



Vacuum Technology

Catalogue PDE2507TCUK-ab



Convum



Global Pneumatics

This icon can be found next to products that are widely supported by Parker Pneumatics' worldwide manufacturing and sales network. When you see this icon, you can be confident that this product is manufactured and/or stocked* worldwide for rapid delivery. In addition to local manufacturing or inventory, our sales network has been specifically trained on these products to provide our customers with the best possible service.

Products not showing this icon are still sold and distributed worldwide. However, The Global Pneumatics icon represents products that customers can expect the best level of support.

If you are a multi-national company, seek global sourcing or ship globally, depend on Parker Pneumatic for **PREMIER CUSTOMER SERVICE**.

* Stocking levels vary by country



WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

SALE CONDITIONS

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered into by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).



Vacuum Cups		A
Vacuum Generators		B
Vacuum & Pressure Sensors		C
Vacuum Accessories		D

Section A



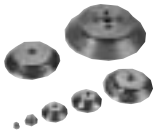
Convum

Technical Information

Lifting Forces, Cup Diameters, Material Specifications

6-9

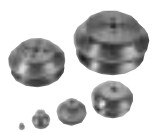
PFG Flat



Precision molded single lip flat cup for smooth or slightly curved surfaces. Low profile design makes flat pads ideal for fast response.

10-27

PBG Bellows



Versatile bellows cup design provides a flexible sealing lip for products with irregular, smooth, curved surfaces, and flexible products.

28-41

PJG Short Bellows



Versatile bellows cup design provides a flexible sealing lip for products with irregular, smooth, curved surfaces, and slightly flexible products. Shorter stroke provides fast response.

42-57

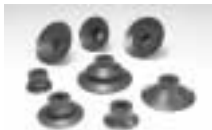
PCG Multiple Bellows



Versatile bellows cup design provides a flexible sealing lip for products with irregular, smooth, or curved surfaces. 2 1/2 bellows design minimizes contact pressure applied to products.

58-69

PKG Automotive



Versatile cup design with grooves extending to the outer diameter and different profiles for flexible products with smooth, oily surfaces.

70-79

PUGB Flat Swivel



30° swivel single lip flat cup for smooth surfaces, slightly curved surfaces, and flexible products. Rigid stem or level compensator provides good stability for horizontal lift.

80-91

PFOG Vacuum Grooves 	Anti-slip flat cup with grooves extending to the outer diameter to increase vacuum flow area. Increased friction resists slipping of product during transfer.	92-99
PCD Ring Cups 	Some of the more popular pads for the CD Industry. High temperature and soft durometer make these pads gentle and durable.	100-103
PDG Sponge 	Sponge cup for workpieces having irregular or uneven surfaces. The 20-durometer-sponge material conforms to the product allowing the desired vacuum level to be achieved.	104-105
PAG Foil, Paper, Film 	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.	106-115

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 ($ag = 9,81 \text{ m/sec}^2$). 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: $F(N) = \text{mass (kg)} \times ag(\text{m/sec}^2)$

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

$$F(N) = 10 \text{ kg} \times 9,81 \text{ m/sec}^2 = 98,1 \text{ N}$$

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:

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

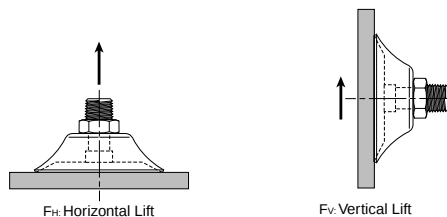
This is considered an average acceleration.

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 awkward motions will require increased safety factors.



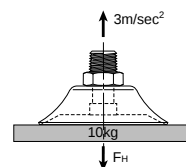
Horizontal Lifting Force

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.

$$FH(N) = \text{mass (kg)} \times (ag + a) \times SH$$

$$FH(N) = 10 \text{ kg} \times (9,81 \text{ m/sec}^2 + 3 \text{ m/sec}^2) \times 2$$

$$FH = 256,2 \text{ N}$$



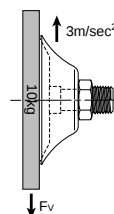
Vertical Lifting Force

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.

$$FV(N) = \text{mass (kg)} \times (ag + a) \times Sv$$

$$FV(N) = 10 \text{ kg} \times (9,81 \text{ m/sec}^2 + 3 \text{ m/sec}^2) \times 4$$

$$FV = 512,4 \text{ N}$$



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 .

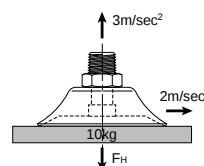
$$FM(N) = \sqrt{FV^2 + FH^2}$$

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

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

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

$$FM = 268,2 \text{ N}$$



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.

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

Referring 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 (Lbf) to Newton (N), multiply Lbf x 4,4.

Calculate the Diameter of the Cup

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

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

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

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

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

$$D = 37 \text{ mm}$$

A (cm²) = Area

D [mm] = Diameter of Cup

S = Safety Factor

P_v (kPa) = Operating Vacuum Pressure = 61kPa

n = Number of Cups

Referring 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	Symbol	Description
Suction Cup Icons		Suction Cup Icons	
	Flat Surface, Thin Section		Differences In Heights and Levels
	Flat Surface, Any Section		Vertical Lift
	Soft Porous Material, Thin Section		Not For Vertical Lift
	Soft Porous Material, Any Section		Rough and / or Abrasive Surfaces
	Slightly Bowed Surface, Thin Section		Thin or Narrow Item Handling
	Slightly Bowed Surface, Any Section		Oil Resistant
	Bowed Surface, Thin Section		High Lifting Force
	Bowed Surface, Any Section		Vertical Lifting Force
	Soft Material		Horizontal Lifting Force
	Metal Sheet Handling		
	Corrugated Sheet Handling		

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.



Model Number Index

PFG - 2A - NBR

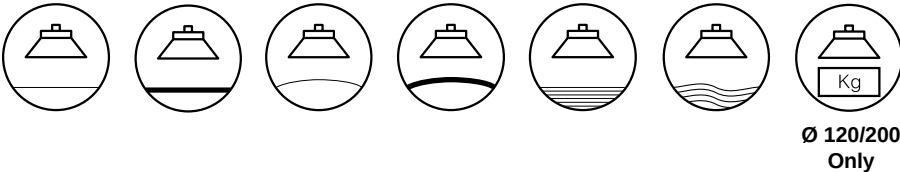
Cup Diameter [mm]			
1	1	30	30
1.5	1,5	35	35
2A	2	40	40
3.5A	3,5	50	50
5A	5	60	60
6A	6	80	80
8A	8	95	95
10A	10	120	120
15A	15	150	150
20B	20	200	200
25	25		

Cup Material	
NBR	Nitrile Rubber
SI	Silicone
U	Urethane

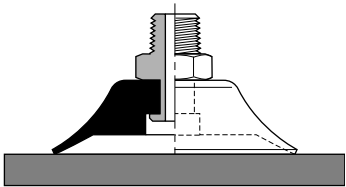
More materials on request.
Please see page 8 for material specifications.

Application Guide

Flat - Smooth Surface

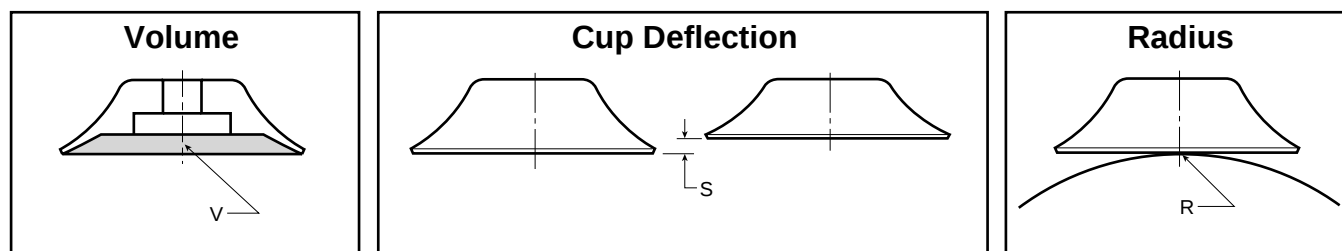


Ø 120/200
Only



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

Main Data for Flat PFG Cups

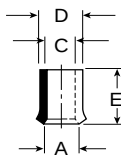


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @60% [N]		Cup Deflection [S] [mm]	Radius [R] [mm]
PFG-1-*	1	0,008	0,00000015	0,05	0,025	0,1	1,6
PFG-1.5-*	1,5	0,01	0,00000053	0,10	0,05	0,1	3,5
PFG-2A-*	2	0,03	0,0000007	0,19	0,09	0,1	1,75
PFG-3.5A-*	3	0,10	0,000002	0,59	0,29	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

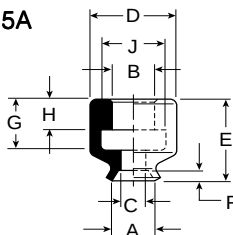
* Cup Material

Dimensions

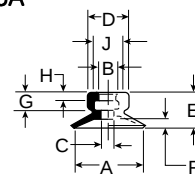
PFG-1
PFG-1.5



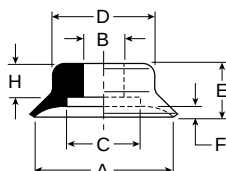
PFG-2A
PFG-3.5A



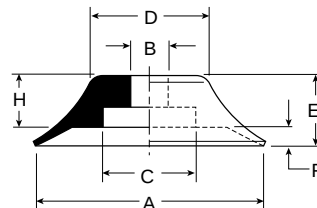
PFG-5A
PFG-15A



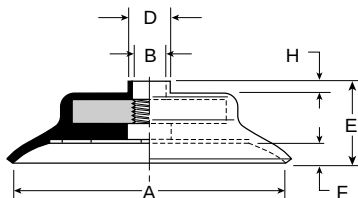
PFG-20B thru
PFG-40



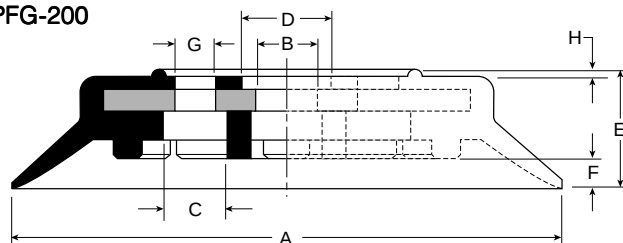
PFG-50



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

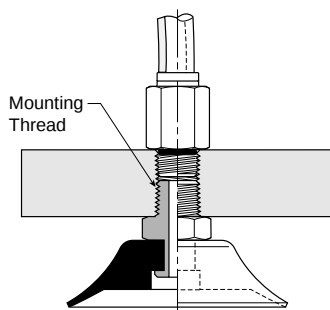
PFTM - 2A - NBR - M5

Cup Diameter [mm]				Cup Material		Mounting Thread			
2A	2	25	25	NBR	Nitrile Rubber	M5	M5		
3.5A	3,5	30	30			G1	1/8 BSPP		
5A	5	35	35	SI	Silicone	G2	1/4 BSPP		
6A	6	40	40	U	Urethane	See Chart Below			
8A	8	50	50						
10A	10	60	60						
15A	15	80	80						
20B	20	95	95						

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.

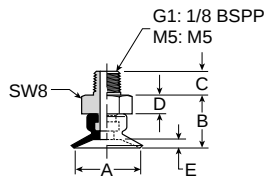


Male Thread Fitting for PFG Cups

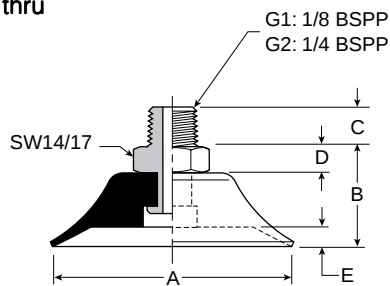
PFG Cup Diameter [mm]	FTM Fitting Part Number	Mounting Thread
2A 3.5A	FTM-2A-M5	M5x0,8 Male
5A 6A 8A 10A 15A	FTM-5A-M5 FTM-5A-G1	M5x0,8 Male 1/8 BSPP Male
20B 25 30 35 40	FTM-20B-G1 FTM-20B-G2	1/8 BSPP Male 1/4 BSPP Male
50	FTM-50-G1 FTM-50-G2	1/8 BSPP Male 1/4 BSPP Male
60 80 95	FTM-60-G2	1/4 BSPP Male

Dimensions

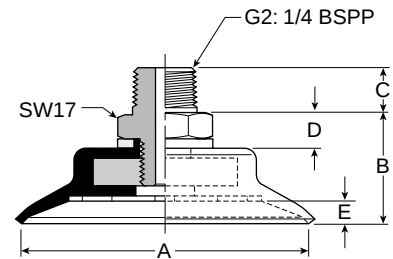
PFTM-2A thru
PFTM-15A



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

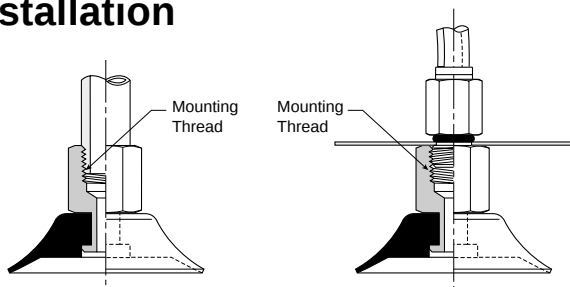


Model Number Index

PFTF - 5A - NBR - M5

Cup Diameter [mm]				Cup Material		Mounting Thread	
5A	5	40	40	NBR	Nitrile Rubber	M5	M5
6A	6	50	50			G1	1/8 BSPP
8A	8	60	60	SI	Silicone	G2	1/4 BSPP
10A	10	80	80	U	Urethane	G4	1/2 BSPP
15A	15	95	95	More materials on request. Please see page 8 for material specifications.			
20B	20	120	120				
25	25	150	150				
30	30	200	200				
35	35						
						See Chart Below	

Installation



Note:

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

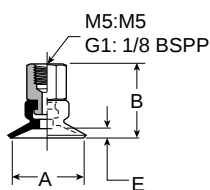
Female Thread Fitting for PFG Cups

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

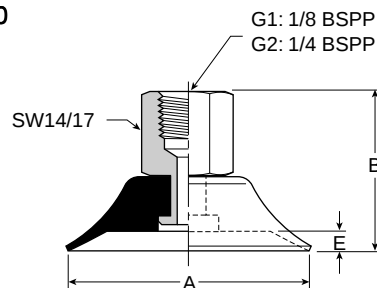
Millimeter

Dimensions

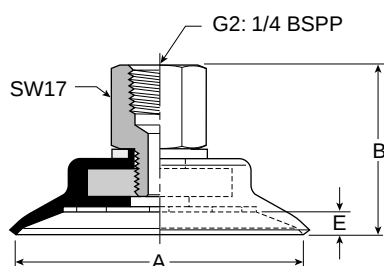
PFTF-5A thru
PFTF-15A



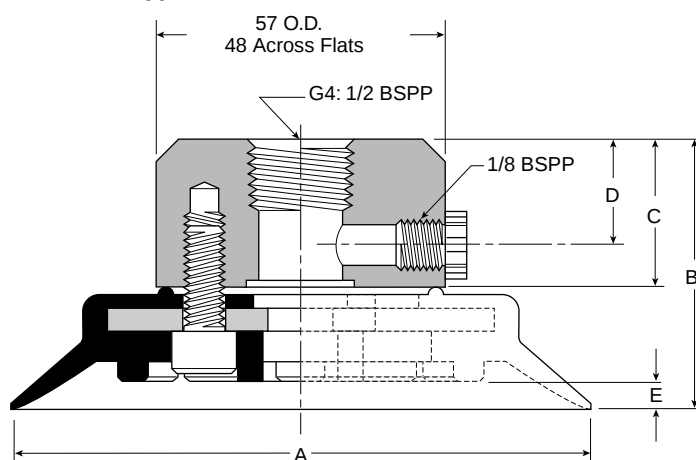
PFTF-20B thru
PFTF-50



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

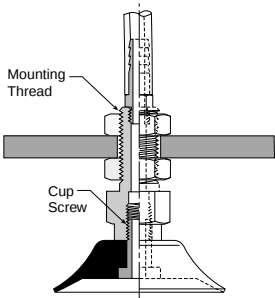
PFTK - 2A - NBR - —

Cup Diameter [mm]			Cup Material		Vacuum Port	
2A	2	25	25	NBR	Nitrile	Blank Barb
3.5A	3,5	30	30		Rubber	G1 1/8 BSPP
5A	5	35	35	SI	Silicone	See Chart Below
6A	6	40	40	U	Urethane	
8A	8	50	50			
10A	10	60	60			
15A	15	80	80			
20B	20	95	95			

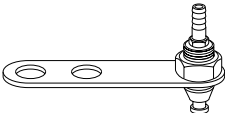
More materials on request.
Please see page 8 for material specifications.

Installation

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



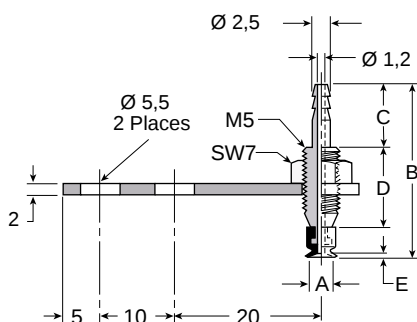
Barbed Bulkhead for PFG Cups

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
	FTK-50	M10x1,5 Male
 60 80 95	FTK-60-G1	M16x1,5 Male

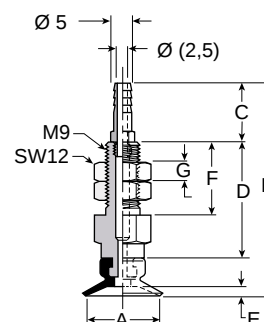
Millimeter

Dimensions

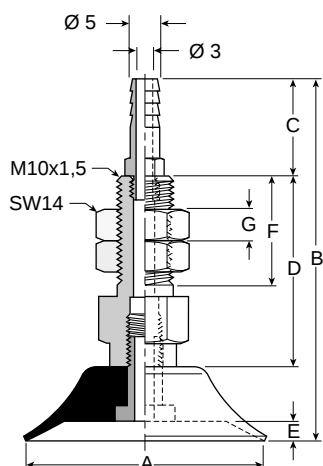
PFTK-2A thru
PFTK-3.5A



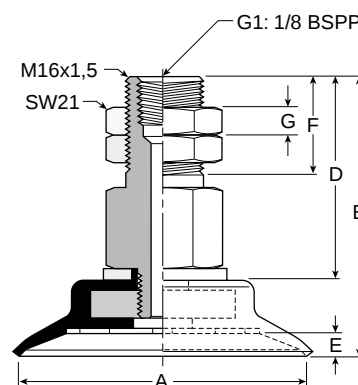
PFTK-5A thru
PFTK-15A



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** - **—**

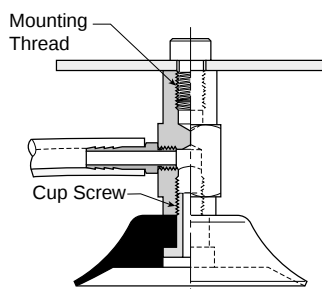
Cup Diameter [mm]				Cup Material	Vacuum Port
2A	2	35	35	NBR	Blank Barb
3.5A	2	40	40		G1 1/8 BSPP
5A	5	50	50	SI	See Chart Below
6A	6	60	60		
8A	8	80	80	U	See Chart Below
10A	10	95	95		
15A	15	120	120		
20B	20	150	150		
25	25	200	200		
30	30				

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

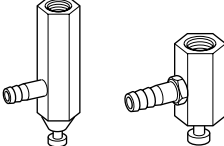
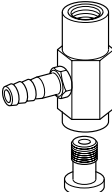
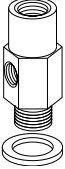
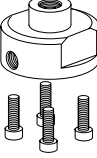
Installation

Note:

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



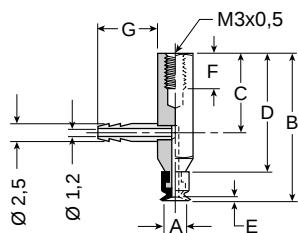
90° Barbed Adapter for PFG Cups

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

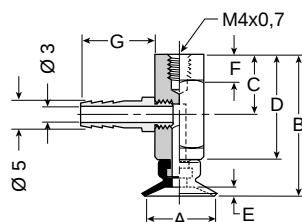
Millimeter

Dimensions

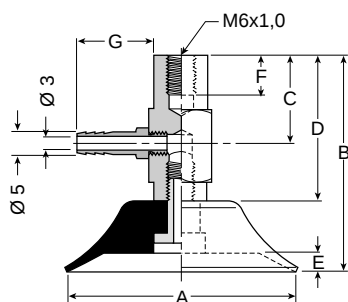
PFYK-2A thru
PFYK-3.5A



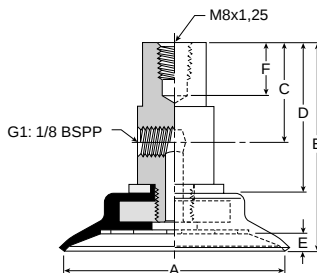
PFYK-5A thru
PFYK-15A



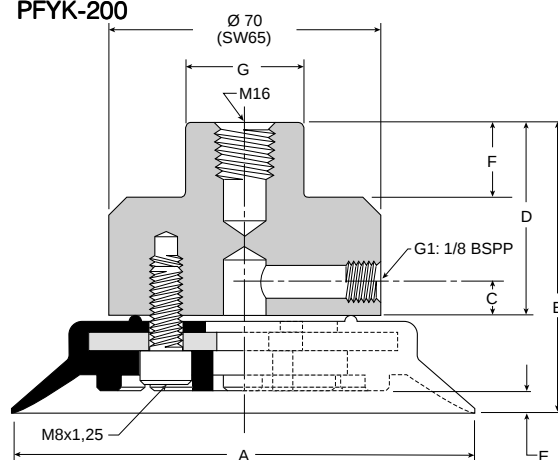
PFYK-20B thru
PFYK-50



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

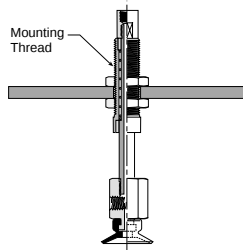
PFTYS Vacuum Cup Assemblies



Installation

Note:

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

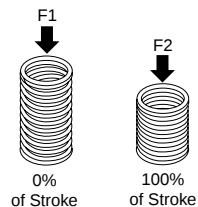


Model Number Index

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

Cup Diameter [mm]	Stroke [mm]	Cup Material	Vacuum Port
2A	2	NBR Nitrile SI Silicone U Urethane More materials on request. Please see page 8 for material specifications.	M3 M3 M5 M5 G1 1/8 BSPP G2 1/4 BSPP See Chart Below
3.5A	3,5		
5A	5		
6A	6		
8A	8		
10A	10		
15A	15		
20B	20		
25	25		
30	30		
35	35	6, 15, 30	
40	40		
50	50		
60	60		
80	80		
95	95	30, 50, 70	
120	120		
150	150		
200	200		

Compression Force

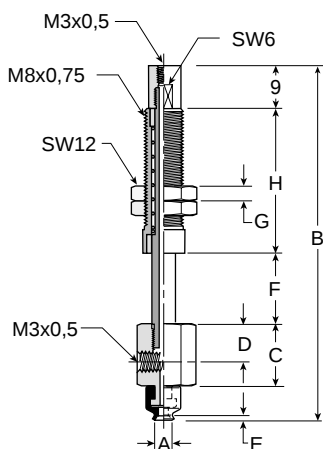


Bulkhead Level Compensator for PFG Cups

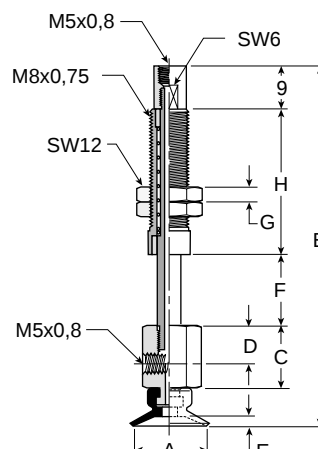
PFG Cup Diameter [mm]	FTYS Part Number	Vacuum Ports	F1 N	F2 N
	2A	M3x0,5 Female	0,49	0,59
	3.5A		0,49	0,59
	5A		0,49	0,59
	6A	M5x0,8 Female	0,49	0,59
	8A		0,61	1,17
	10A		0,64	1,17
	15A			
	20B	M5x0,8 Female	2,5	3,4
	25		2,5	4,9
	30		2,9	5,9
	35	M5x0,8 Female	2,5	3,4
	40		2,5	4,9
	50		2,9	5,9
	60	G1: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

