	46	16	22,5	0,9	15,5	3
PATK-20A-*	20	48,5	16	22,5	1,2	15,5	3
PATK-25-*	25	66,2	16	32,2	1,5	20	5
PATK-30-*	30	66,2	16	32,2	1,8	20	5
PATK-40-*	40	66,2	16	32,2	2,4	20	5
PATK-50-*	50	66,2	16	32,2	3	20	5

Millimeter
* Cup Material

PAYK Vacuum Cup Assemblies

Model Number Index

PAYK - 10A - NBR

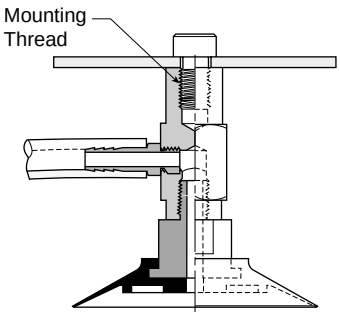
Cup Diameter [mm]	
10A	10
15A	15
20A	20
25	25
30	30
40	40
50	50

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

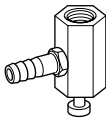
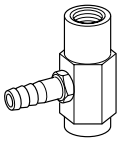
More materials on request.
Please see page 8 for material specifications.

Installation

Note:
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



90° Barbed Adapter for PAG Cups

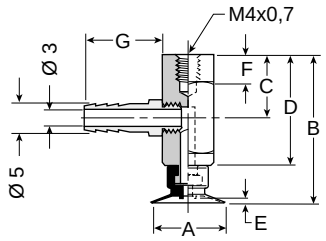
PAG Cup Diameter [mm]	FYK Part Number	Mounting Thread
 10A 15A 20A	FYK-5A	M4x0,7 Female
 25 30 40 50	FYK-20B	M6x1,0 Female

Millimeter

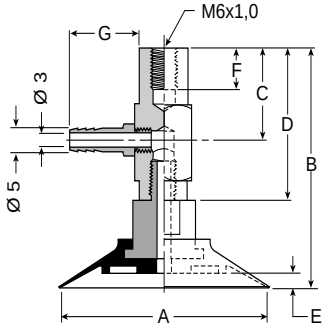
A

Dimensions

PAYK-10A thru
PAYK-20A



PAYK-25 thru
PAYK-50



Model Number	ØA	B	C	D	E	F	G
PAYK-10A-*	10	30	13	22,5	0,6	6	16
PAYK-15A-*	15	30	13	22,5	0,9	6	16
PAYK-20A-*	20	32,4	20	22,5	1,2	6	16
PAYK-25-*	25	50	20	32	1,5	8	16
PAYK-30-*	30	50	20	32	1,8	8	16
PAYK-40-*	40	50	20	32	2,4	8	16
PAYK-50-*	50	50	20	32	3	8	16

Millimeter
* Cup Material