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

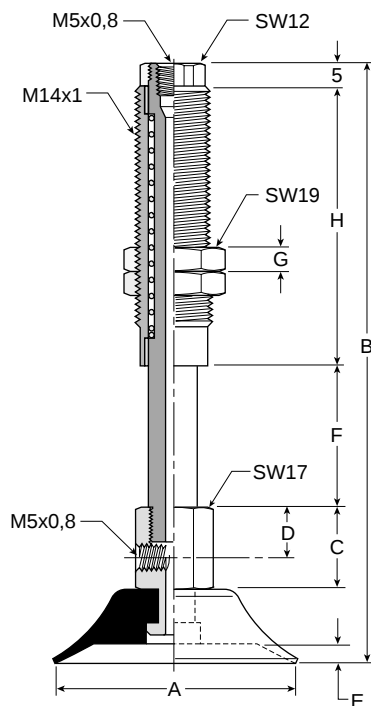
Millimeter

* 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

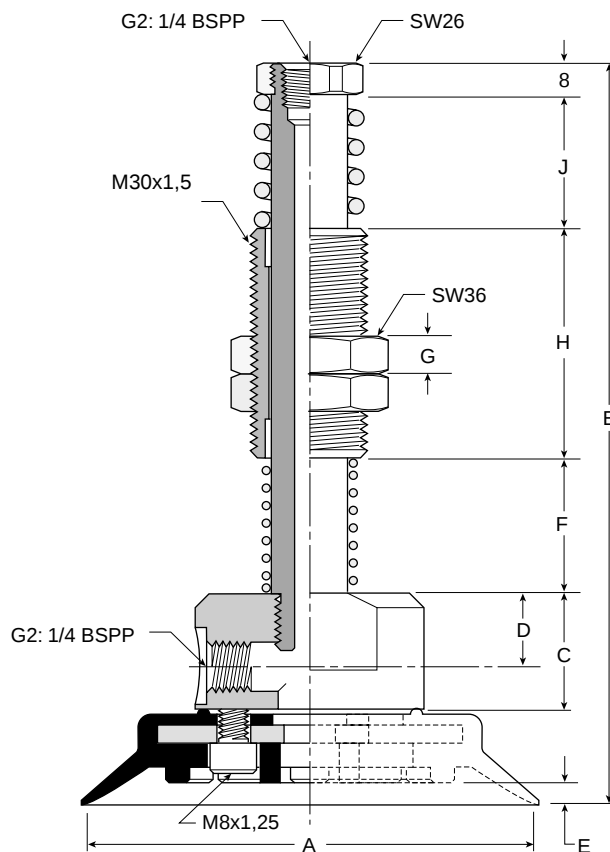
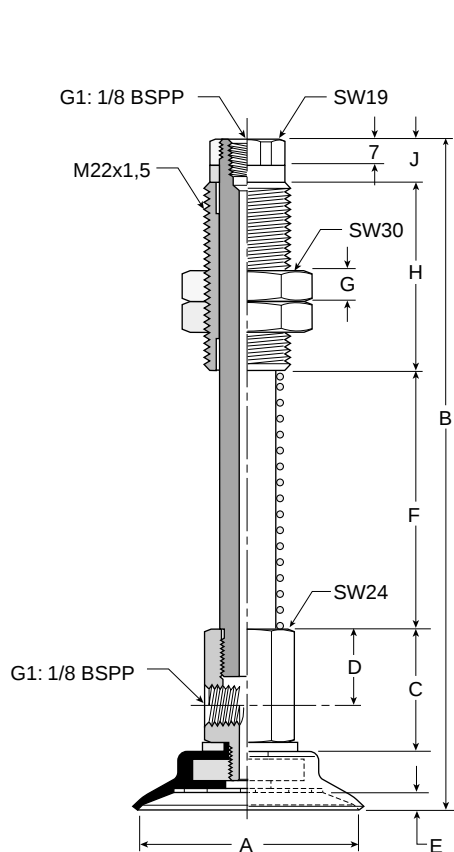
† Vacuum Port

Dimensions

PFTYS6030 thru
PFTYS9570

PFTYS12020 thru
PFTYS20070

A



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

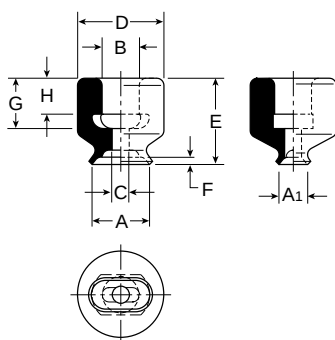
More materials on request.
Please see page 8 for material specifications.

Applications

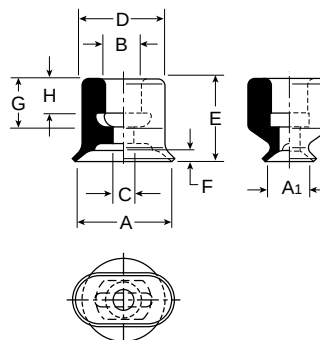
These suction cups are for applications where insufficient surface areas are available for standard round PFG cups to secure vacuum for transfer. The oval or rectangular design allows you to maximize the available space to properly lift the product in high speed automation. These cups are non-rotational.

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

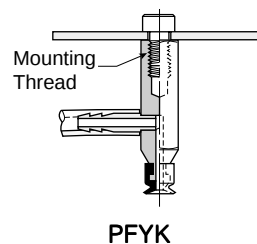
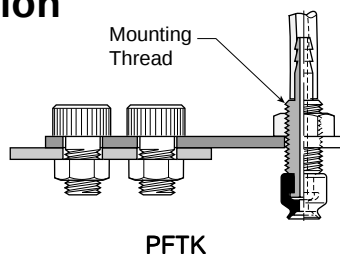
PFYK - 2x4A - NBR

Cup Diameter
2x4A
3.5x7A

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

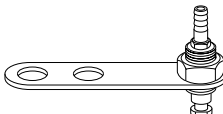
More materials on request.
Please see page 8 for material specifications.

Installation



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

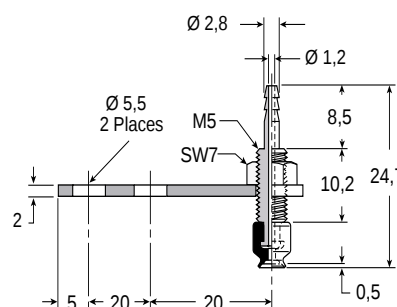
PFG Oval Cup with Top Stem Connection

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

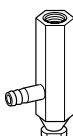
Millimeter



PFTK-2x4A &
PFTK-3.5x7A



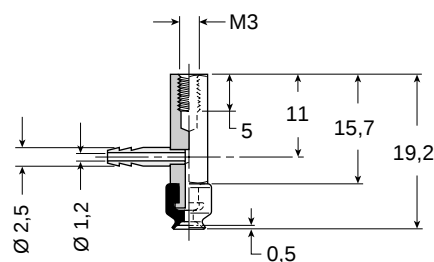
PFG Oval Cup with Side Stem Connection

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 its 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.

PBTM Series Male Thread Connector

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



PBTF Series Female Thread Connector

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



PBTK Series Barbed Bulkhead

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



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.



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.



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

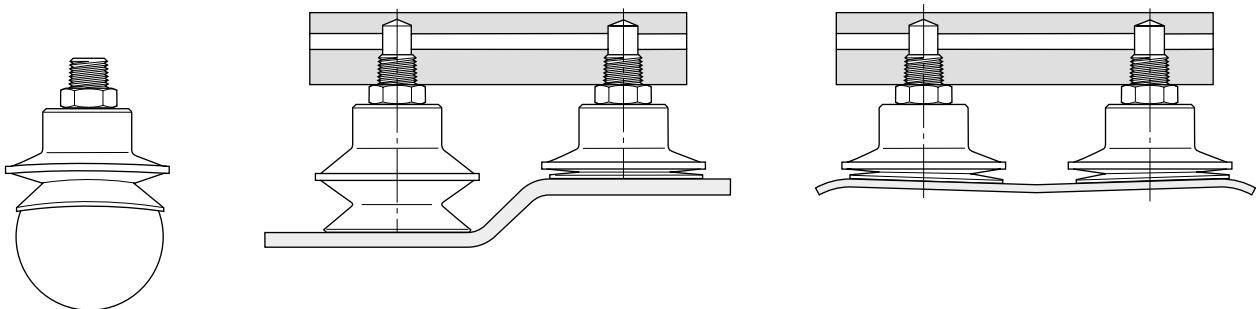
Bellows



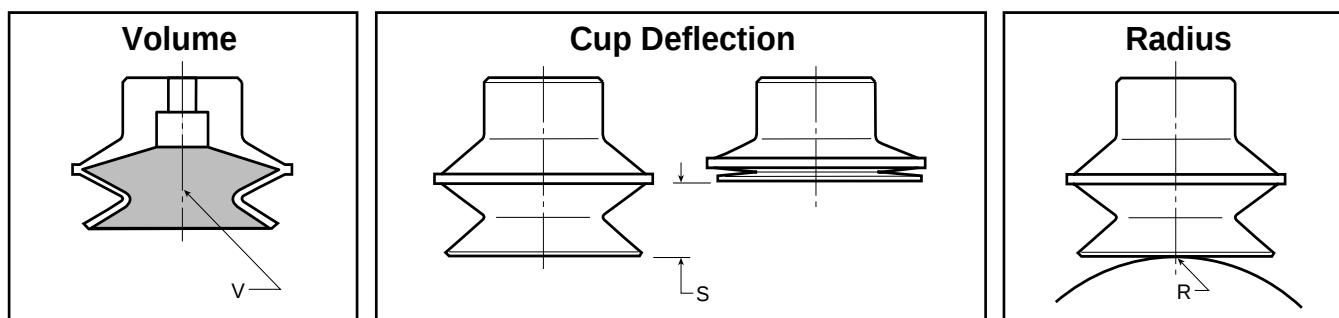
- Round Objects

- Uneven Surfaces
- Curved Product
- Level Compensation

- Flexible Product
- Soft Seal Lip



Main Data for Bellows PBG Cups

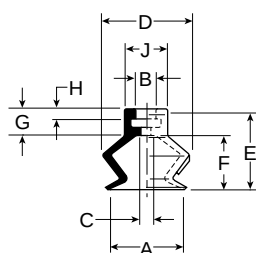


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @60% [N]		Cup Deflection [S] [mm]	Radius [R] [mm]
PBG-10A-*	10	0,79	0,0002	4,80	—	4	4
PBG-15A-*	15	1,77	0,0007	10,80	—	6	6
PBG-20B-*	20	3,14	0,001	19,20	—	9	8
PBG-30-*	30	7,07	0,004	43,2	—	13	15
PBG-40-*	40	12,60	0,009	76,9	—	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

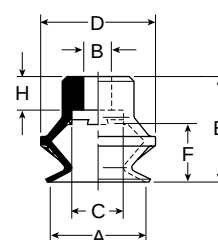
* Cup Material

Dimensions

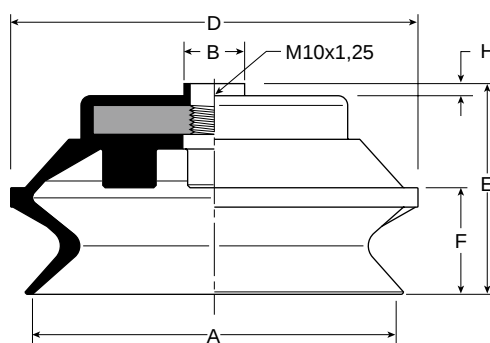
PBG-10A and
PBG-15A



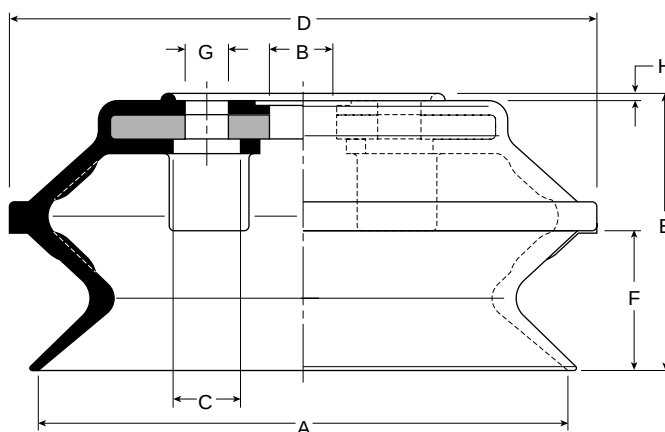
PBG-20B thru
PBG-50



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

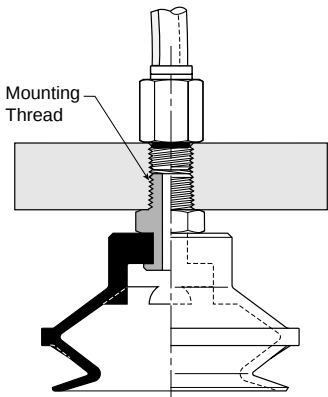
PBTM - 10A - NBR - M5

Cup Diameter [mm]				Cup Material		Mounting Thread	
10A	10	40	40	NBR	Nitrile	M5	M5
15A	15	50	50		Rubber	G1	1/8 BSPP
20B	20	75	75	SI	Silicone	G2	1/4 BSPP
30	30			U	Urethane	See Chart Below	

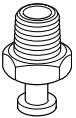
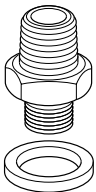
More materials on request.
Please see page 8 for material specifications.

Installation

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



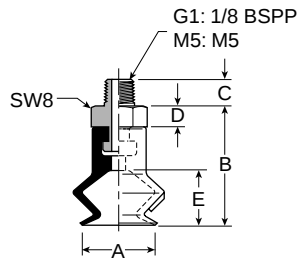
Male Threaded Fitting for PBG Cups

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
	50 FTM-50-G1 FTM-50-G2	1/8 BSPP Male 1/4 BSPP Male
	75 FTM-60-G2	1/4 BSPP Male

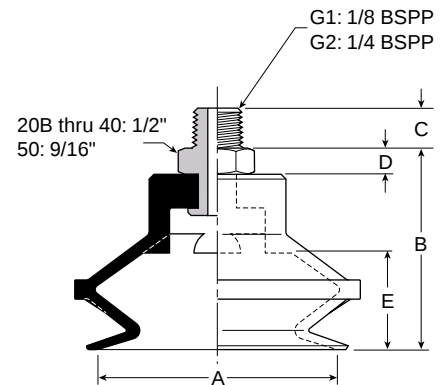
Millimeter

Dimensions

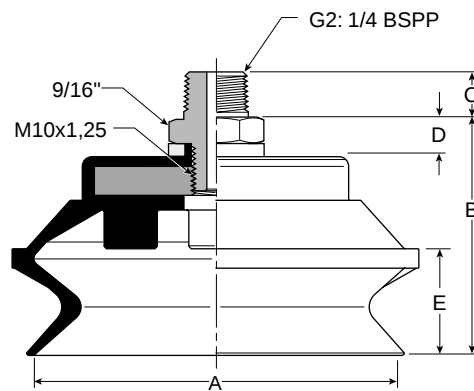
PBTM-10A thru
PBTM-15A



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

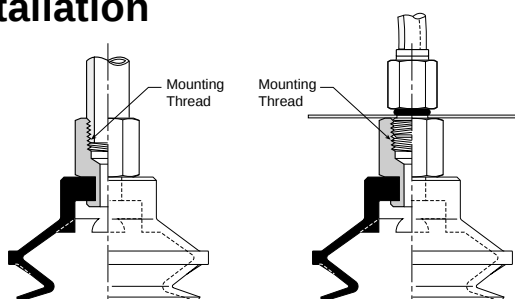
PBTF - 10A - NBR - M5

Cup Diameter [mm]				Cup Material		Mounting Thread	
10A	10	50	50	NBR	Nitrile	M5	M5
15A	15	75	75		Rubber	G1	1/8 BSPP
20B	20	110	110	SI	Silicone	G2	1/4 BSPP
30	30	150	150	U	Urethane	G4	1/2 BSPP
40	40						

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

See Chart Below

Installation



Note:

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

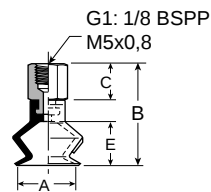
Female Threaded Fitting for PBG Cups

PBG Cup Diameter [mm]	FTF Fitting Part Number	Mounting Thread
	10A 15A	FTF-5A-M5 FTF-5A-G1
	20B 30 40	FTF-20B-G1 FTF-20B-G2
	50	FTF-50-G1 FTF-50-G2
	75	FTF-60-G2
	110 150	FTF-120-G4

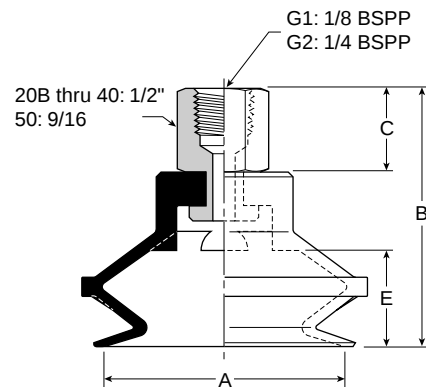
Millimeter

Dimensions

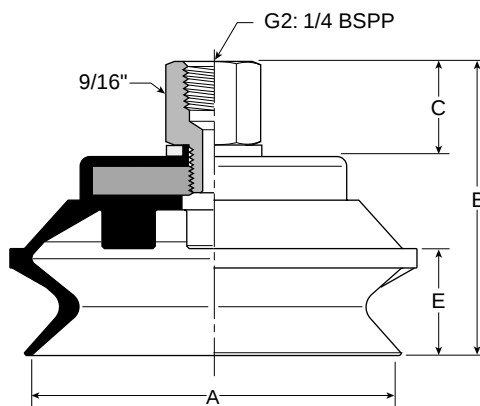
PBTF-10A thru
PBTF-15A



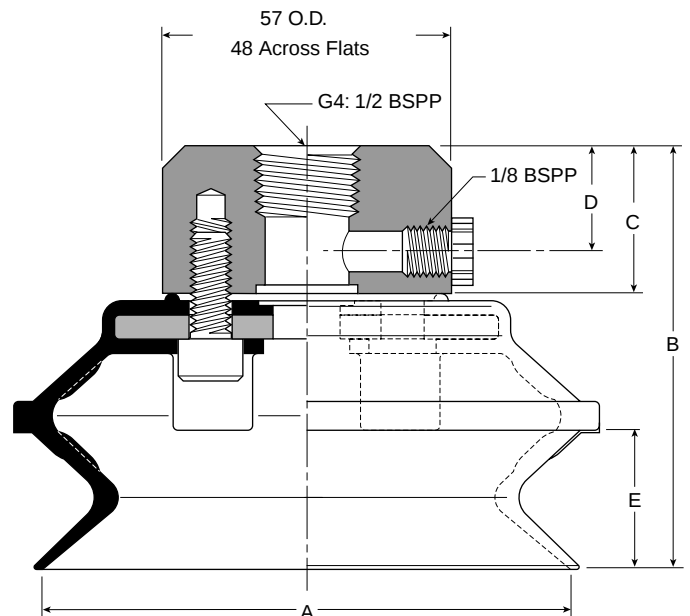
PBTF-20B thru
PBTF 50



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

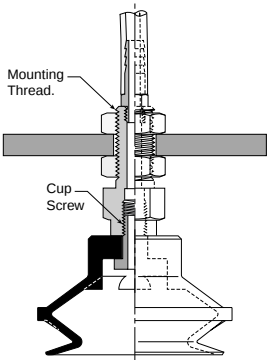
PBTK - 10A - NBR - —

Cup Diameter [mm]				Cup Material		Vacuum Port	
10A	10	40	40	NBR	Nitrile	Blank	Barb
15A	15	50	50		Rubber	G1	1/8 BSPP
20B	20	75	75	SI	Silicone	See Chart Below	
30	30			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.



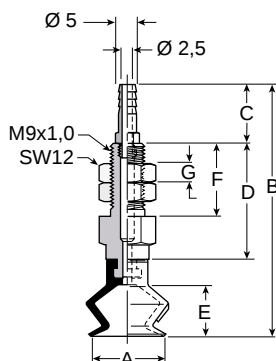
Barbed Bulkhead for PBG Cups

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

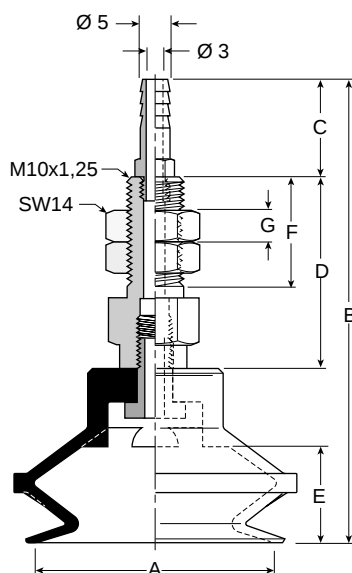
Millimeter

Dimensions

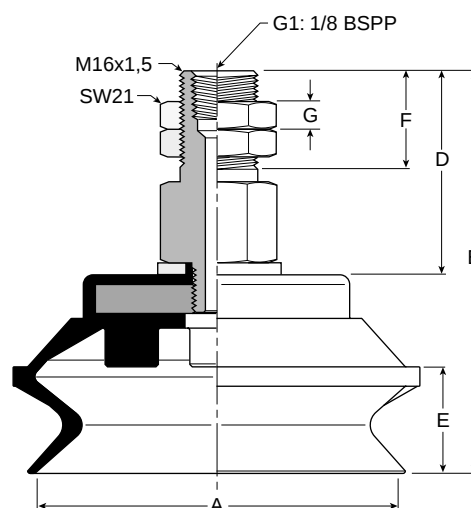
PBTK-10A thru
PBTK-15A



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]				Cup Material	Vacuum Port
10A	10	40	40	NBR Nitrile	Blank Barb
15A	15	50	50	Rubber	G1 1/8 BSPP
20B	20	75	75	SI Silicone	See Chart Below
30	30	150	150	U Urethane	
40	40				

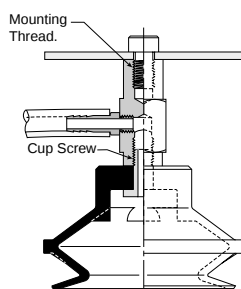
More materials on request.

Please see page 8 for material specifications.

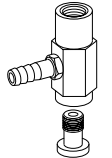
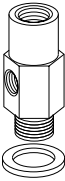
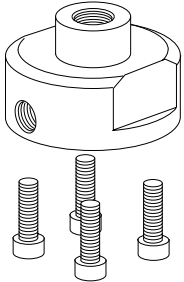
Installation

Note:

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



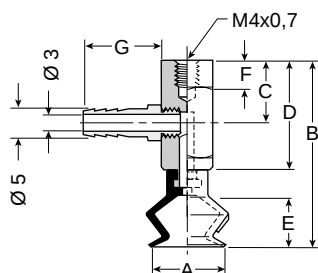
90° Barbed Adapter for PBG Cups

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

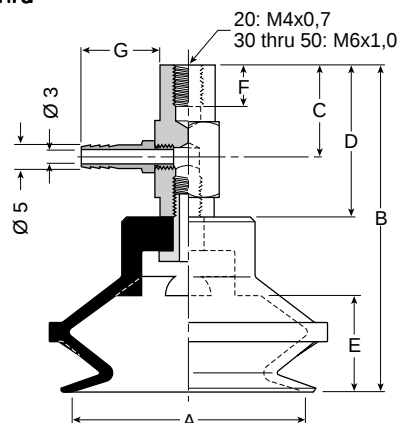
Millimeter

Dimensions

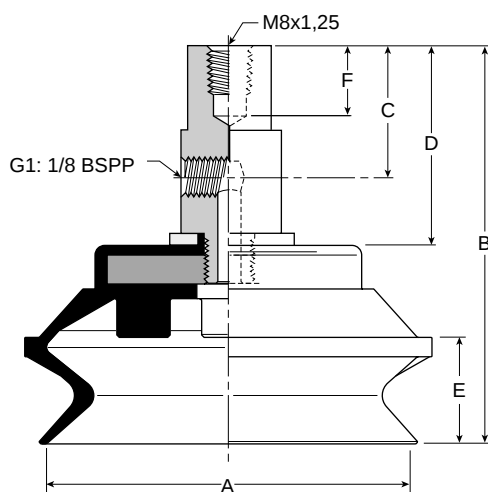
PBYK-10A thru
PBYK-15A



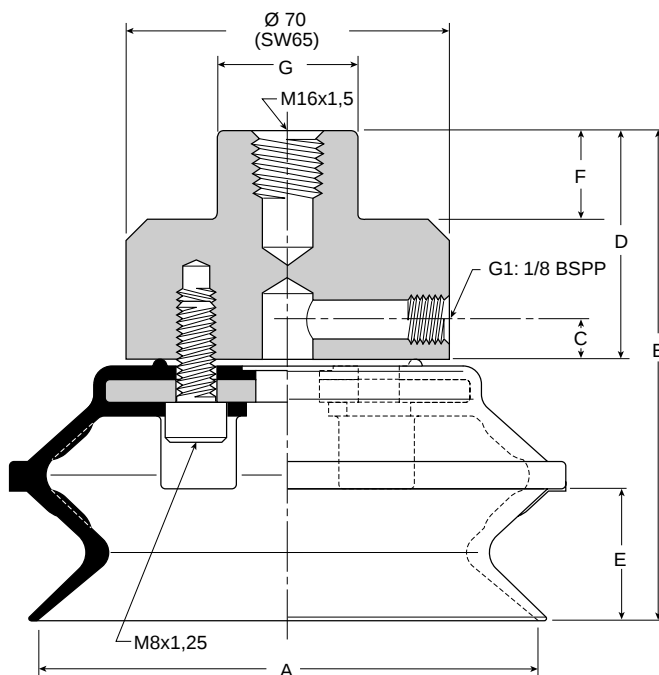
PBYK-20B thru
PBYK-50



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

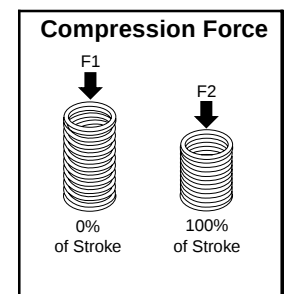
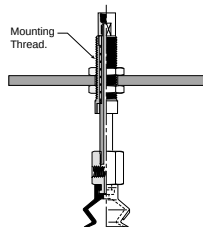
Cup Diameter [mm]	Stroke [mm]	Cup Material	Vacuum Ports
10A 10	3, 10, 15	NBR Nitrile Rubber	M5 M5
15A 15			G1 1/8 BSPP
20B 20		SI Silicone	G2 1/4 BSPP
30 30	6, 15, 30	U Urethane	See Chart Below
40 40			
50 50			
75 75	30, 50, 70		
110 110	20, 70		
150 150			

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.

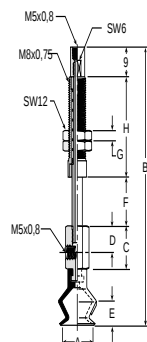


Bulkhead Level Compensator for PBG Cups

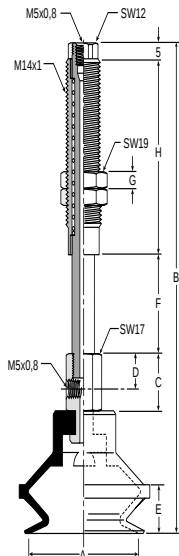
PBG Cup Diameter [mm]	FTYS Fitting Part Number	Vacuum Ports	F1 N	F2 N
	10A	M5x0,8 Female	0,49	0,59
	15A		0,49	0,59
	FTYS-5A-15-M5		0,49	0,59
	20B	M5x0,8 Female	2,5	3,4
	30		2,5	4,9
	40		2,9	5,9
	50	M5x0,8 Female	2,5	3,4
	FTYS-50-15-M5		2,5	4,9
	FTYS-50-30-M5		2,9	5,9
	75	G1: 1/8 BSPP	6,8	15,6
	FTYS-60-50-G1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

Dimensions

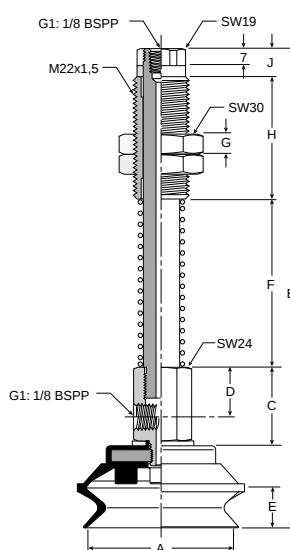
PBTYS10A3 thru
PBTYS15A15



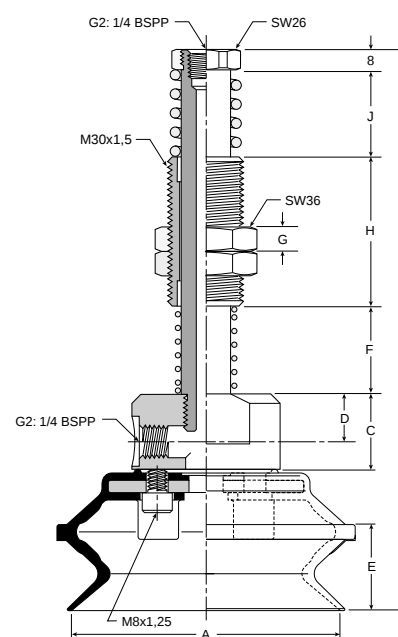
PBTYS20B6 thru
PBTYS5030



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.

PJTM Series Male Thread Connector

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

Fitting Material: Aluminium.



PJTF Series Female Thread Connector

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

Fitting Material: Aluminium.



PJTK Series Barbed Bulkhead

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



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.

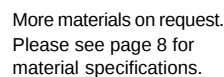


PJTYS Series Bulkhead Level Compensator

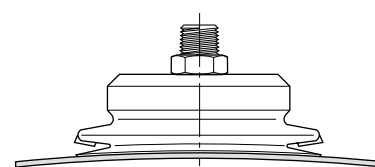
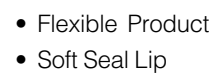
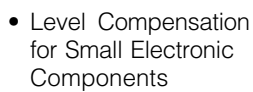
303 stainless steel construction secured with jam nuts. Spring biased compensators can absorb impacts of down-strokes and adjust for different levels of pick up points. 303 stainless corrosion resistant materials with drymet bushings increases the strength and life.



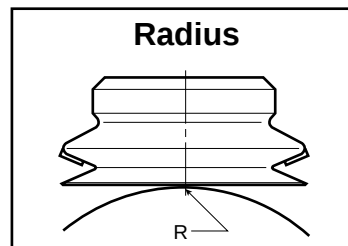
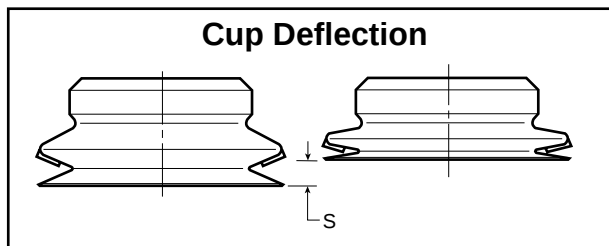
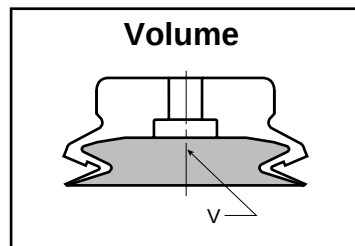
A



Short Bellows



Main Data for Short Bellows PJG Cups

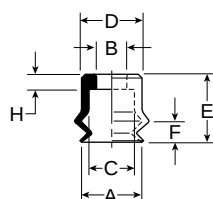


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection (S) [mm]	Radius R [mm]
PJG-6-*	6	0,28	0,000016	1,70	—	4,2	4,0
PJG-8-*	8	0,50	0,00007	3,10	—	4,0	5,0
PJG-10-*	10	0,79	0,00017	4,80	—	3,0	6,0
PJG-15-*	15	1,77	0,0005	10,8	—	3,3	10,0
PJG-20-*	20	3,14	0,0012	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

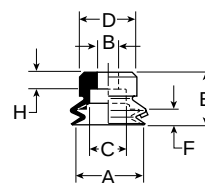
*Cup Material

Dimensions

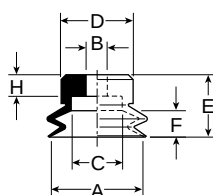
PJG-6 thru
PJG-8



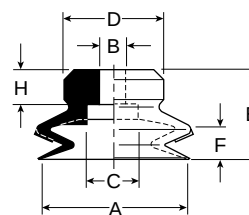
PJG-10 and
PJG-15



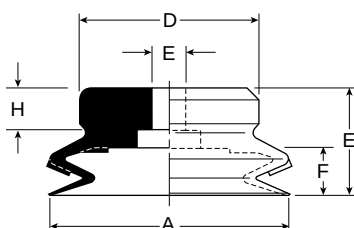
PJG-20



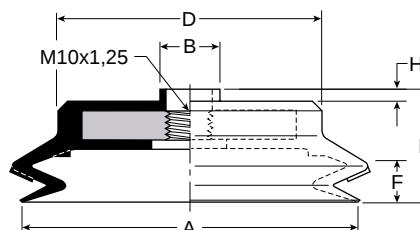
PJG-30 thru
PJG-40



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



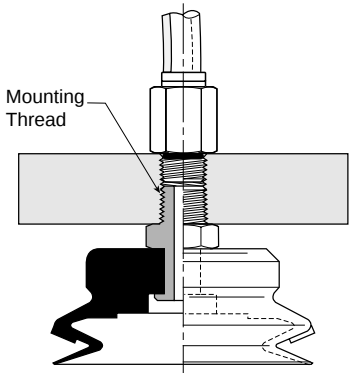
Model Number Index

PJTM - 10 - NBR - M5

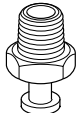
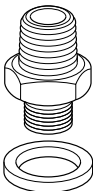
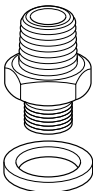
Cup Diameter [mm]				Cup Material		Mounting Thread
6	6	50	50	NBR	Nitrile	M5 M5
8	8	60	60		Rubber	G1 1/8 BSPP
30	30	70	70	SI	Silicone	G2 1/4 BSPP
35	35	80	80	More materials on request. Please see page 8 for material specifications.		
40	40					
						See Chart Below

Installation

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



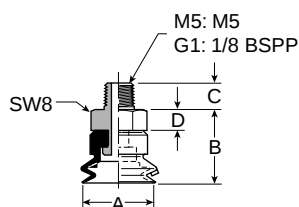
Male Threaded Fitting for PJG Cups

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 FTM-20B-G1	1/8 BSPP Male
	35 FTM-20B-G2	1/4 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 FTM-60-G2	1/4 BSPP Male
	70	
	80	

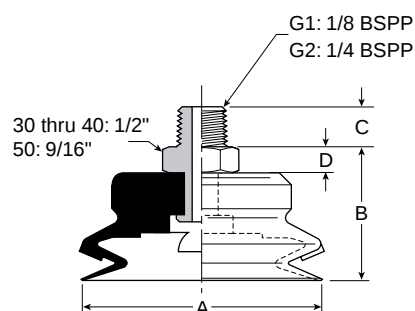
Millimeter

Dimensions

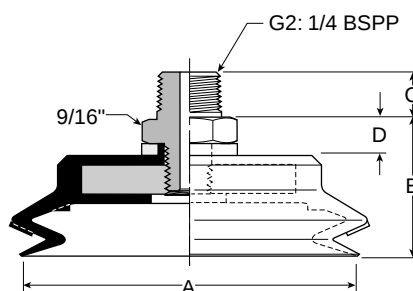
PJTM-6 thru
PJTM-8



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



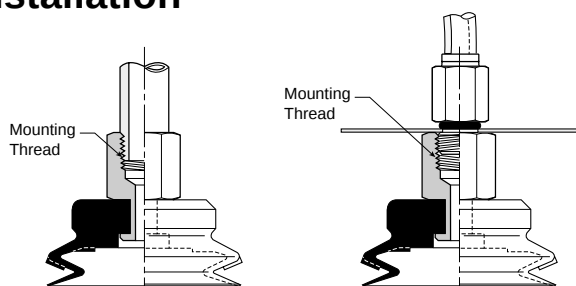
Model Number Index

PJTF - 10 - NBR - M5

Cup Diameter [mm]				Cup Material		Mounting Thread
6	6	50	50	NBR	Nitrile Rubber	M5 M5
8	8	60	60	SI	Silicone	G1 1/8 BSPP
30	30	70	70			G2 1/4 BSPP
35	35	80	80			See Chart Below
40	40					

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

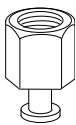
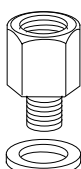
Installation



Note:

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

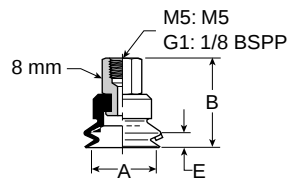
Female Threaded Fitting for PJG Cups

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

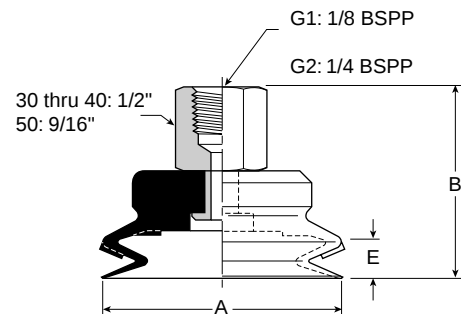
Millimeter

Dimensions

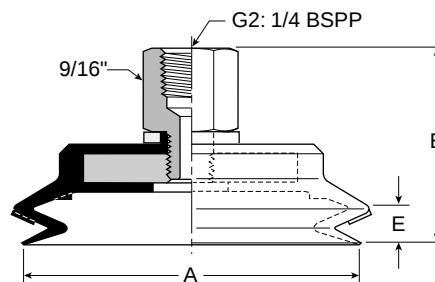
PJTF-6 thru
PJTF-8



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

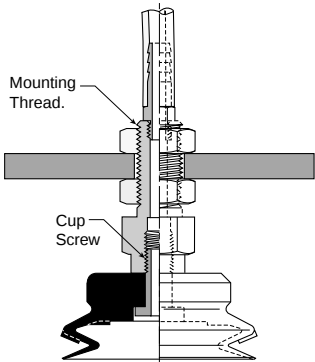
PJTK - 10 - NBR - —

Cup Diameter [mm]		Cup Material	Vacuum Port
6	6	NBR Nitrile Rubber	Blank Barb
8	8		G1 1/8 BSPP
30	30	SI Silicone	See Chart Below
35	35		
40	40		
50	50		
60	60		
70	70		
80	80		

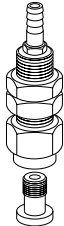
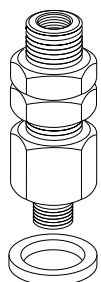
More materials on request.
Please see page 8 for material specifications.

Installation

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



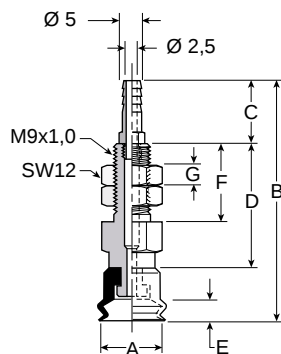
Barbed Bulkhead for PJG Cups

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 60 70 80	FTK-50	M10x1,5 Male
 60 70 80	FTK-60-G1	M16x1,5 Male

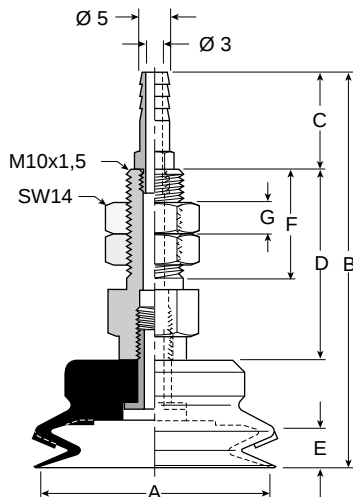
Millimeter

Dimensions

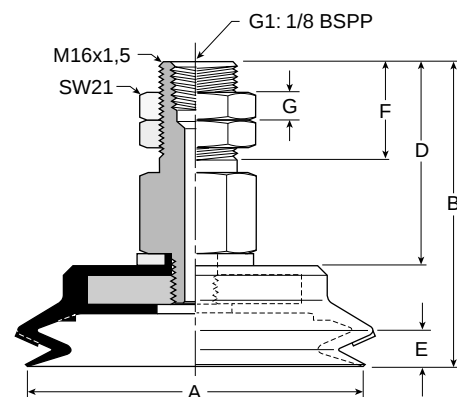
PJTK-6 thru PJTK-8



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

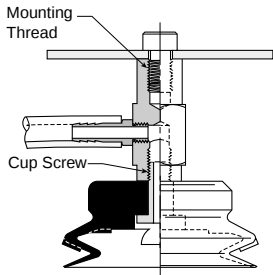
PJYK - 30 - NBR - —

Cup Diameter [mm]				Cup Material		Vacuum Port	
6	6	50	50	NBR	Nitrile	Blank	Barb
8	8	60	60		Rubber	G1	1/8 BSPP
30	30	70	70	SI	Silicone	See Chart Below	
35	35	80	80				
40	40						

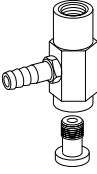
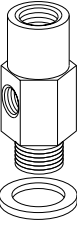
More materials on request.
Please see page 8 for material specifications.

Installation

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



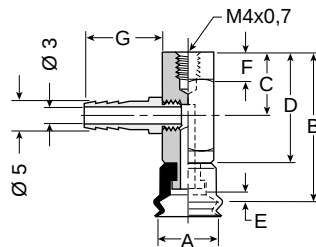
90° Barbed Adapter for PJG Cups

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

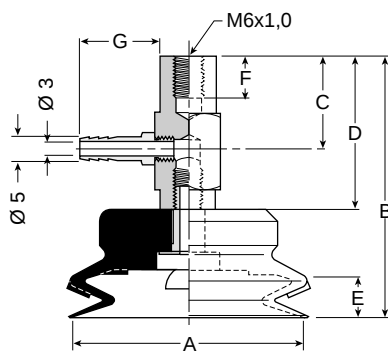
Millimeter

Dimensions

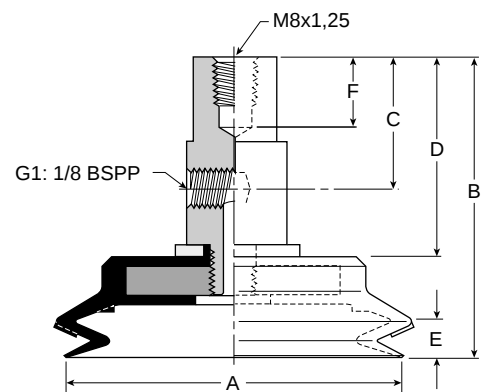
PJYK-6 and
PJYK-8



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

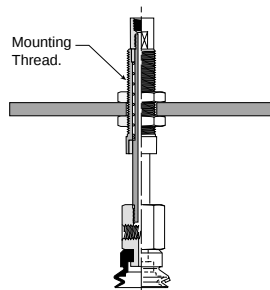
PJTYS Vacuum Cup Assemblies



Installation

Note:

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



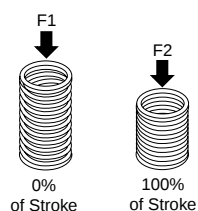
Model Number Index

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

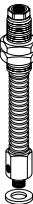
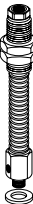
Cup Diameter [mm]	Stroke [mm]	Cup Material	Vacuum Port
6	6	NBR Nitrile Rubber SI Silicone	M5 M5 G1 1/8 BSPP See Chart Below
8	8		
10	10		
15	15		
20	20	6, 15, 30	
25	25		
30	30		
35	35		
40	40		
50	50		
60	60	30, 50, 70	
70	70		
80	80		

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

Compression Force

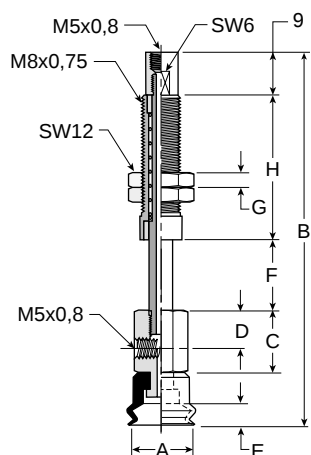


Bulkhead Level Compensator for PJG Cups

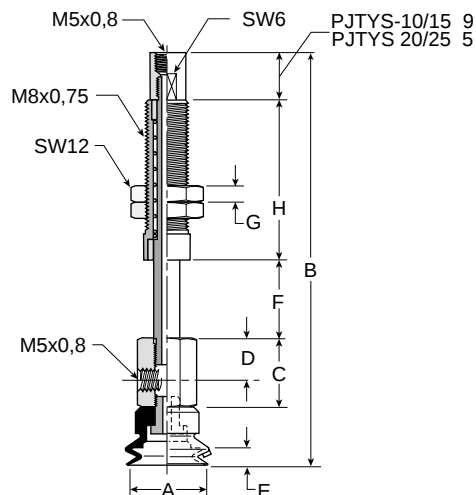
PJG Cup Diameter [mm]	FTYS Fitting Part Number	Vacuum Ports	F1 N	F2 N
	6 FTYS-5A-3-M5	M5x0,8 Female	0,49	0,59
	8 FTYS-5A-10-M5		0,61	1,17
	15 FTYS-5A-15-M5		0,64	1,17
	10 JTYS-10-3-M5	M5x0,8 Female	0,49	0,59
	15 JTYS-10-10-M5		2,5	4,9
	15 JTYS-10-15-M5		2,9	5,9
	20 JTYS-20-6-M5	M5x0,8 Female	2,5	3,4
	25 JTYS-20-15-M5		2,5	4,9
	30 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
	50 FTYS-50-15-M5		2,5	4,9
	50 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

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

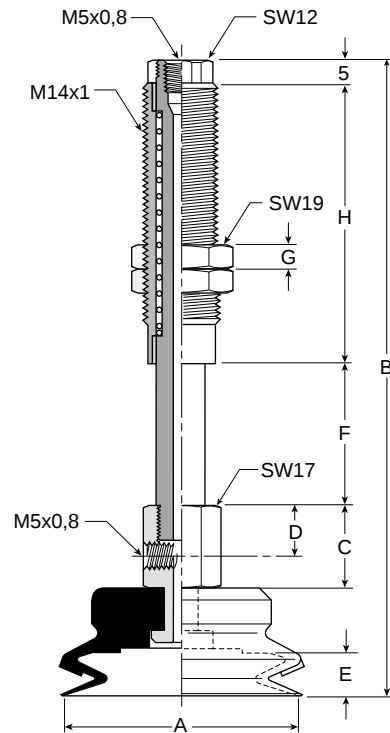
Millimeter

** 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

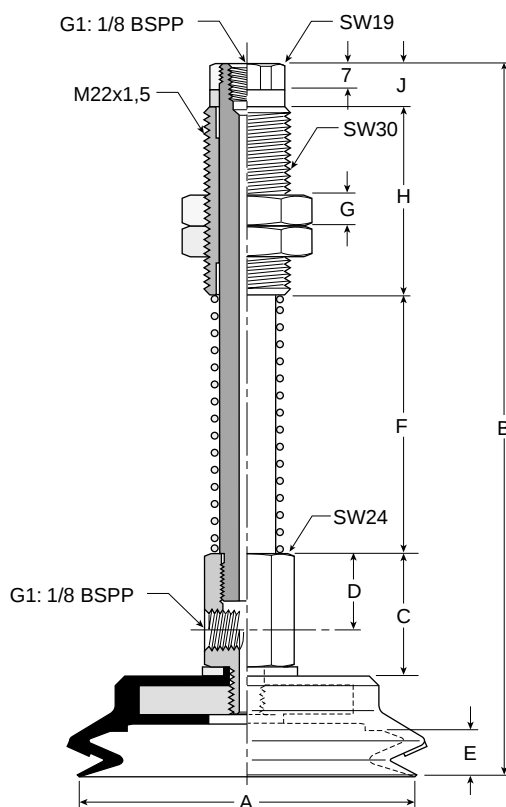
Millimeter

** Cup Material

† Vacuum Port

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.



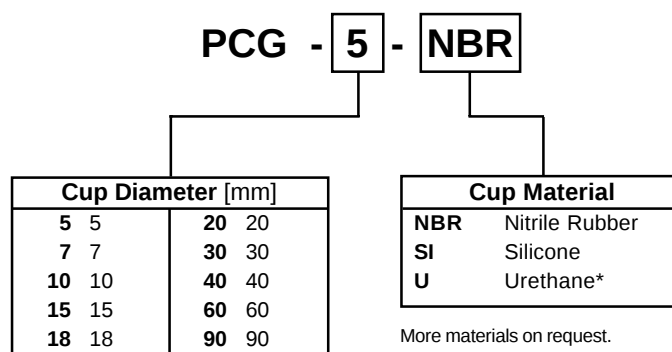
PCTF Series Female Thread Connector

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

Fitting Material: Aluminium.



Model Number Index

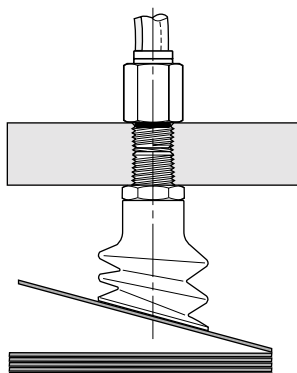


Application Guide

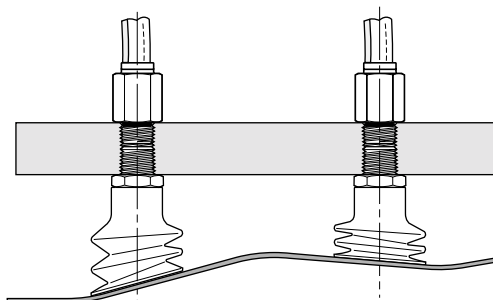
2-1/2 Bellows



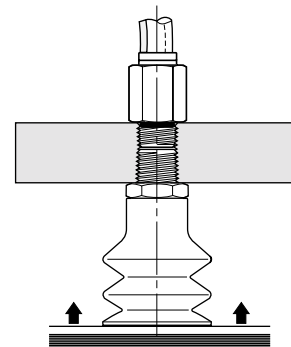
- Destack Perimeter Separation



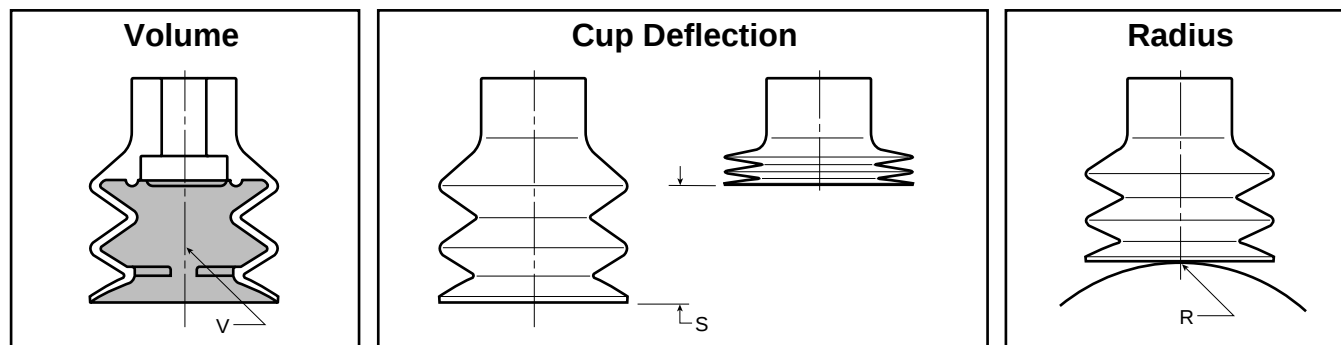
- Level Compensation for applications where Level Compensators do not have adequate space



- Controlling downstroke lifts product on contact



Main Data for 2-1/2 Bellows PJG Cups

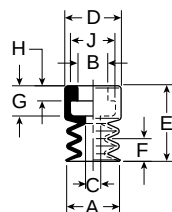


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PCG-5-*	5	0,20	0,00003	1,20	—	3	3,5
PCG-7-*	7	0,39	0,00004	2,40	—	3	4,0
PCG-10-*	10	0,79	0,0001	4,80	—	3	5,0
PCG-15-*	15	1,77	0,0009	10,8	—	10	6,0
PCG-18-*	18	2,55	0,001	15,6	—	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

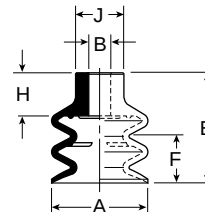
* Cup Material

Dimensions

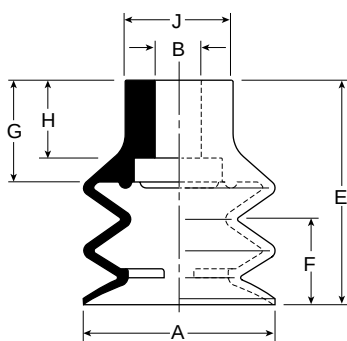
PCG-5 and
PCG-7



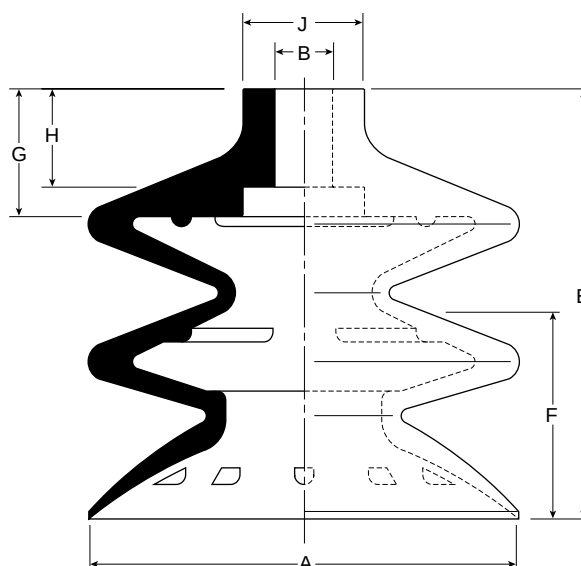
PCG-10 thru
PCG-20



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*

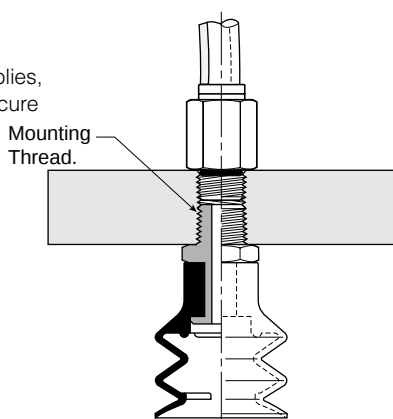
More materials on request.
Please see page 8 for material specifications.
* Not available for Ø 90.

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

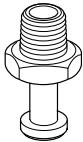
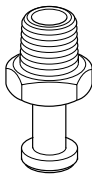
Installation

Note:

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



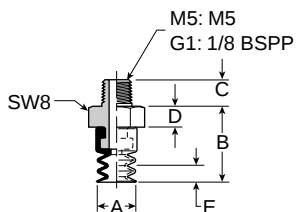
Male Threaded Fitting for PCG Cups

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	M5x0,8 Male 1/8 BSPP Male
	15 CTM-10-M5	
	18 CTM-10-G1	
	20	
	30	1/8 BSPP Male 1/4 BSPP Male
	40 CTM-30-G1	
	60 CTM-30-G2	
	90 CTM-90-G2	1/4 BSPP Male

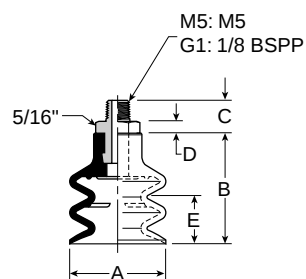
Millimeter

Dimensions

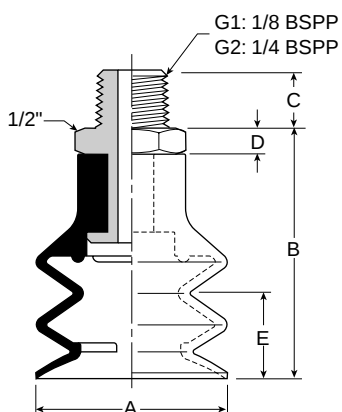
PCTM-5 and
PCTM-7



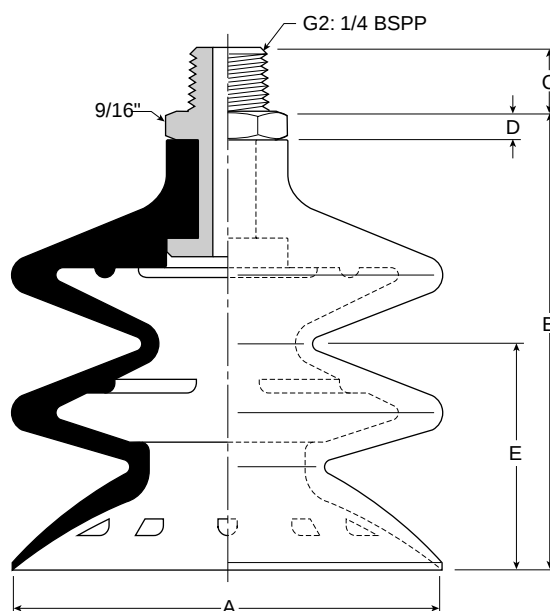
PCTM-10 thru
PCTM-20



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*

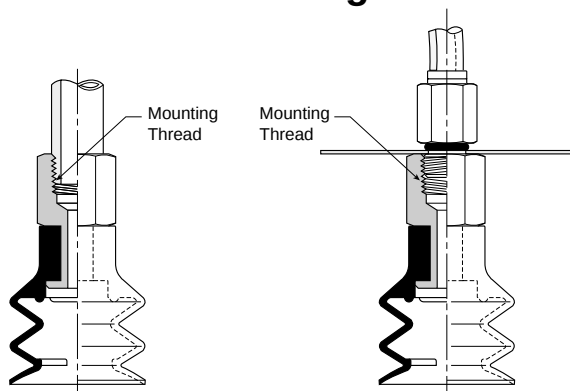
Mounting Thread	
G1	1/8 BSPP
G2	1/4 BSPP
See Chart Below	

More materials on request.

Please see page 8 for material specifications.

* Not available for Ø 90.

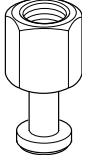
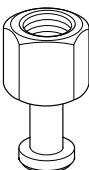
Installation Mounting



Note:

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

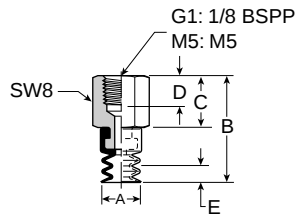
Female Threaded Fitting for PCG Cups

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

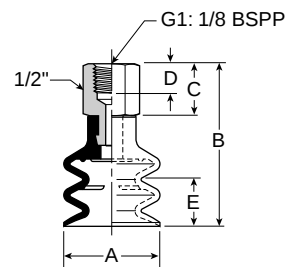
Millimeter

Dimensions

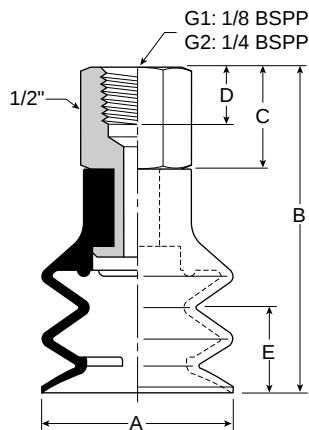
PCTF-5 and
PCTF-7



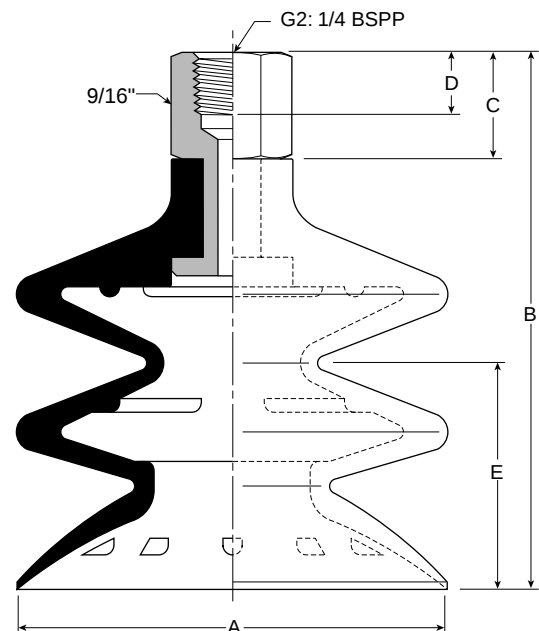
PCTF-10 thru
PCTF-20



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

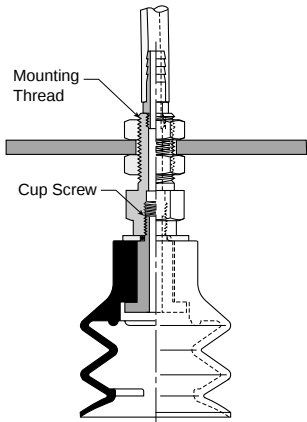
PCTK - 5 - NBR - —

Cup Diameter [mm]				Cup Material		Vacuum Port	
5	5	20	20	NBR	Nitrile	Blank	Barb
7	7	30	30		Rubber	G1	1/8 BSPP
10	10	40	40	SI	Silicone	See Chart Below	
15	15	60	60	U	Urethane*		
18	18	90	90				

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.



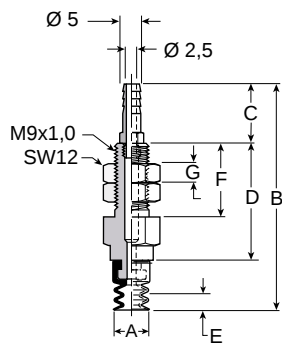
Barbed Bulkhead for PCG Cups

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

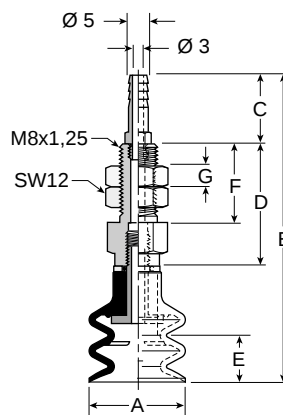
Millimeter

Dimensions

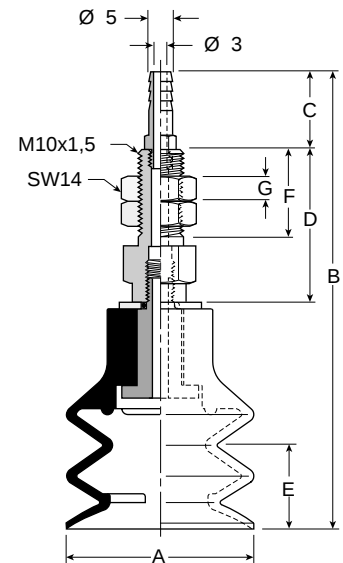
PCTK-5 and
PCTK-7



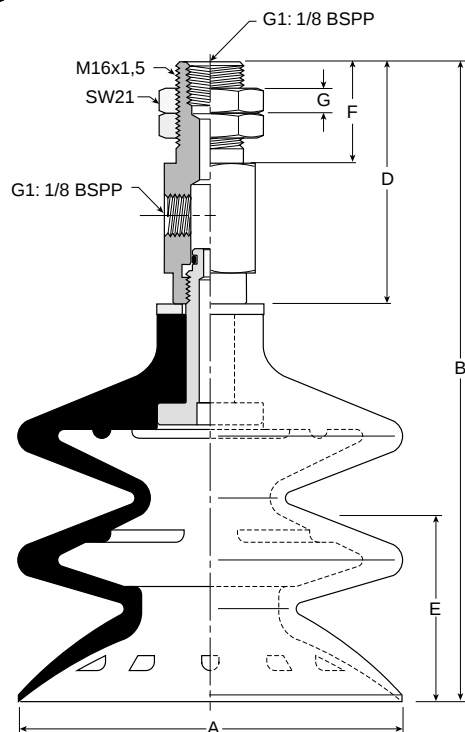
PCTK-10 thru
PCTK-20



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

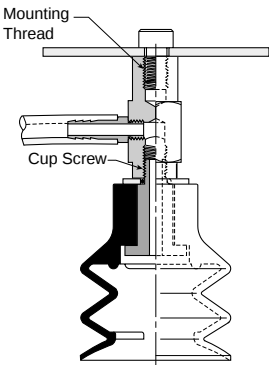
PCYK - 5 - NBR - —

Cup Diameter [mm]				Cup Material		Vacuum Port
5	5	20	20	NBR	Nitrile	Blank Barb
7	7	30	30		Rubber	G1 1/8 BSPP
10	10	40	40	SI	Silicone	See Chart
15	15	60	60	U	Urethane*	Below
18	18	90	90			

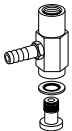
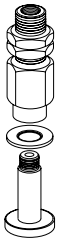
More materials on request.
Please see page 8 for material specifications.
* Not available for Ø 90.

Installation

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



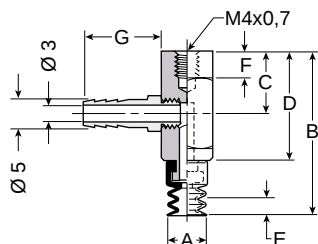
90° Barbed Adapter for PCG Cups

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

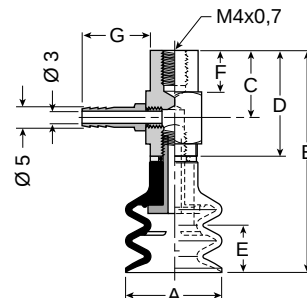
Millimeter

Dimensions

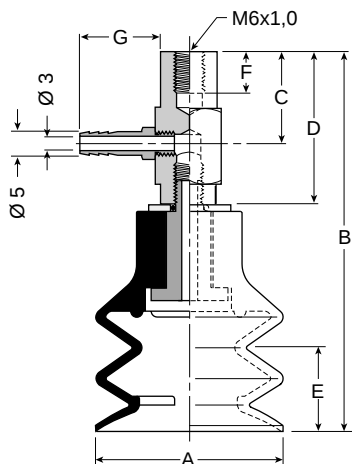
PCYK-5 and
PCYK-7



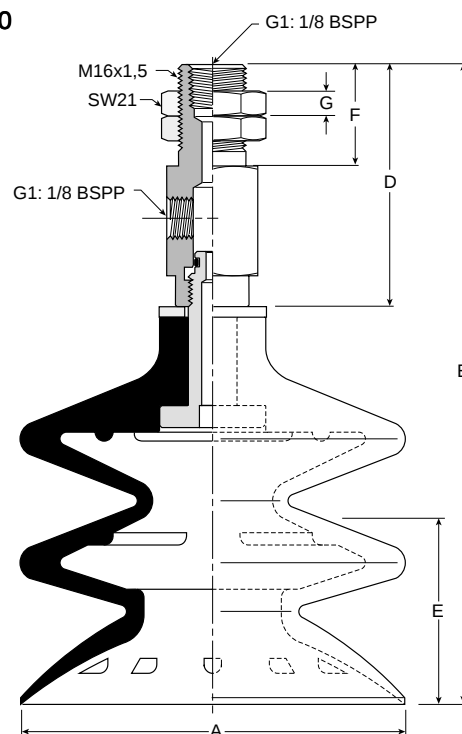
PCYK-10 thru
PCYK-20



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 Simplified
- Recyclable Rubber
- Lower Maintenance 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.



Model Number Index (Cups Only)

PKG - 60 - NBR

Cup Diameter [mm]	Cup Material
60 60	NBR Nitrile Rubber
75 75	U Urethane
100 100	FKM Flouro Rubber



PKG

PKFG - 75 - NBR

Cup Diameter [mm]	Cup Material
75 75	NBR Nitrile Rubber
100 100	U Urethane
	FKM Flouro Rubber



PKFG

PKJG - 40 - NBR

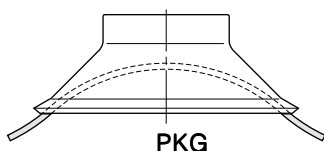
Cup Diameter [mm]	Cup Material
40 40	NBR Nitrile Rubber
50 50	U Urethane
60 60	FKM Flouro Rubber
80 80	
110 110	



PKJG

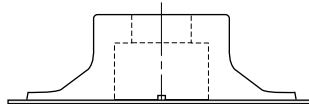
Application Guide

- Deep Cup for External Curves
- Slip Resistant Foot Pattern



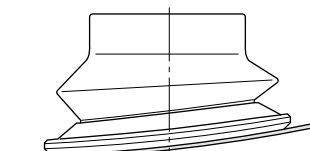
PKG

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



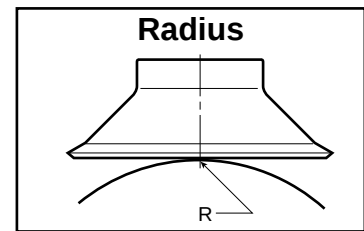
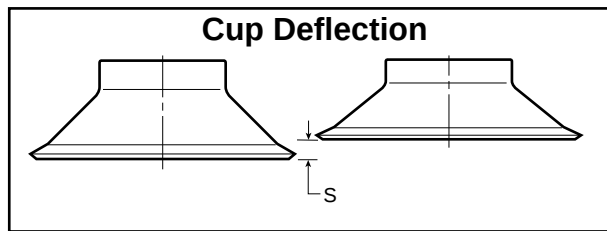
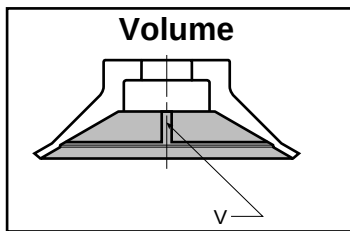
PKFG

- Bellows for Any Curves
- Slip Resistant Foot Pattern

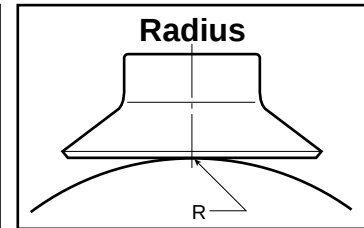
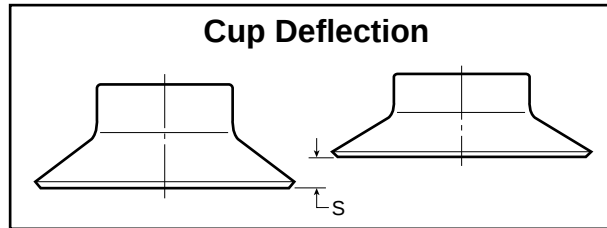
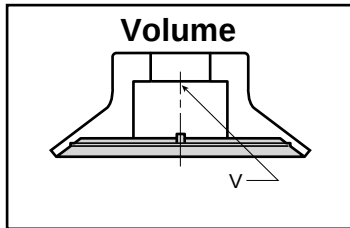


PKJG

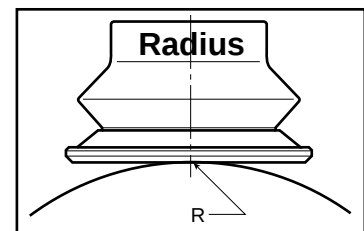
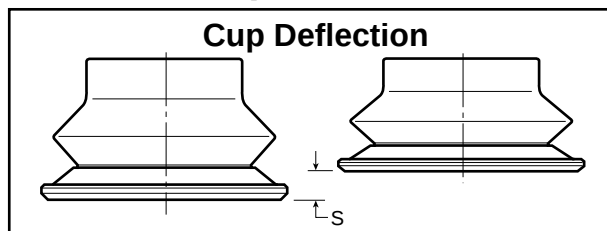
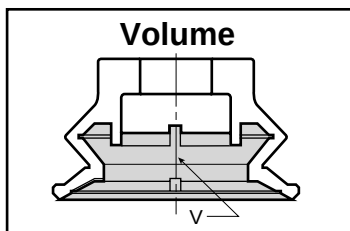
Main Data for PKG Suction Cups



Main Data for PKFG Suction Cups



Main Data for PKJG Suction Cups

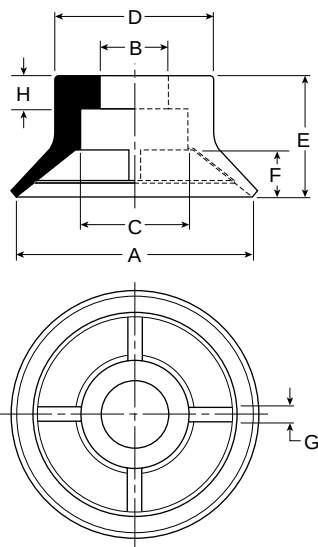


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PKG-60-*	60	28,3	0,06	173	86,5	9	60
PKG-75-*	75	44,2	0,07	270	135	13	100
PKG-100-*	100	78,5	0,09	480	240	17,3	150
PKFG-75-*	75	44,2	0,03	270	65,0	5	140
PKFG-100-*	100	78,5	0,05	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

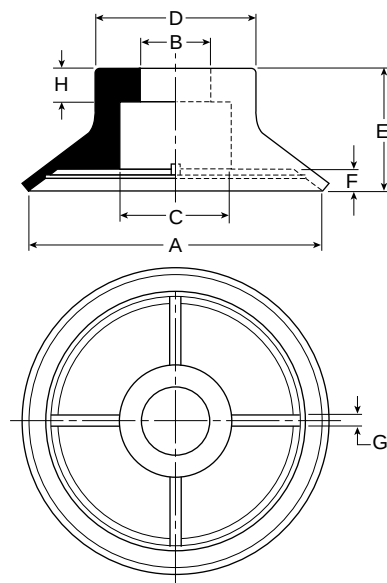
* Cup Material

Dimensions

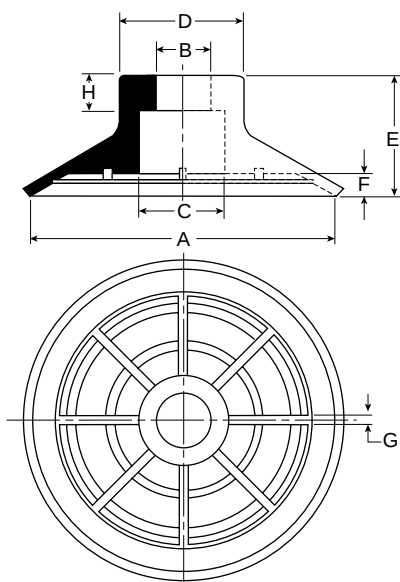
PKG-60 thru
PKG-100



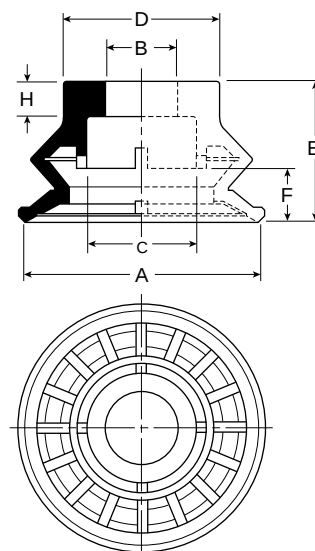
PKFG-75



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

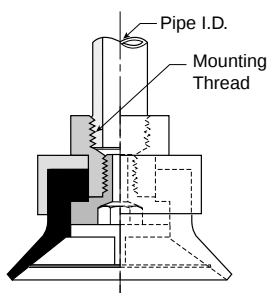
Cup Diameter [mm]	
60	60
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

Installation

Note:

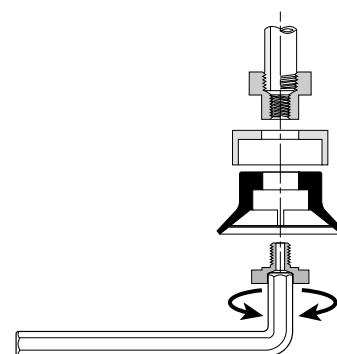
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Note:

Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

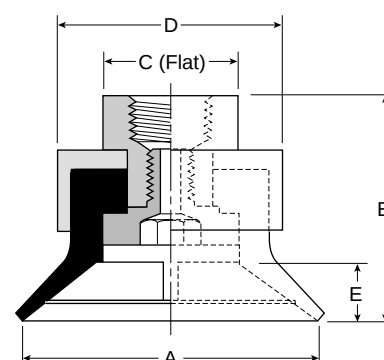


Female Adapter for PKG Cups

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

PKGT Vacuum Cup Assemblies



Model Number Index

PKGT - **60** - **NBR**

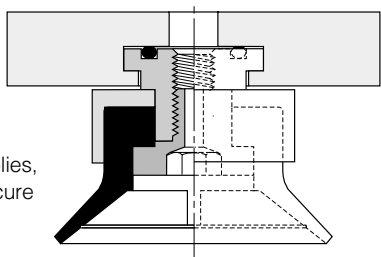
Cup Diameter [mm]	
60	60
75	75
100	100

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

Installation

Note:

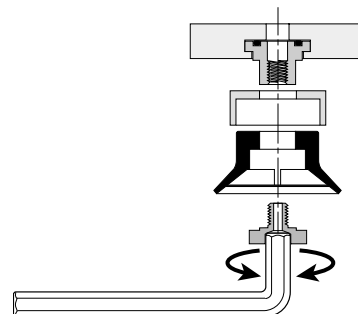
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Note:

Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

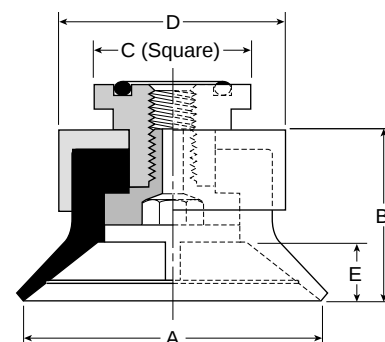


Adapter for PKG Cups

Adapter Components	Adapter Part Numbers	Thread Sizes	Description
	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

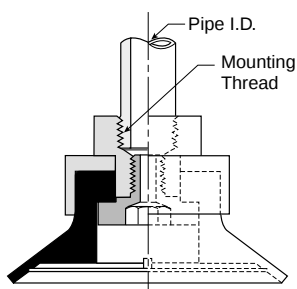
Cup Diameter [mm]	
60	60
75	75

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

Installation

Note:

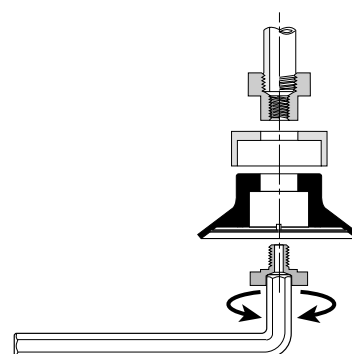
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Note:

Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

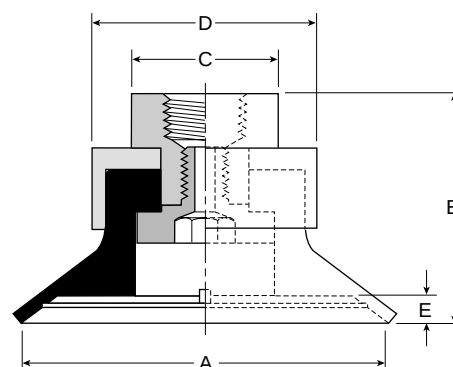


Female Adapter for PKFG Cups

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

PKFT Vacuum Cup Assemblies



Model Number Index

PKFT - 75 - NBR

Cup Diameter

[mm]	
60	60
75	75

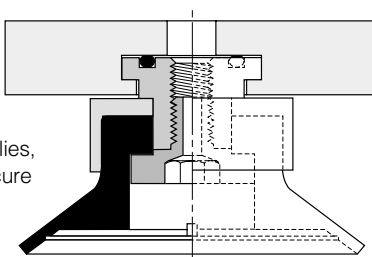
Cup Material

NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

Installation

Note:

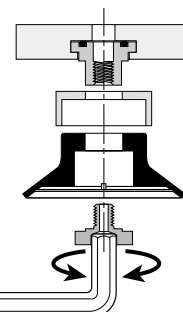
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



Note:

Simply remove the hex keyed male screw to replace cup.

Hex Key Size: 8 mm

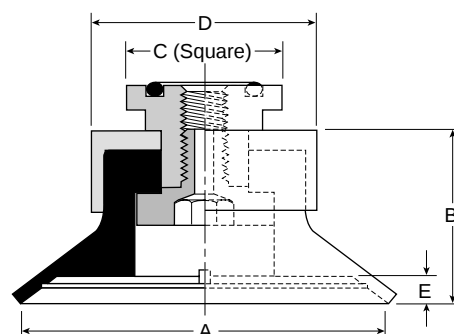


Adapter for PKFG Cups

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

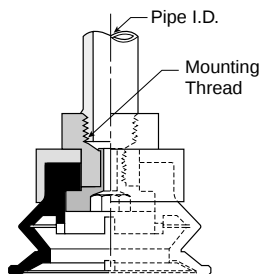
Cup Diameter [mm]	
40	40
50	50
60	60
80	80
110	110

Cup Material	
NBR	Nitrile Rubber
U	Urethane
FKM	Flouro Rubber

Installation

Note:

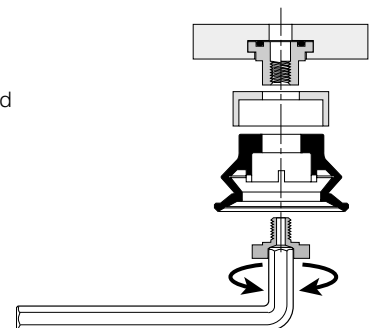
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



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
Female Cap Male	TN-PK-F-G3	3/8 BSPP	Female Port
	TN-PK-100-M10	M10x1,5	Male Screw
	PKG-C-6710	—	Cap

Dimensions

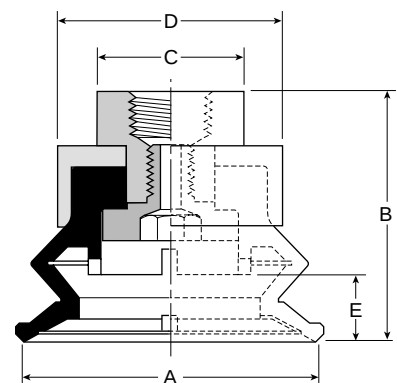
PKJF-75 thru
PKJF-100

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



PKJT Vacuum Cup Assemblies



Model Number Index

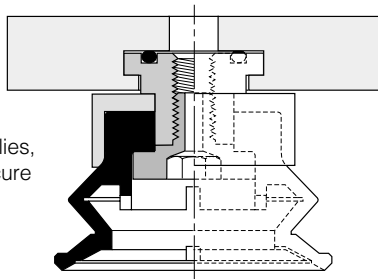
PKJT - 60 - NBR

Cup Diameter [mm]	Cup Material
40 40	NBR Nitrile Rubber
50 50	U Urethane
60 60	FKM Flouro Rubber
80 80	
110 110	

Installation

Note:

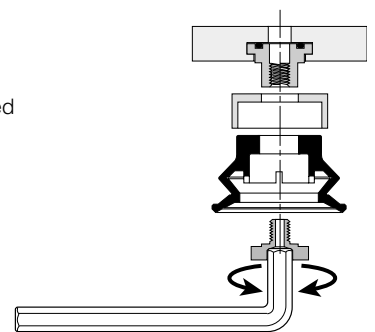
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.



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

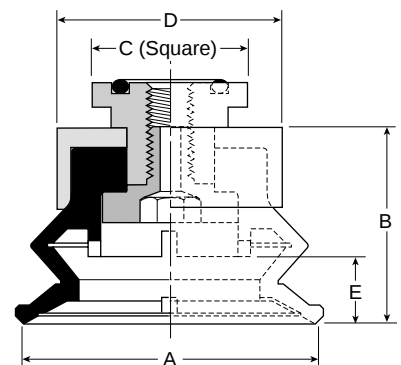
Dimensions

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.



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

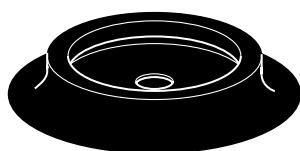
PUGB - 10 - NBR

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

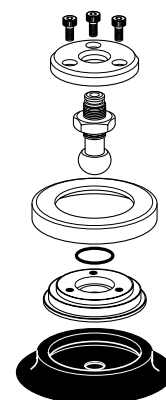
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

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

PUG Cup

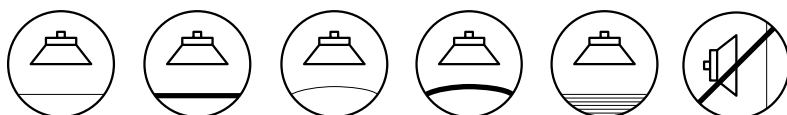


PUGB Assembly

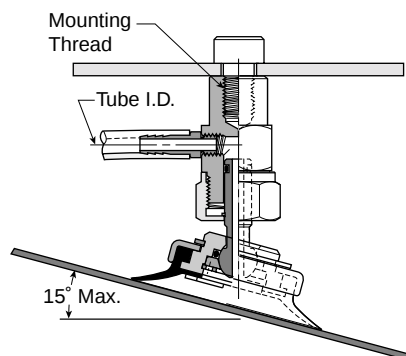


Application Guide

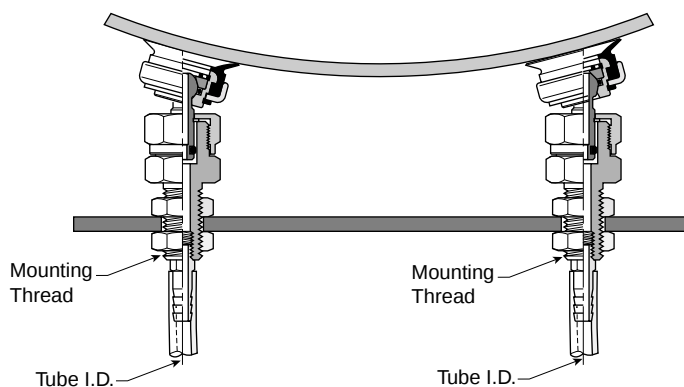
Swivel Bellows



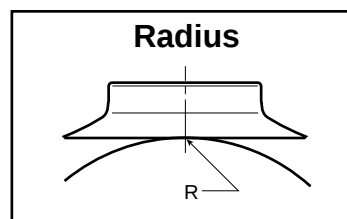
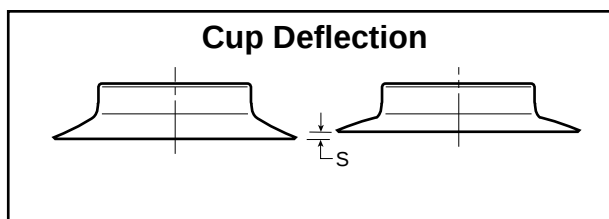
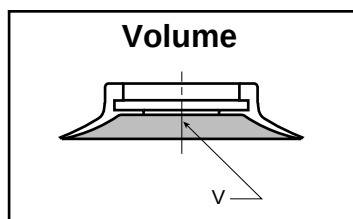
- Angles Pickup



- Fixtures for Curved Product



Main Data for Swivel Bellows PUG Cups

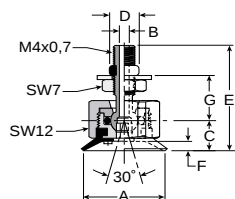


Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] Liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PUGB-10-*	10	0,79	0,00007	4,80	—	1	6
PUGB-15-*	15	1,77	0,0004	10,8	—	1,4	6
PUGB-20-*	20	3,14	0,0008	19,2	—	2	9
PUGB-25-*	25	4,91	0,0013	30,0	—	2,5	17
PUGB-30-*	30	7,07	0,0018	43,2	—	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

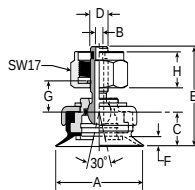
* Cup Material

Dimensions

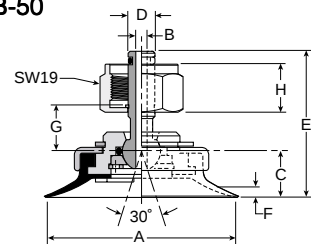
PUGB-10 and
PUGB-15



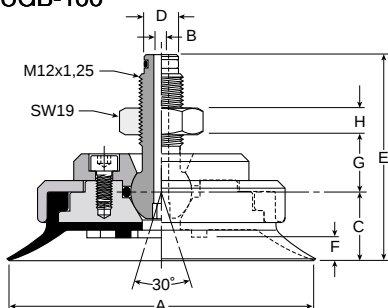
PUGB-20 thru
PUGB-35



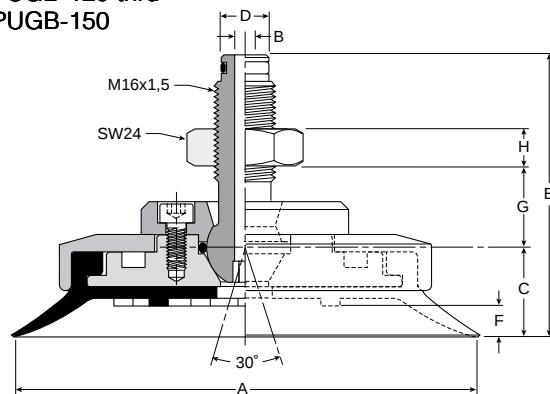
PUGB-40 and
PUGB-50



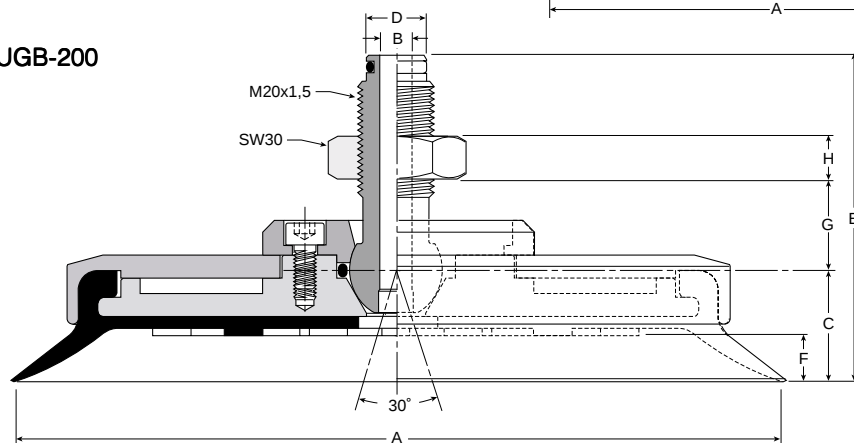
PUGB-60 thru
PUGB-100



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]				Cup Material	
10	10	30	30	NBR	Nitrile Rubber
15	15	35	35		
20	20	40	40	SI	Silicone
25	25	50	50		

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

PUTYK - 60 - NBR - G1

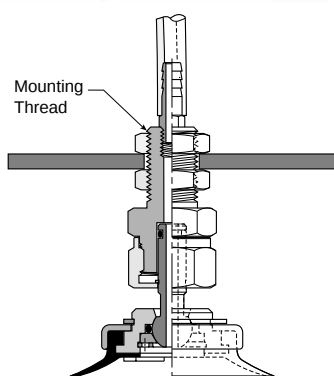
Cup Diameter [mm]			
60	60	120	120
80	80	150	150
100	100	200	200

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

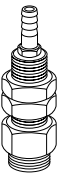
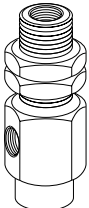
Installation

Note:

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



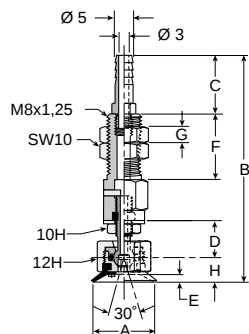
Barbed Bulkhead for PUGB Cups

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

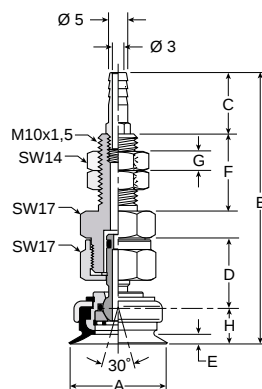
Millimeter

Dimensions

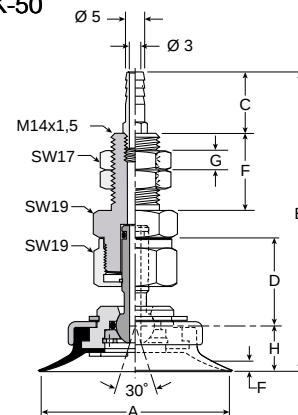
PUTK-10 and
PUTK-15



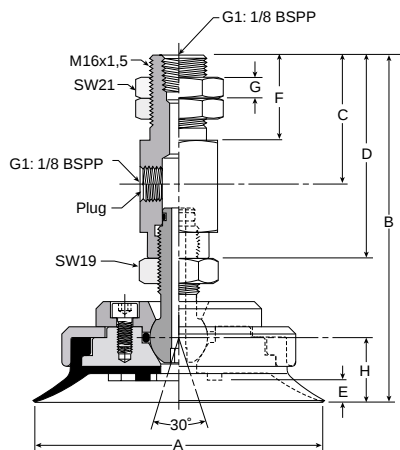
PUTK-20 thru
PUTK-35



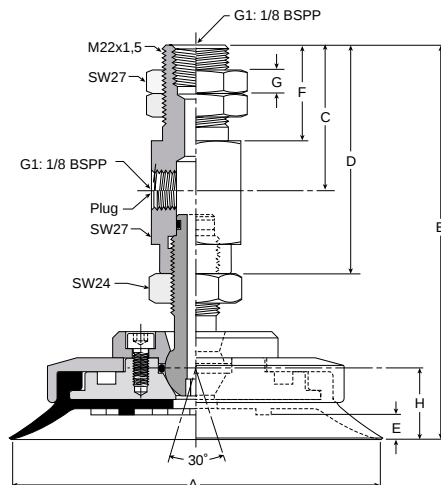
PUTK-40 and
PUTK-50



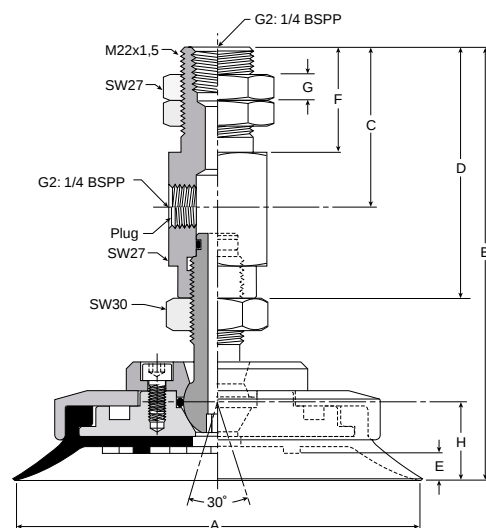
PUTYK-60 thru
PUTYK-100



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

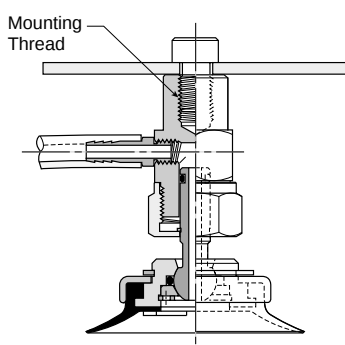
Cup Material	
NBR	Nitrile Rubber
SI	Silicone

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

Installation

Note:

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

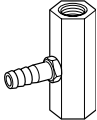
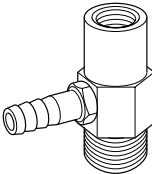
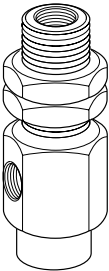


PUTYK - 60 - NBR - G1

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	

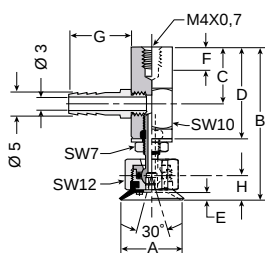
90° Barbed Adapter for PUGB Cups

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

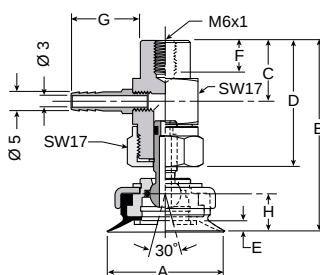
Millimeter

Dimensions

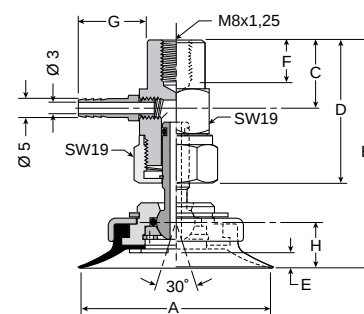
PUYK-10 thru
PUYK-15



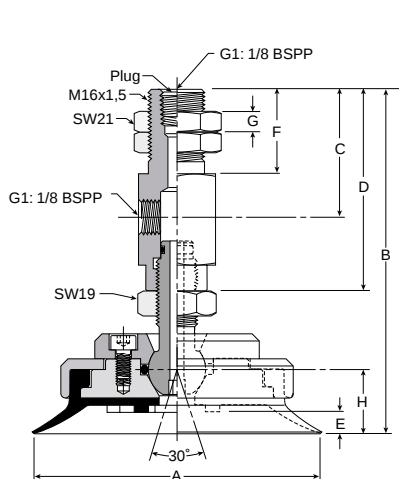
PUYK-20 thru
PUYK-35



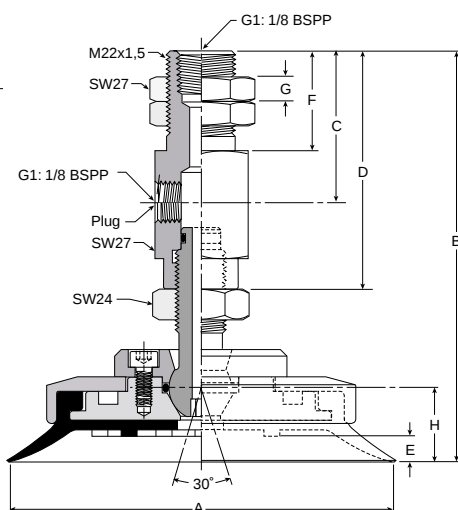
PUYK-40 and
PUYK-50



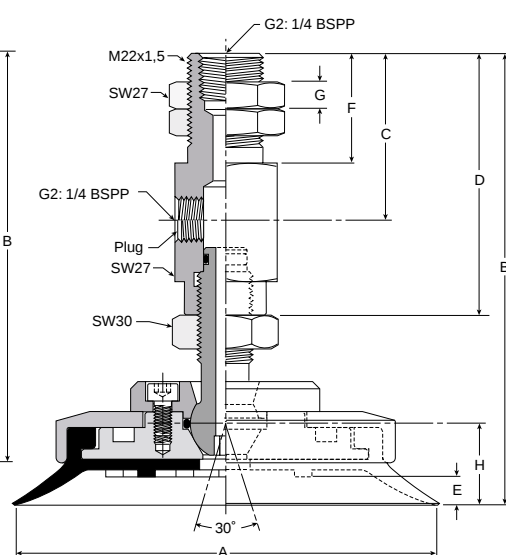
PUTYK-60 thru
PUTYK-100



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

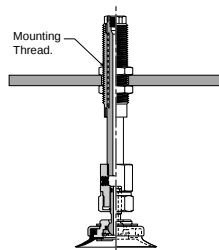
* Cup Material

PUTYS Vacuum Cup Assemblies



Installation

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



Model Number Index

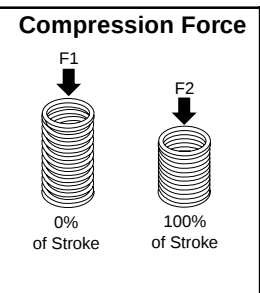
PUTYS

10 3

NBR

M5

Cup Diameter [mm]	Stroke [mm]	Cup Material	Vacuum Ports
10 10	3, 10, 15	NBR Nitrile Rubber	M5 M5
15 15		SI Silicone	G1 1/8 BSPP
20 20	6, 15, 30	More materials on request. Please see page 8 for material specifications.	
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			



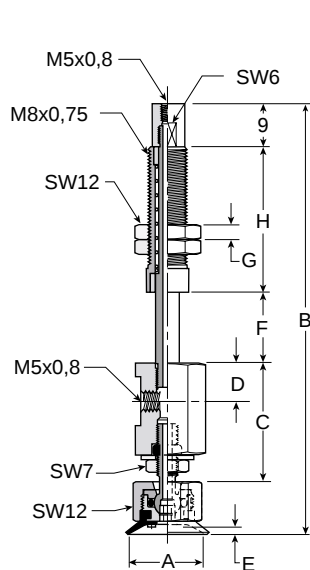
Bulkhead Level Compensator for PUGB Cups

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

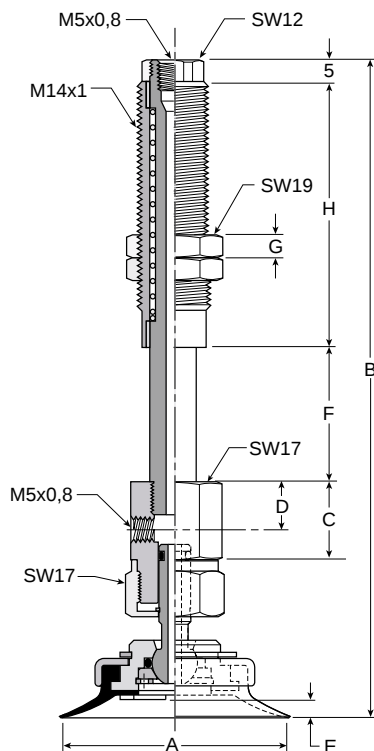
Millimeter

Dimensions

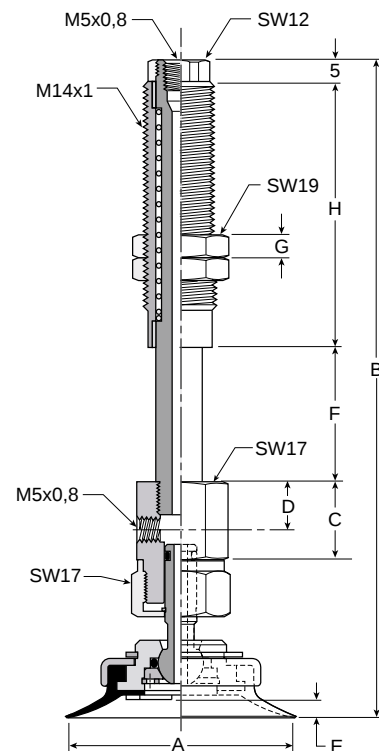
PUTYS103 thru
PUTYS1515



PUTYS206 thru
PUTYS3530



PUTYS406 thru
PUTYS5030



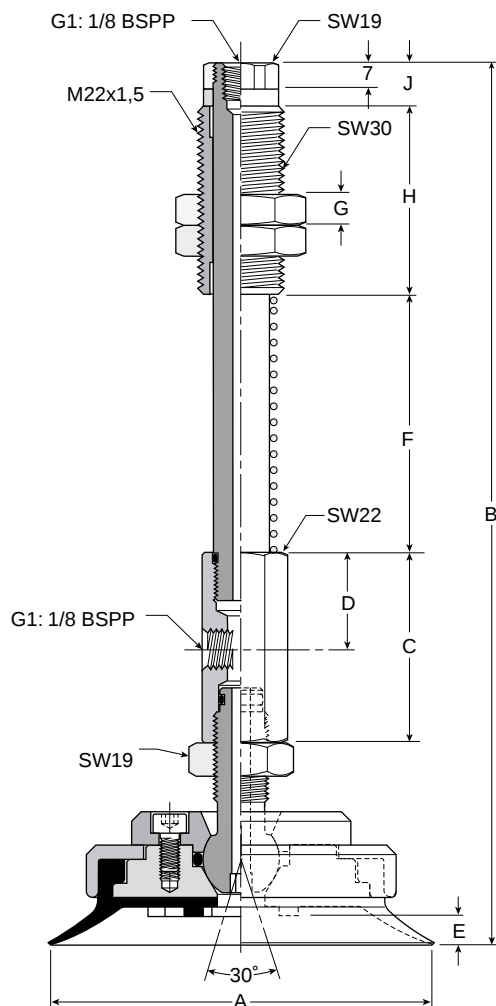
Model Number	ØA	B	C	D	E	F	G	H	Wt [g]
PUTYS103*	10	67,5	18,5	8	1	3	3	23	25
PUTYS1010*	10	74,5	18,5	8	1	10	3	23	26
PUTYS1015*	10	87	18,5	8	1	15	3	30,5	28
PUTYS153*	15	68,5	18,5	8	1,4	3	3	23	25
PUTYS1510*	15	75,5	18,5	8	1,4	10	3	23	26
PUTYS1515*	15	88	18,5	8	1,4	15	3	30,5	28
PUTYS206*	20	89,5	16	10	2	6	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



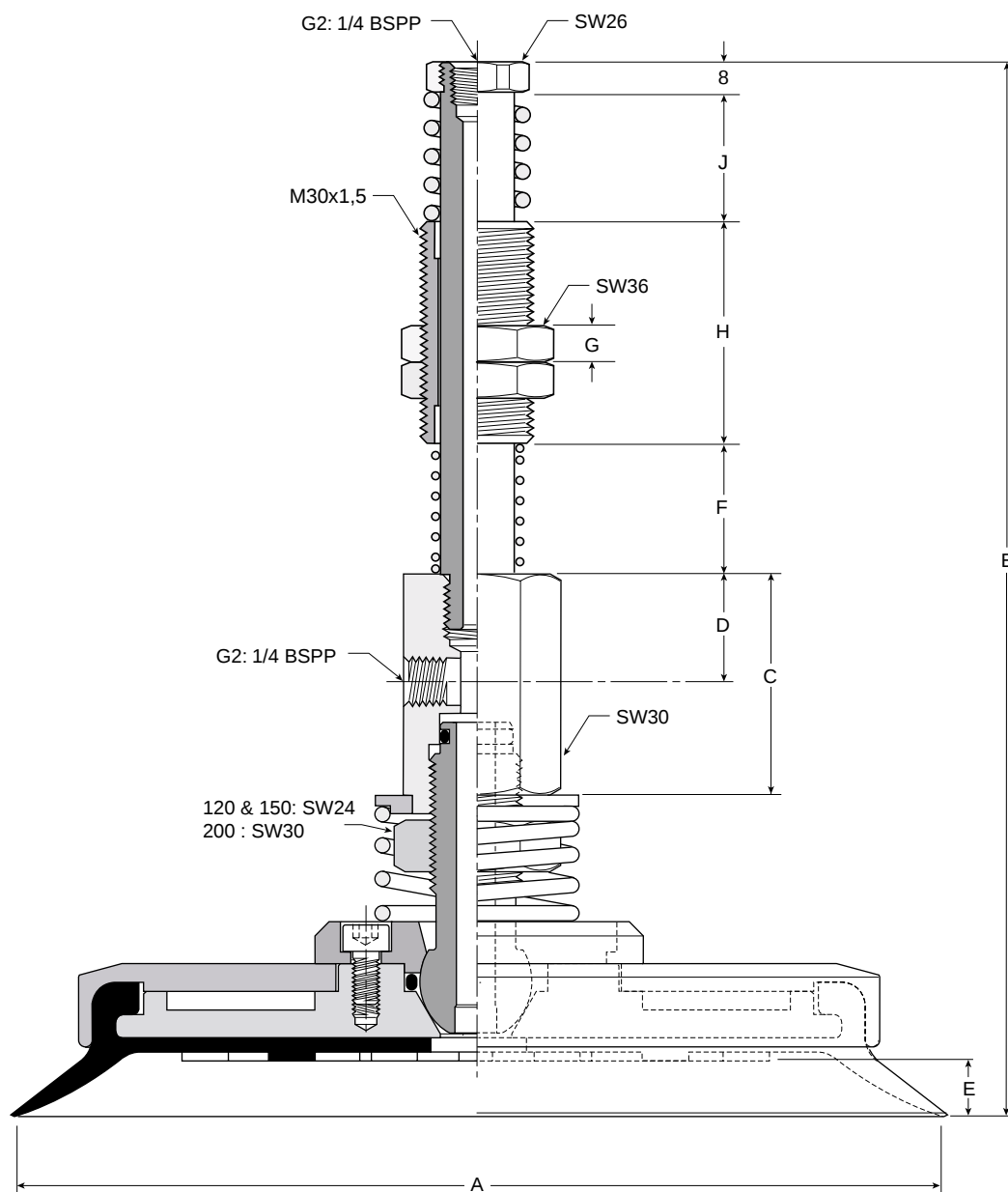
Model Number	ØA	B	C	D	E	F	G	H	J	Wt [g]
PUTYS6025*	60	185	40	20	5	45	10	50	12	487
PUTYS6045*	60	210	40	20	5	70	10	50	12	521
PUTYS6065*	60	235	40	20	5	90	10	50	12	548
PUTYS8025*	80	187	40	20	6	45	10	50	12	559
PUTYS8045*	80	212	40	20	6	70	10	50	12	595
PUTYS8065*	80	237	40	20	6	90	10	50	12	620
PUTYS10025*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



Model Number Index

PFOG - 20 - NBR

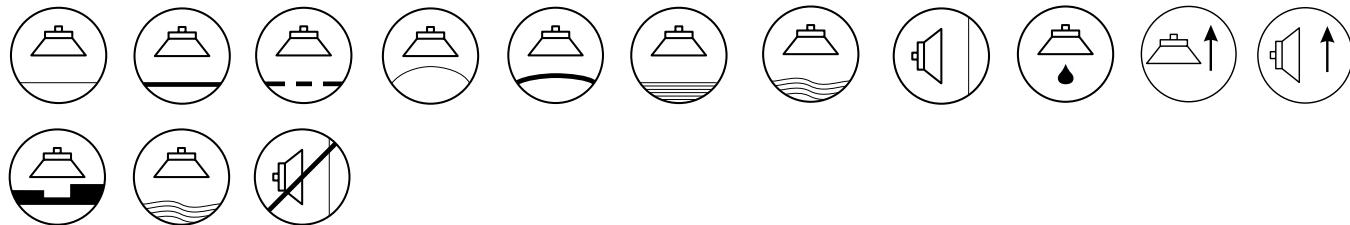
Cup Diameter [mm]	
20	20
25	25
30	30
35	35
40	40

Cup Material	
NBR	Nitrile Rubber
U	Urethane

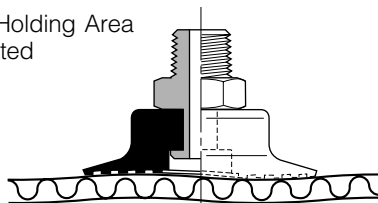
More materials on request.
Please see page 8 for material specifications.

Selection Guide

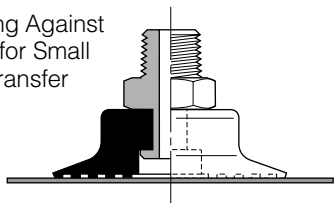
Anti-Slip Flat Cups



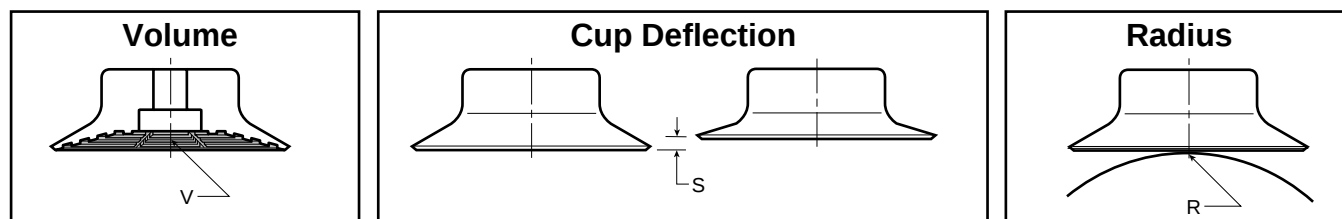
- Increased Holding Area for Corrugated



- Resists Slipping Against Oily Surfaces for Small Sheet Metal Transfer



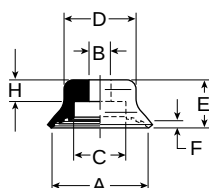
Main Data for Anti-Slip PFOG Suction Cups



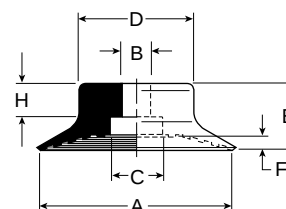
Model Number	Cup Diameter [mm]	Area [cm ²]	Volume [V] liters	Lifting Force @ 60% [N]		Cup Deflection [S] [mm]	Radius R [mm]
PFOG-20	20	3,14	0,0008	18,0	11,25	2,3	4,0
PFOG-25	25	4,91	0,0013	29,0	18,0	3,0	17,5
PFOG-30	30	7,07	0,0018	42,0	26,0	2,0	26,0
PFOG-35	35	9,62	0,0026	57,0	35,0	3,0	37,0
PFOG-40	40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

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

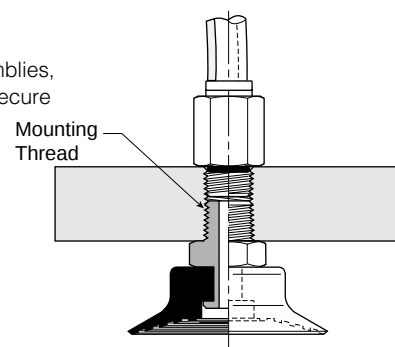
More materials on request.
Please see page 8 for material specifications.

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.



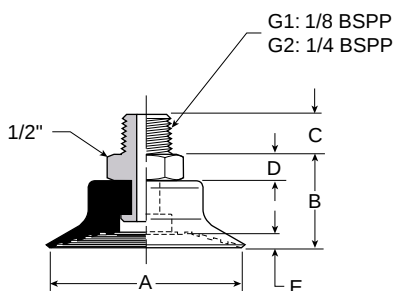
Male Threaded Fitting for PFOG Cups

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

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

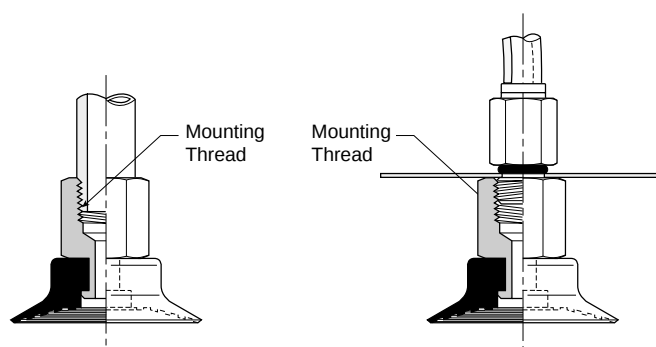
More materials on request.
Please see page 8 for material specifications.

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

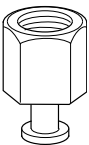
Installation

Note:

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



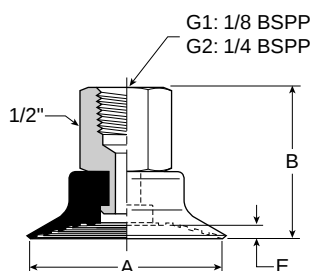
Female Threaded Fitting for PFOG Cups

PFOG Cup Diameter [mm]	FTF Part Number	Mounting Thread
	25	
	30	1/8 BSPP
	35	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

PFOTK Vacuum Cup Assemblies



Model Number Index

PFOTK - **25** - **NBR**

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

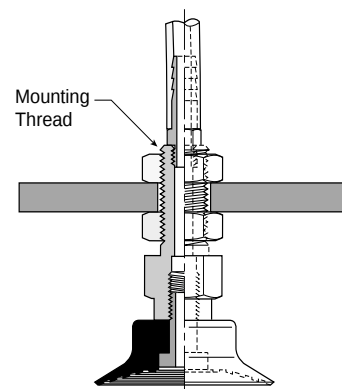
Cup Material	
NBR	Nitrile Rubber
U	Urethane

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

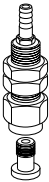
Installation

Note:

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



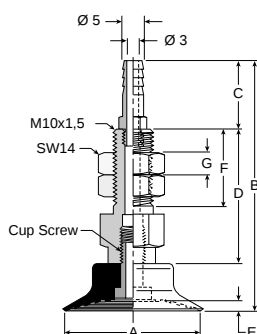
Barbed Bulkhead for PFOG Cups

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

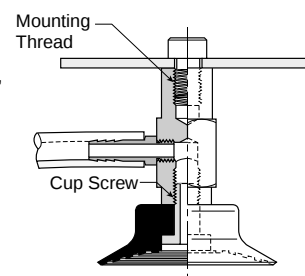
Cup Material	
NBR	Nitrile Rubber
U	Urethane

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

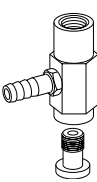
Installation

Note:

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



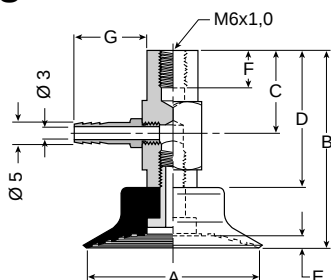
90° Barbed Adapter for PFOG Cups

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

PFOTYS Vacuum Cup Assemblies

Model Number Index

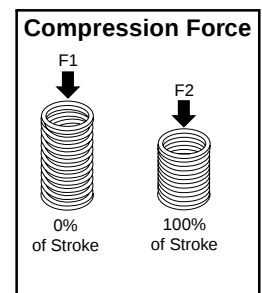
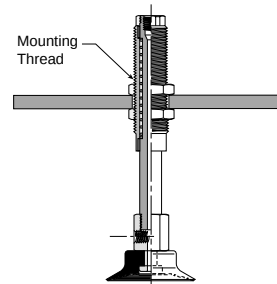


PFOTYS **25 6** **NBR**

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.



Installation

Note:

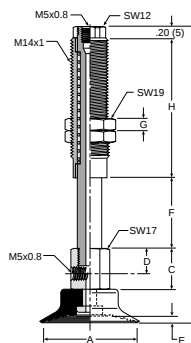
When installing cup assemblies, use a sealant material to secure the assembly and prevent vacuum leakage.

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

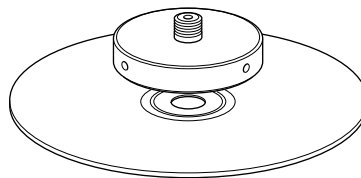


Features

- 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 symmetrical design provides stability during high speed transfer.

PCDM Series Male Thread Connector

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

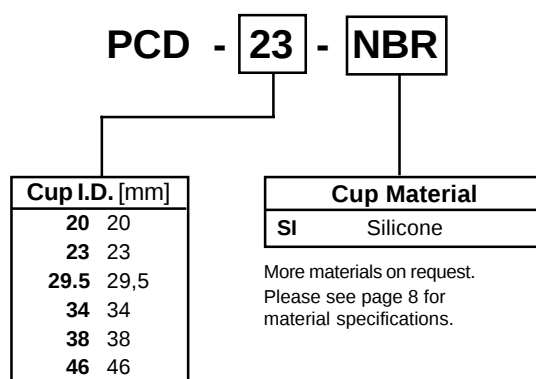


PCDF Series Female Thread Connector

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



Model Number Index

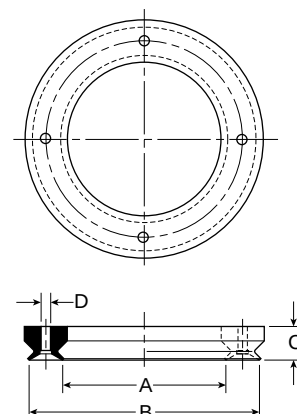


Dimensions

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

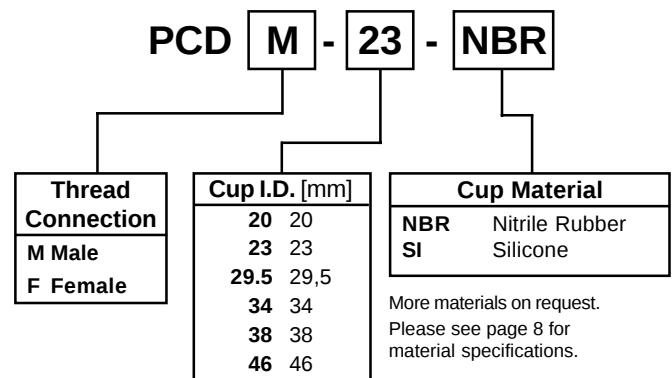
* Cup Material



PCDM & PCDF Vacuum Cup Assemblies

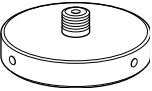


Model Number Index



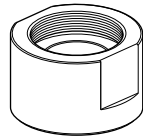
Male Holder for PCD Cups

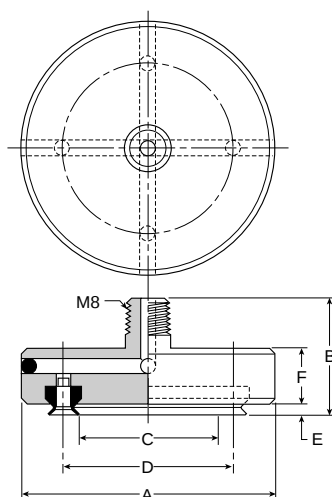
PCD Cup Diameter [mm]	Holder Part Number	Mounting Thread
20	CDM-20	M8x1,25
23	CDM-23	M8x1,25
29,5	CDM-29.5	M8x1,25
34	CDM-34	M8x1,25
38	CDM-38	M8x1,25
46	CDM-46	M8x1,25



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



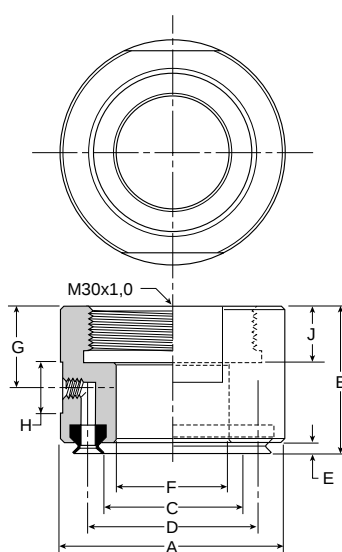


PCDM Dimensions

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



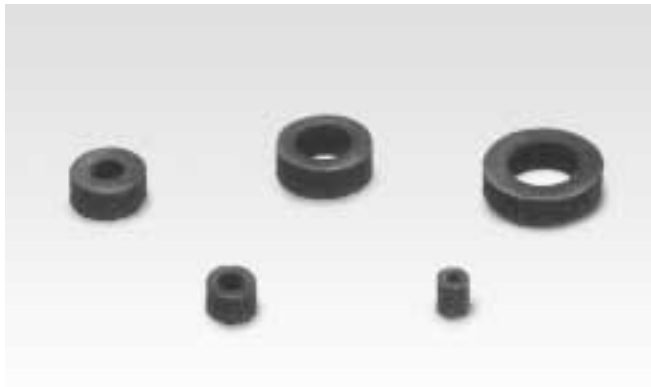
PCDF Dimensions

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

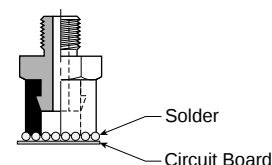


Features

- 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]	Cup Material
4 4	CRE Chloroprene ESD
6.5 6,5	SIE Silicone ESD
8 8	
9.5 9,5	
12 12	
15 15	

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

Model Number Index

PDTM - 4 - CRE - M5			
Cup Diameter [mm]	Cup Material	Fitting Thread	
4 4	CRE Chloroprene ESD	M5 M5	
6.5 6,5	SIE Silicone ESD	See Chart Below	
8 8			
9.5 9,5			
12 12			
15 15			

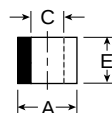
More materials on request.
Please see page 8 for material specifications.

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

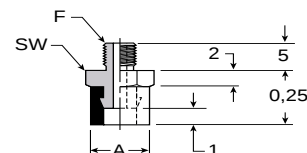


Model Number	ØA	ØC	E
PDG-4-*	4	1,5	4,5
PDG-6,5-*	6,5	3,2	4,5
PDG-8-*	8	3,2	4,5
PDG-9,5-*	9,5	4	4,5
PDG-12-*	12	4	4,5
PDG-15-*	15	5	4,5

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.

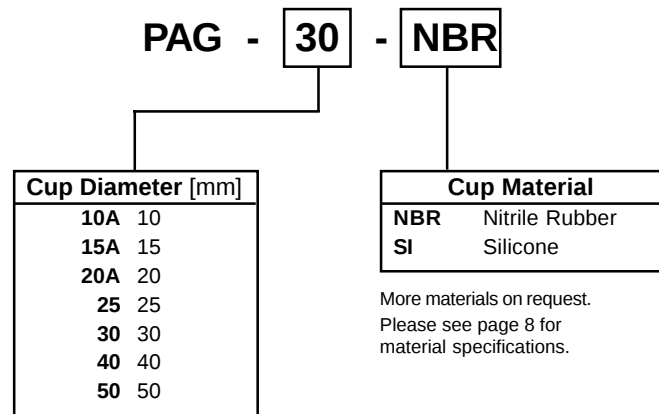


PATK Series Barbed Bulkhead

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



Model Number Index



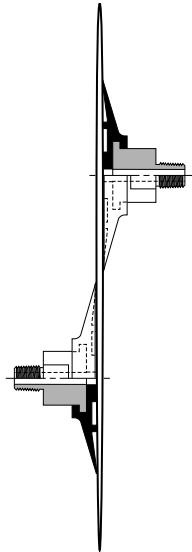
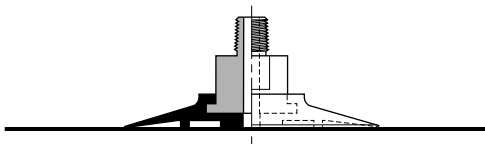
Application Guide

Thin - Smooth Surfaces

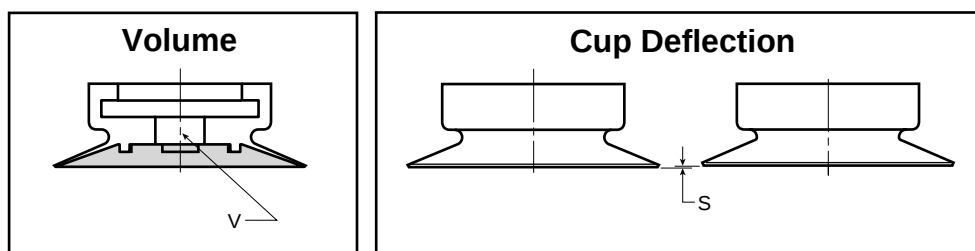


- Products With Smooth Surfaces
- Products With Micron Thickness

- When Opening Plastic or Paper Bags, Offset Cups



Main Data for PAG Cups



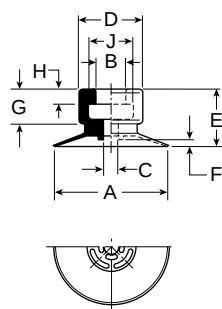
Model Number	Cup Diameter [mm]	Area [cm ²]	Cup Deflection [S] [mm]
PAG-10A-*	10	0,79	0,6
PAG-15A-*	15	1,77	0,9
PAG-20A-*	20	3,14	1,2
PAG-25-*	25	4,91	1,5
PAG-30-*	30	7,07	1,8
PAG-40-*	40	12,60	2,4
PAG-50-*	40	19,60	3,0

Millimeter

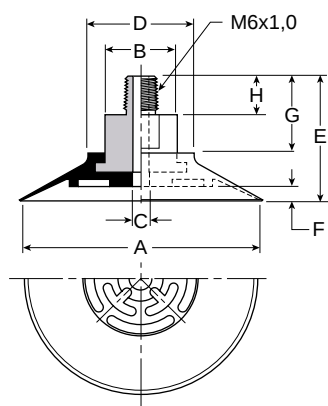
* Cup Material

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

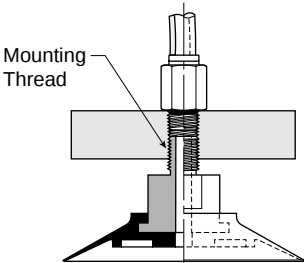
PATM - 10A - NBR - M5

Cup Diameter [mm]	Cup Material	Mounting Thread
10A 10	NBR Nitrile	M5 M5
15A 15	Rubber	See Chart Below
20A 20	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.



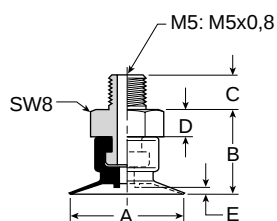
Male Fitting for PAG Cups

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

Millimeter

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

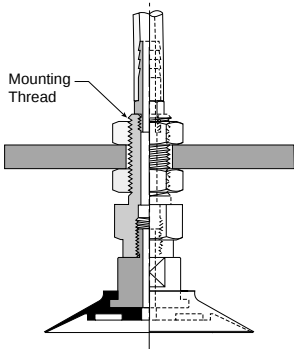
Cup Diameter [mm]	
10A	10
15A	15
20A	20
25	25
30	30
40	40
50	50

Cup Material	
NBR	Nitrile Rubber
SI	Silicone

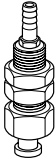
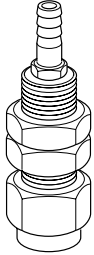
More materials on request.
Please see page 8 for
material specifications.

Installation

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



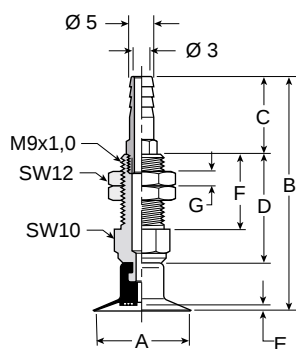
Barbed Bulkhead for PAG Cups

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

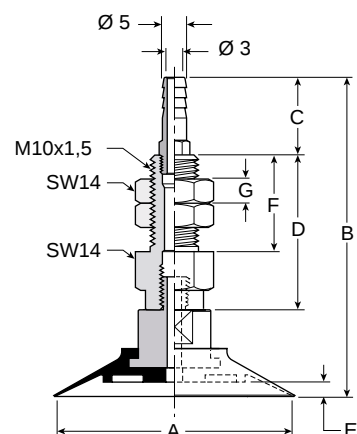
Millimeter

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

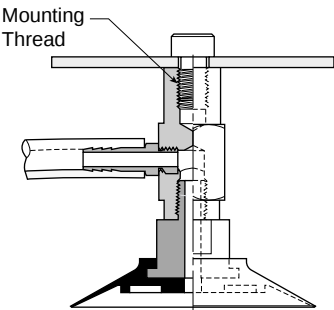
PAYK - 10A - NBR

Cup Diameter [mm]		Cup Material	
10A	10	NBR	Nitrile Rubber
15A	15	SI	Silicone
20A	20		
25	25		
30	30		
40	40		
50	50		

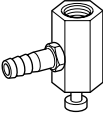
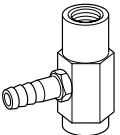
More materials on request.
Please see page 8 for
material specifications.

Installation

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



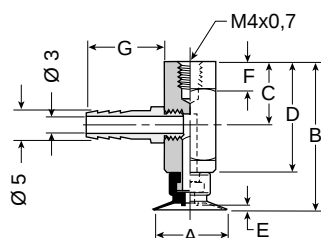
90° Barbed Adapter for PAG Cups

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

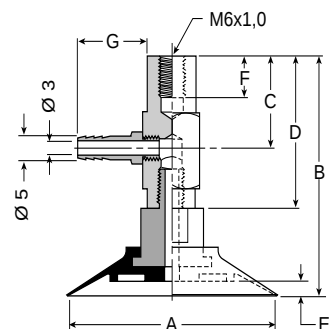
Millimeter

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

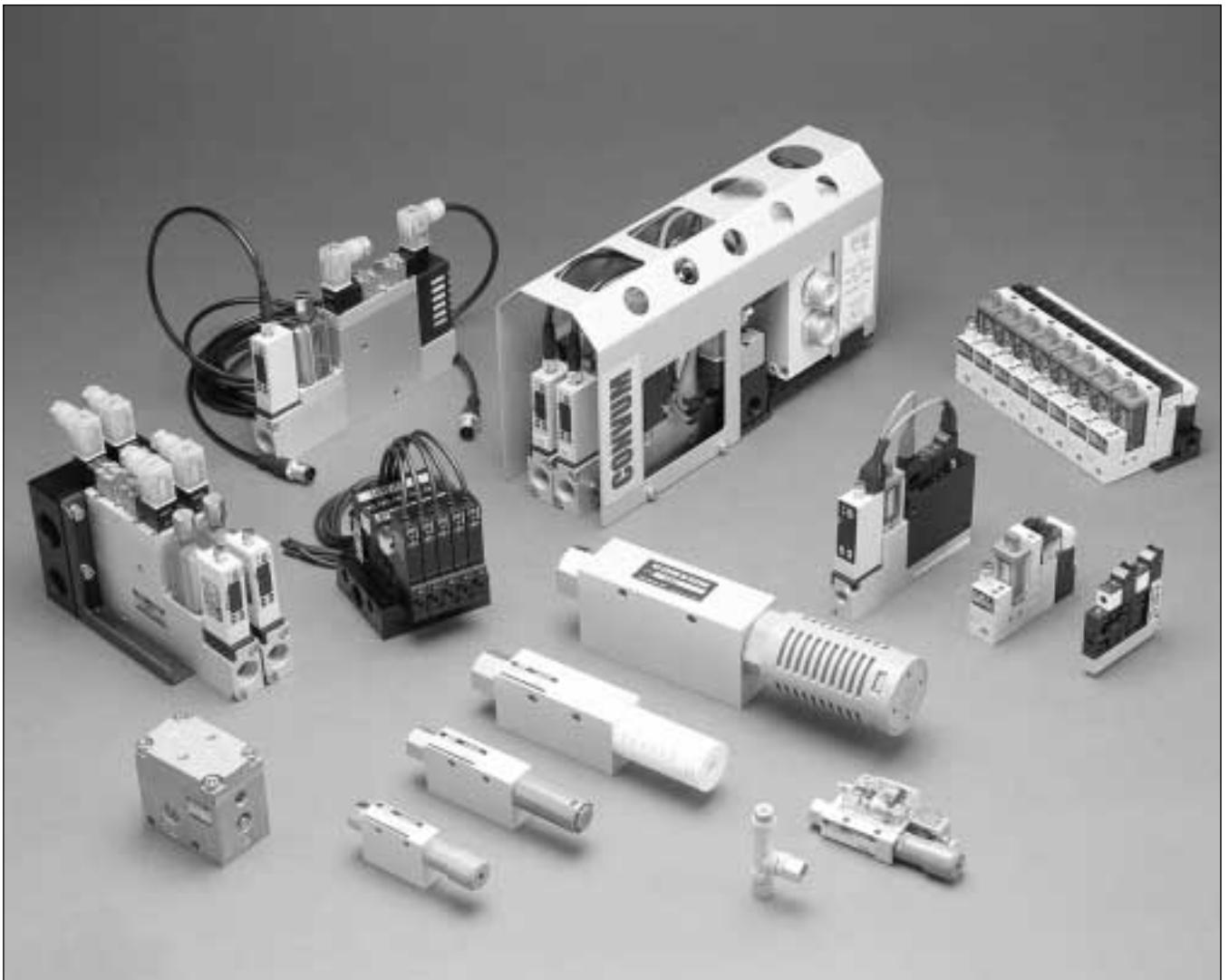
Millimeter

* Cup Material

Section B



B



Convum

Technical Information How to select a Vacuum Generator. **120-123**

MCA Venturi Generator for inline use or in combination with TYS level compensators. **124-127**



CV Venturi Generator, precision manufactured for long life. External valving is required for operation. **128-131**



CV-CK Venturi Generator with adjustable open contact switch for vacuum confirmation. **132-135**



CV-VR Venturi Generator with blow-off reservoir. Blow-off release occurs automatically when the air supply valve interrupts the air supply. **136-139**



MC2 Sub compact venturi generator with valving to control vacuum and blow-off release. Includes filter, silencer, and sensor porting. **140-147**



CVK Venturi Generator for large flow rates with valving to minimize response time of the vacuum and blow-off release. Air-economizing features available. Includes filter, silencer, and sensor porting. **148-155**



CVX-0260 Normally Closed vacuum venturi with a vacuum controlled E-Stop function. Large flow rates with valving to minimize response time of the vacuum and blow-off release. Air-economizing features available. Includes filter, silencer, and sensor porting. **156-161**



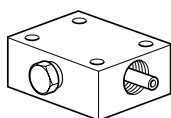
CEK Normally Closed vacuum venturi with a valve controlled E-Stop function. Large flow rates with valving to minimize response time of the vacuum and blow-off release. Air-economizing features available. Includes filter, silencer, and sensor porting. **162-167**



P5V-GA

Basic Generator

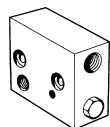
168-171



P5V-GWV

Basic Generator
with holding valve
and release valve

172-173



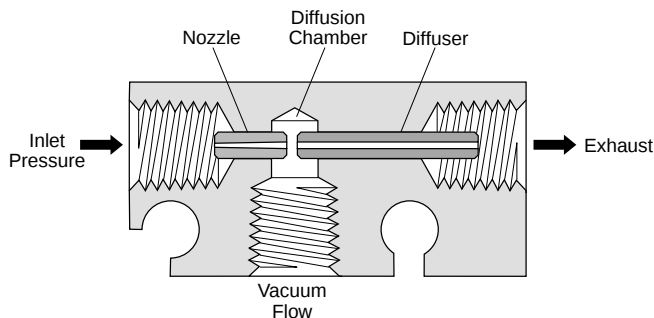
B

Principle of Venturi Vacuum

A vacuum generator is a single stage venturi that creates high vacuum with fast response using compressed air.

The ability to control this performance renders this technology as an excellent solution for factory automation.

In principle, compressed air is throttled as the air exits the nozzle and is discharged into the diffuser. This increased velocity of air lowers the pressure in the diffusion chamber. The volume of air within the closed vacuum system flows into the low pressure area of the diffusion chamber and is exhausted thru the diffuser. This effect increases the vacuum level and evacuates most of the air within the closed vacuum system at supersonic speeds.



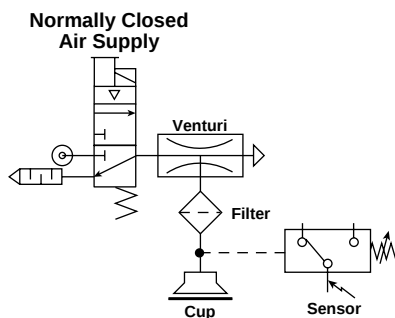
Additional Advantages to Venturi Generators

- No Moving Components
- Low Maintenance
- Long Life
- Responsive
- Physically Small
- Cost Effective

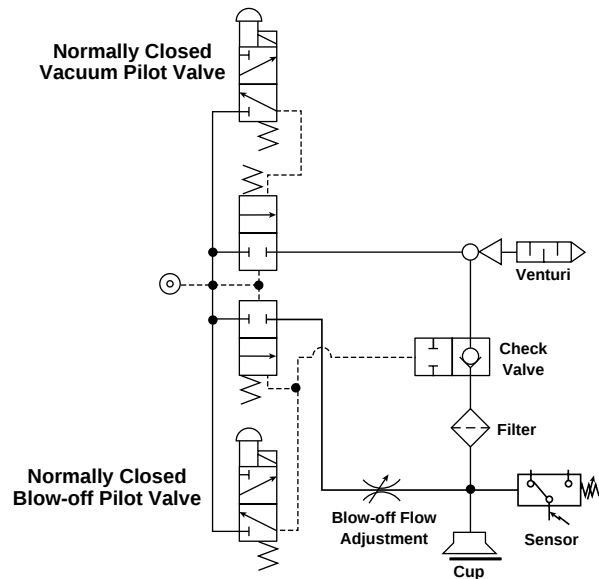
Applying the Venturi Generator

There are two basic approaches when designing a vacuum system with venturi generators.

1. Design a system with basic venturi generators and individual components to support the vacuum circuit.



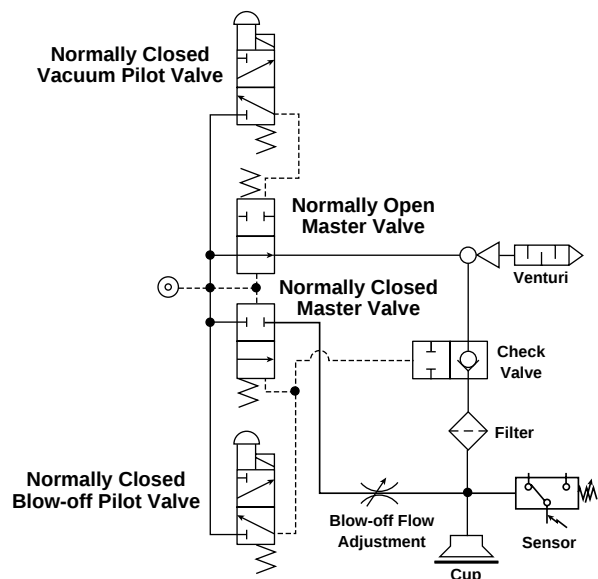
2. Design a system with all of the supporting components integrated into the venturi generator.



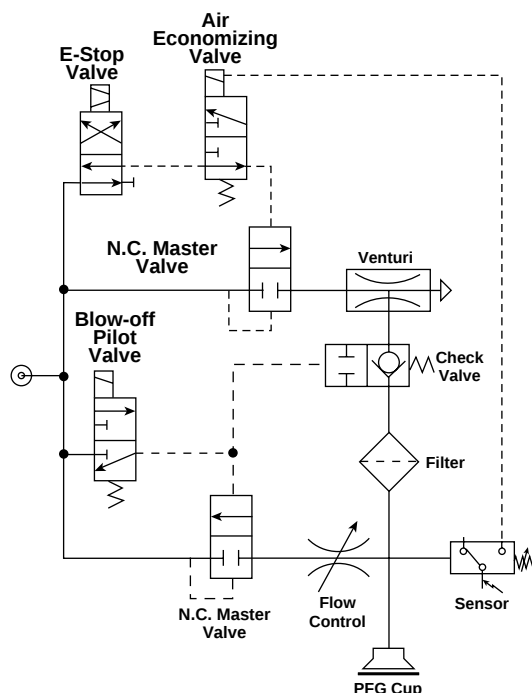
There are several advantages to an integrated venturi system. The response time of the vacuum and blow-off functions are greatly reduced compared to basic venturi generators, the installation time is also reduced which makes this a cost effective system and the compact size allows the integrated unit to be close to the suction cup.

Venturi Generator with Safety Circuits

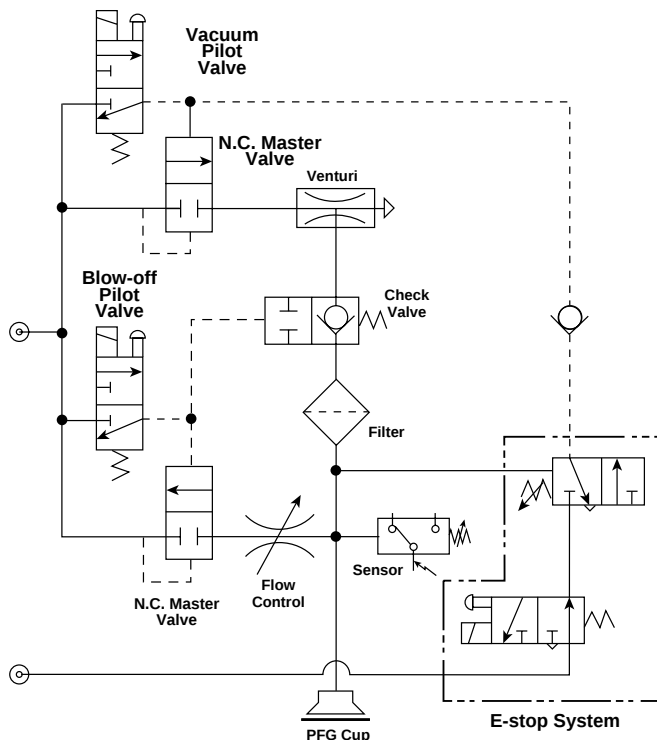
When designing a vacuum system that requires a Normally Open circuit or E-Stop circuits to avoid any hazard during a power failure, consider the circuits below and on the following page.



Valve Controlled E-Stop Circuit

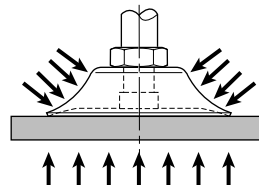


Vacuum Controlled E-Stop Circuit



The Venturi with a Closed System

First, let us understand how a venturi performs with a closed system. A closed vacuum system has a volume of air within all the components between the vacuum port of the venturi and the suction cup. The venturi's ability to evacuate this volume of air when the suction cup forms a seal on the surface, creates the pressure differential required to force the suction cup onto the product.



The evacuated air creates a lower air pressure within the closed vacuum system, causing the atmospheric pressure to apply a uniform force on the surface of the cup. This holding force is proportional to the difference in pressures and area of the suction cup.

Selecting the Appropriate Supply Valve

If a basic venturi generator is selected, correct sizing of the air supply valve and supply line are critical to the performance of the unit.

Nozzle Diameter	Minimum Tube I.D. [mm]	Flow [Cv]
0,5 mm	4	0,16
1,0 mm	4	0,16
1,5 mm	6	0,379
2,0 mm	8	0,65
2,5 mm	8	0,95
3,0 mm	10	1,35

If pressure drops occur due to other pneumatic components or a manifold venturi system, it may be necessary to increase the valve and / or supply line tubing I.D.

Selecting the Nozzle Diameter with Reference to Suction Cup Diameter

As a general guide, for most non-porous vacuum applications, the nozzle diameter can be selected based on the suction cup diameter previously determined in Section A.

Nozzle Diameter	Maximum Suction Cup Diameter [mm]
0,5 mm	20
1,0 mm	50
1,5 mm	60
2,0 mm	120
2,5 mm	150
3,0 mm	200

Designing a system with a single suction cup dedicated to a single vacuum generator is ideal, however, it may not always be practical. It is recommended that the sum of the areas of multiple cups dedicated to a single venturi do not exceed the area of the diameter of the single suction cups shown above.

Calculating the Response Time of Vacuum Generators

With minimal leakage in a closed system, most vacuum sources can achieve adequate vacuum levels to sufficiently transfer product. The response time is the time required to evacuate the air out of a closed vacuum system. This is important to the operation of the system, which will vary by

the generator nozzle diameter and the total volume of air to be evacuated from the system. The response time (RT) calculation below is derived from actual test data relative to the rated vacuum flow rates of the Convum generators. Therefore, calculations must be in metric units of measure. Charts with metric conversions are provided on page 7.

$$RT = (V_D / C)^{1/a}$$

RT(sec) = time for attaining vacuum (vacuum response time)

C = constant relative to vacuum degree

a = index relative to different types of the CONVUM

V_D = Volume of air to be displaced in liters

$V_D = 0,780 \times ID^2 \text{ (mm)} \times L \text{ (m)} / 1000 + P_V \text{ (n)}$

P_V = Pad volume in liters n = Number of pads

Nozzle Ø	Vac. Flow [l / min]	C		a
		55% Vacuum	90% Vacuum	
05HS	6		0,03	1,02
05LS	9	0,11		1,06
07HS	11		0,06	1,02
07LS	19	0,31		1,02
09HS	15		0,07	1,09
09LS	21	0,37		1,09
10HS	27		0,12	1,09
10LS	36	0,25		1,09
15HS	63		0,25	1,00
15LS	95	0,74		1,09
20HS	110		0,62	1,09
20LS	165	1,00		1,09
25HS	160		0,69	1,00
25LS	250	3,27		1,00
30AHS	225		0,97	1,00
30ALS	350	4,88		1,00

EXAMPLE: Calculate the response time of a Convum generator with a specific nozzle diameter and specific volume of air (V_D) to be displaced from the vacuum system.

25HS Nozzle Diameter = 2,5 mm, Vacuum Flow 160 l/min, 90% Vacuum

Tube ID = 10 mm, Tube Length = 3 m, Pad = PBG-150 mm = 0,26 L

"C" value of 25HS = 0,69 (Constant derived from tests)

"a" value of 25HS = 1 (Constant derived from tests)

$P_V = 0,26 \text{ l}$ n = 1

$V_D = 0,780 \times (10 \text{ mm})^2 \times (3 \text{ meters} / 1000) + 0,26 (1) = 0,494 \text{ l}$

$RT = (0,494/0,69)^{(1/1)} = 0,71 \text{ sec.}$

Therefore, it would require 0,71 seconds to evacuate 0,26 liters of air to a vacuum level of 0,92 bar.

MCA

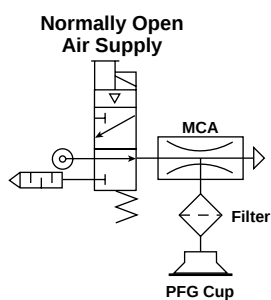
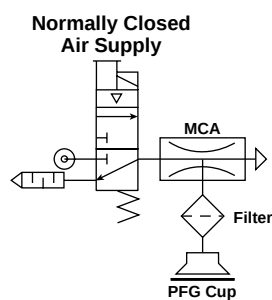


Features

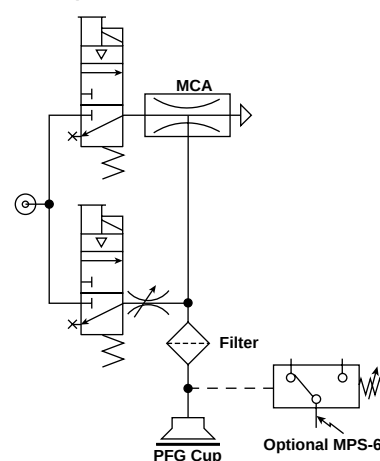
- **Very Compact and Lightweight**
- **One-Touch Fittings for Threaded Connection**
- **Mount Directly to Level Compensators**
- **Short Response Time When Locating Near Cups**
- **Vacuum Flow Rates from 6 to 36 l/min**

Characteristics

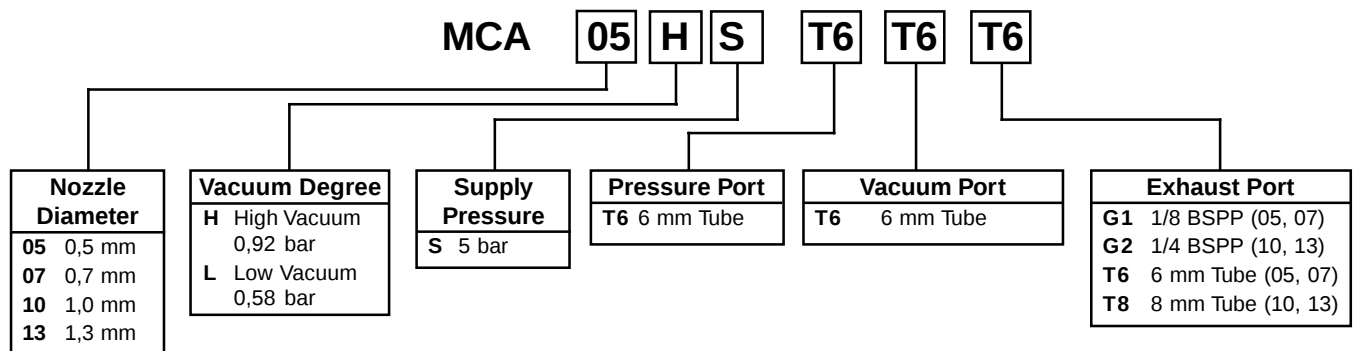
The MCA is the size of a normal push-lock tube fitting. It can be located in very restrictive areas close to the pick-and-place application to reduce the response time. The durable resin body makes the unit lightweight and friendly to end-of-arm tooling. The connections are easily interchangeable to accommodate tube fittings or female threads.



Normally Closed Air Supply with Blow-off & Optional Sensor



Model Number Index



Specifications

Media	Non-Lubricated Air, Non-Corrosive Gases
Operating Pressure	1 to 8 bar
Operating Temperature	0 to 50 °C
Material	Polycarbonate, Aluminium Fittings

Performance

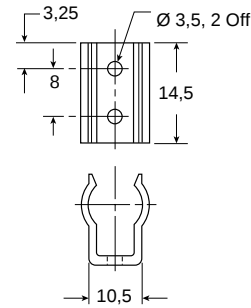
Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
MCA05HS*	0,5	88	5,5	13	17
MCA05LS*		55	11		
MCA07HS*	0,7	88	12	23	23
MCA07LS*		55	20		
MCA10HS*	1,0	88	24	47	23
MCA10LS*		55	38		
MCA13HS*	1,3	88	36	79	23

Evacuation Time

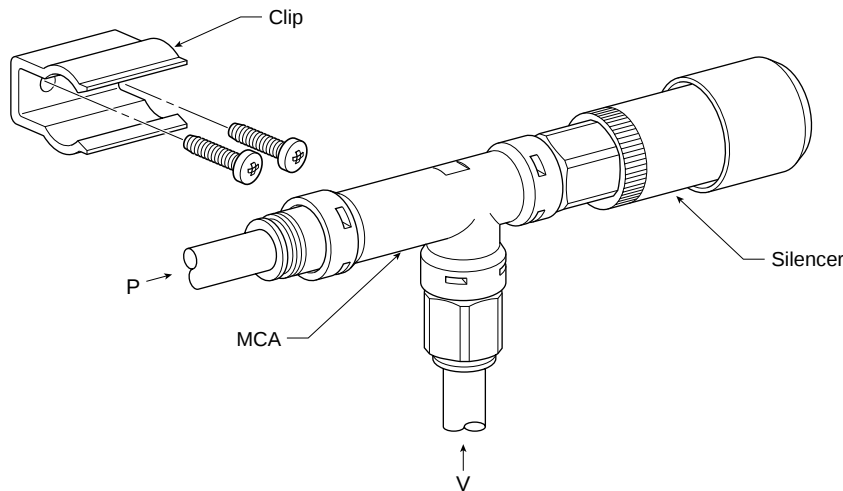
Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
MCA-05HS	5	13	0,74	1,71	2,90	4,44	6,44	8,84	12,50	17,50	—
MCA-05LS	5	13	0,43	0,95	1,61	2,55	4,12	6,81	—	—	—
MCA-07HS	5	23	0,34	0,75	1,25	1,98	3,10	4,62	6,45	9,29	—
MCA-07LS	5	23	0,20	0,44	0,76	1,25	2,63	—	—	—	—
MCA-10HS	5	47	0,18	0,39	0,65	1,00	1,45	2,06	2,94	4,36	—
MCA-10LS	5	47	0,11	0,22	0,38	0,67	1,21	2,87	—	—	—
MCA-13HS	5	79	0,13	0,26	0,44	0,69	1,01	1,41	2,07	3,69	—

Replacement Components

Item	Model Number	Generator
Silencer	MSS-01	MCA05HS/LS MCA07HS/LS
Silencer	MSM-01	MCA10HS/LS MCA13HS
Bracket	MCA-B	MCA05, 07, 10, 13



MCA-B



Installation

Install clip and secure MCA unit. Silencers are not included with the MCA generator series. Silencers or exhaust mufflers must be ordered separately and properly installed to manage the exhaust created by the venturi. If a tube connector is selected for the exhaust port option, plumb the exhaust to an appropriate collector.

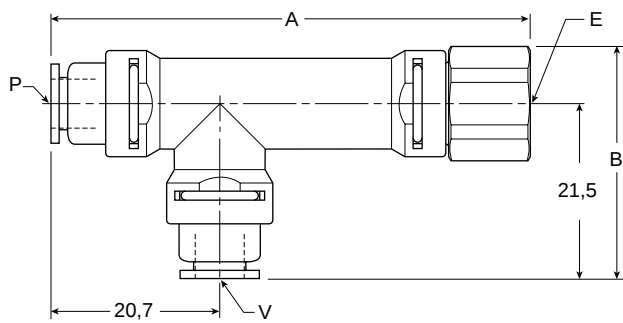
Cautions

Do not operate MCA generators outside the temperature range and pressures listed in the specifications section of this catalog.

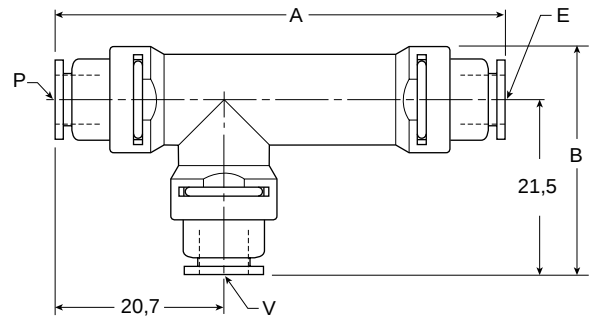
All normally closed valve supply circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open valve supply circuit or an E-Stop system.

It is always recommended to dedicate one suction cup to a single MCA generator for the best response and maximize the vacuum level per individual cup. If more than one cup is used per generator, the vacuum level of the pick-and-place system may drop to an unsafe level if one of the pads separates from the product.

Dimensions



MCA***T6T6G1/G2



MCA***T6T6T6/T8

Item	A	B	P (Pressure Port)	V (Vacuum Port)	E (Exhaust Port)
MCA05HS/LST6T6T6	55,2	28	One-touch Ø 6mm	One-touch Ø 6mm	One-touch Ø 6mm
MCA05HS/LST6T6G1	55,2	28	One-touch Ø 6mm	One-touch Ø 6mm	1/8" BSPP Female
MCA07HS/LST6T6T6	55,2	28	One-touch Ø 6mm	One-touch Ø 6mm	One-touch Ø 6mm
MCA07HS/LST6T6G1	55,2	28	One-touch Ø 6mm	One-touch Ø 6mm	1/8" BSPP Female
MCA10HS/LST6T6T8	70	29,5	One-touch Ø 6mm	One-touch Ø 6mm	One-touch Ø 8mm
MCA10HS/LST6T6G2	70	29,5	One-touch Ø 6mm	One-touch Ø 6mm	1/4" BSPP Female
MCA13HST6T6T8	70	29,5	One-touch Ø 6mm	One-touch Ø 6mm	One-touch Ø 8mm
MCA13HST6T6G2	70	29,5	One-touch Ø 6mm	One-touch Ø 6mm	1/4" BSPP Female

Millimeter

CV

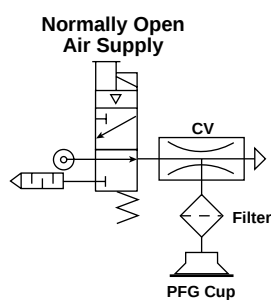
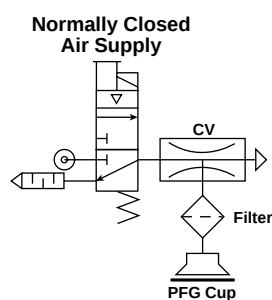


Features

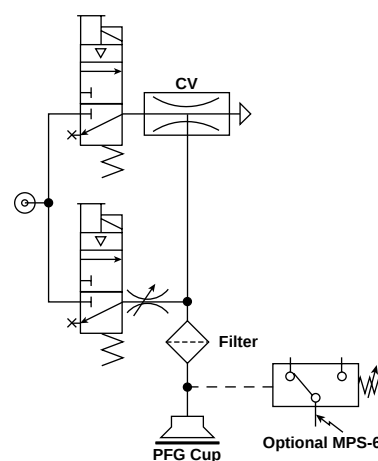
- Durable and Long Life
- Anodized Aluminium Body
- Vacuum Levels - 0,58 or - 0,92 bar
- Vacuum Flow Rates from 6 to 350 l/min
- 303 SS and PTFE Materials Available

Characteristics

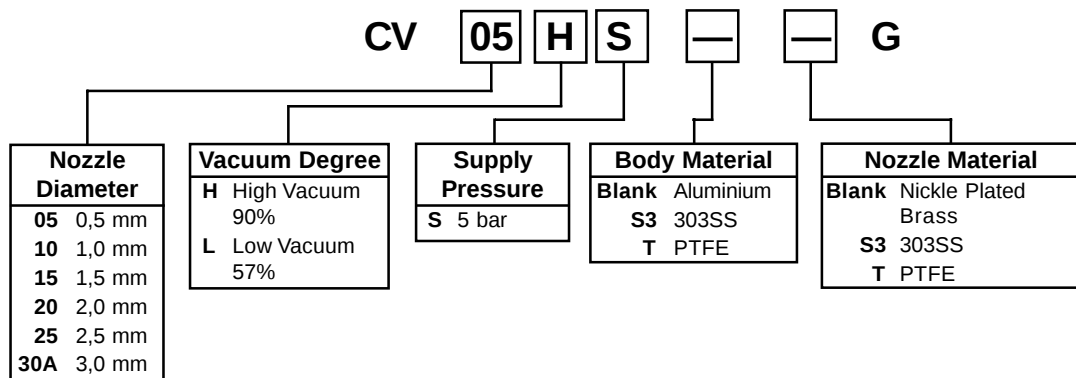
The CV is CONVUM's original and most popular venturi. The basic CV unit is applicable to almost any application. The Aluminium / brass nozzle construction is durable and virtually maintenance free over the long life of the unit.



Normally Closed Air Supply with Blow-off & Optional Sensor



Model Number Index



Specifications

Media	Non-Lubricated Air, Non-Corrosive Gases
Operating Pressure	1 to 8 bar
Operating Temperature	0 to 50 °C
Material	Body: Aluminium, 303 Stainless, or PTFE Nozzle: Nickel plated brass, 303 Stainless, PTFE

Performance

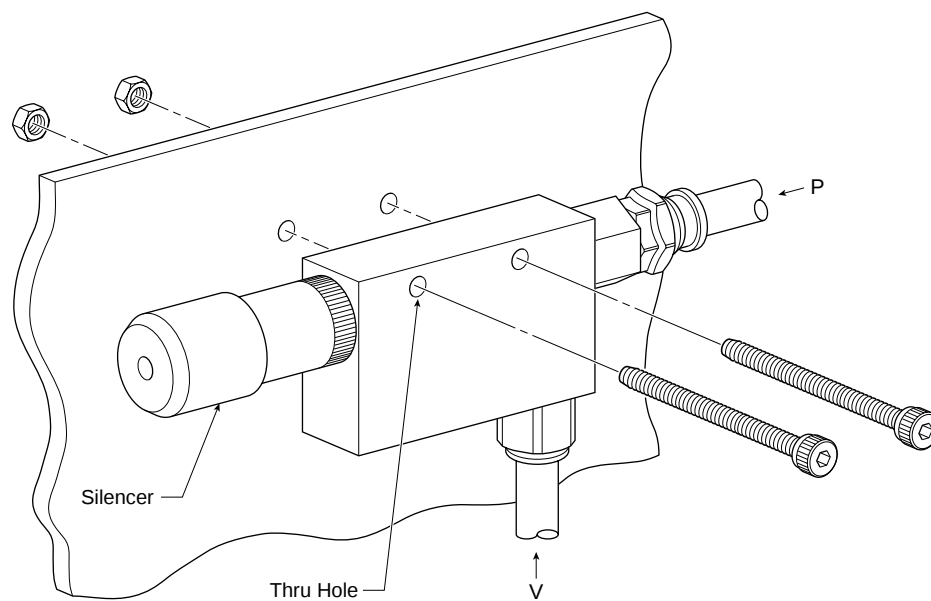
Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
CV05HSG CV05LSG	0,5	86 57	6 9	13	80
CV10HSG CV10LSG	1,0	92 57	27 36	44	80
CV15HSG CV15LSG	1,5	92 57	63 95	100	140
CV20HSG CV20LSG	2,0	92 57	110 165	180	350
CV25HSG CV25LSG	2,5	92 57	160 250	265	728
CV30AHSG CV30ALSG	3,0	92 57	225 350	385	847

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure	Air Consumption	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CV-05HS	5	13	0,86	2,03	3,59	5,68	8,18	10,80	15,33	21,16	—
CV-05LS	5	13	0,39	0,83	1,41	2,28	3,90	—	—	—	—
CV-10HS	5	44	0,17	0,35	0,58	0,88	1,27	1,82	2,74	4,16	8,00
CV-10LS	5	44	0,13	0,27	0,46	0,72	1,17	—	—	—	—
CV-15HS	5	100	0,09	0,17	0,26	0,39	0,55	0,78	1,13	1,65	3,97
CV-15LS	5	100	0,07	0,11	0,18	0,27	0,43	—	—	—	—
CV-20HS	5	180	0,06	0,10	0,16	0,23	0,32	0,46	0,67	0,97	2,15
CV-20LS	5	180	0,05	0,09	0,13	0,21	0,40	—	—	—	—
CV-25HS	5	265	0,05	0,08	0,12	0,16	0,23	0,32	0,46	0,67	1,25
CV-25LS	5	265	0,04	0,07	0,09	0,13	0,20	—	—	—	—
CV-30AHS	5	385	0,04	0,07	0,10	0,13	0,17	0,24	0,34	0,59	1,03
CV-30ALS	5	385	0,04	0,06	0,09	0,12	0,18	—	—	—	—

Replacement Components

Item	Model Number	Generator
Silencer	MSS-01	CV05HS/LSG CV10HS/LSG
Silencer	MSM-01	CV15HS/LSG
Silencer	MSL-02	CV20HS/LSG
Silencer	MS6-01	CV25HS/LSG CV30AHS/LSG



Installation

Secure CV unit. Silencers are included with the CV generator series. If a tube connector is selected by the user for the exhaust port as opposed to the silencer, plumb the exhaust to an appropriate collector.

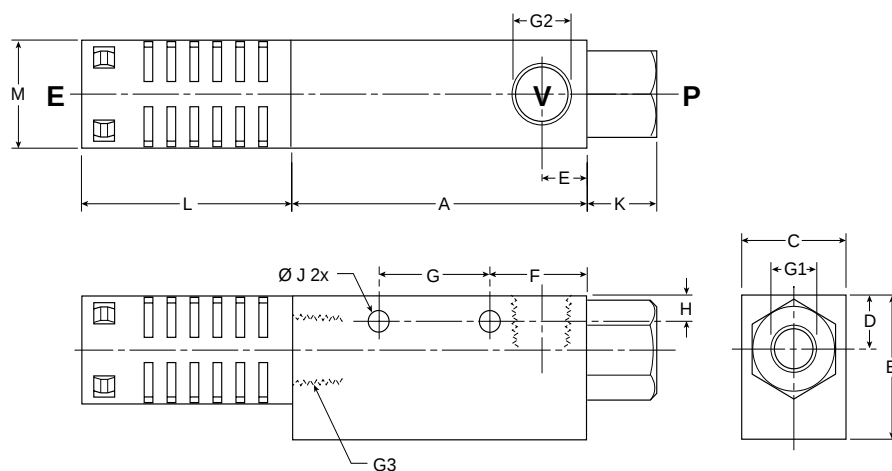
Cautions

Do not operate CV generators outside the temperature range and pressures listed in the specifications section of this catalog.

All normally closed valve supply circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open valve supply circuit or an E-Stop system.

It is always recommended to dedicate one suction cup to a single CV generator for the best response and maximize the vacuum level per individual cup. If more than one cup is used per generator, the vacuum level of the pick-and-place system may drop to an unsafe level if one of the pads separates from the product.

Dimensions



Note: Stainless Steel and PTFE CV units do not include silencer.

Item	A	B	C	D	E	F	G	H	J	K	L	M	G1	G2	G3
CV05HS/LSG	45	33	16	10	8	14	20	4,5	4,2	10	36	18,5	1/8 BSPP	1/8 BSPP	1/8 BSPP
CV10HS/LSG	45	33	16	10	8	14	20	4,5	4,2	10	36	18,5	1/8 BSPP	1/8 BSPP	1/8 BSPP
CV15HS/LSG	63	35	20	11	10	20	25	5	4,5	15	45,5	20	1/4 BSPP	1/4 BSPP	1/4 BSPP
CV20HS/LSG	85	40	30	15	13	28	32	7	6	20	60,5	30	1/4 BSPP	3/8 BSPP	1/2 BSPP
CV25HS/LSG	100	60	40	20	16	20	50	5,5	6	17	96	40	3/8 BSPP	1/2 BSPP	3/4 BSPP
CV30AHS/ALSG	118	60	40	20	20	33	50	5,5	6	20	96	40	1/2 BSPP	3/4 BSPP	3/4 BSPP

Millimeter

CV-CK

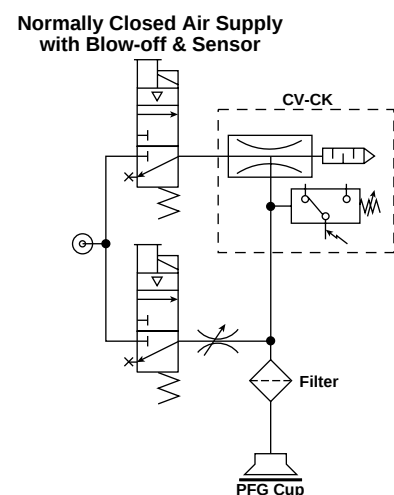
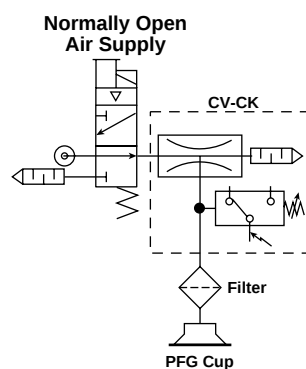
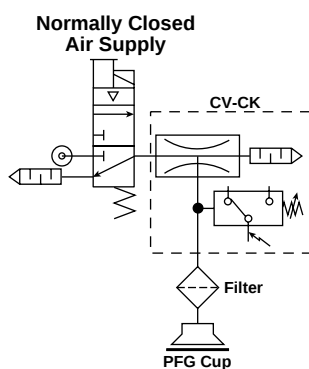


Features

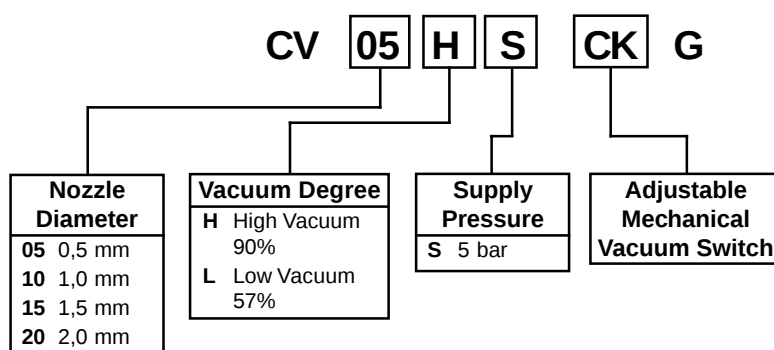
- Adjustable Switch Between - 0,20 and - 0,53 bar
- Standard Anodized Aluminium Body
- Vacuum Levels - 0,58 or - 0,92 bar
- Vacuum Flow Rates from 6 to 165 l/min

Characteristics

The CV-CK Series venturi is supplied with an adjustable open contact switch for vacuum confirmation. The switch point ranges between 0,20 and 0,53 bar with a hysteresis of 0,03 to 0,13 bar. The mechanical switch option is a cost effective method to confirm part presence.



Model Number Index



Includes exhaust port silencer.

Specifications

Media	Non-Lubricated Compressed Air, Non-Corrosive Gases
Operating Pressure	1 to 8 bar
Operating Temperature	0 to 60 °C
Material	Body: Aluminium Nozzle: Nickel Plated Brass
Setting Range	0,20 to 0,53 bar
Accuracy	± 0,05 bar
Hysteresis	0,04 to 0,13 bar
Air Circuit	Normally Open
Switch Output	AC125V: 5A, AC250V: 3A, DC250V: 0.2A

Performance

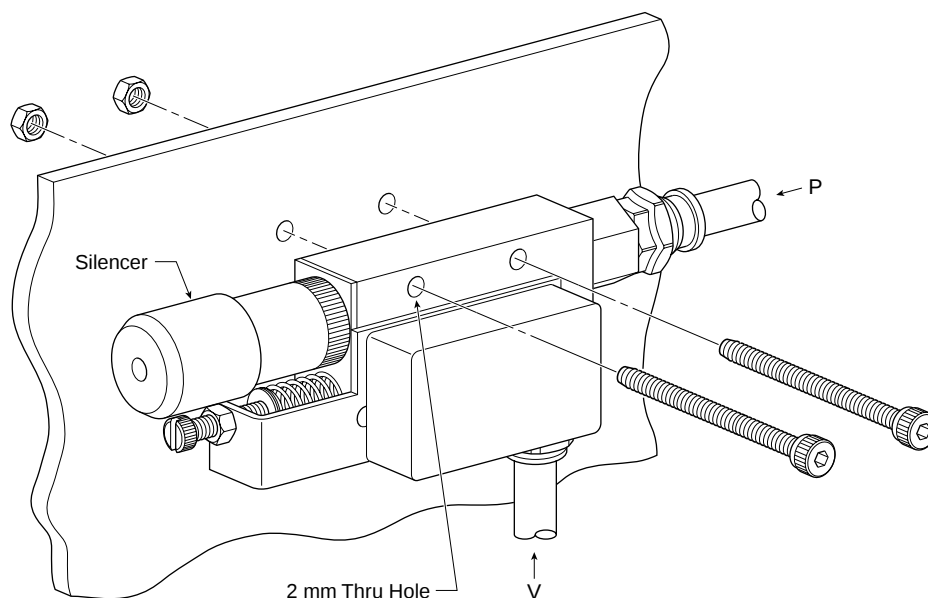
Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
CV05HSCKG CV05LSCKG	0,5	86 57	6 9,	13	119
CV10HSCKG CV10LSCKG	1,0	92 57	27 36	44	119
CV15HSCKG CV15LSCKG	1,5	92 57	63 95	100	190
CV20HSCKG CV20LSCKG	2,0	92 57	110 165	180	458

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure	Air Consumption	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CV-05HS	5	13	0,86	2,03	3,59	5,68	8,18	10,80	15,33	21,16	—
CV-05LS	5	13	0,39	0,83	1,41	2,28	3,90	—	—	—	—
CV-10HS	5	44	0,17	0,35	0,58	0,88	1,27	1,82	2,74	4,16	8,00
CV-10LS	5	44	0,13	0,27	0,46	0,72	1,17	—	—	—	—
CV-15HS	5	100	0,09	0,17	0,26	0,39	0,55	0,78	1,13	1,65	3,97
CV-15LS	5	100	0,07	0,11	0,18	0,27	0,43	—	—	—	—
CV-20HS	5	180	0,06	0,10	0,16	0,23	0,32	0,46	0,67	0,97	2,15
CV-20LS	5	180	0,05	0,09	0,13	0,21	0,40	—	—	—	—

Replacement Components

Item	Model Number	Generator
Silencer	MSS-01	CV05HS/LSCKG CV10HS/LSCKG
Silencer	MSM-01	CV15HS/LSCKG
Silencer	MSL-02	CV20HS/LSCKG
Mechanical Switch	CV-CK-SWITCH	CV05 thru 20



Installation

Install clip and secure CV-CK unit. Silencers are included with the CV-CK generator series. If a tube connector is selected for the exhaust port option, plumb the exhaust to an appropriate collector.

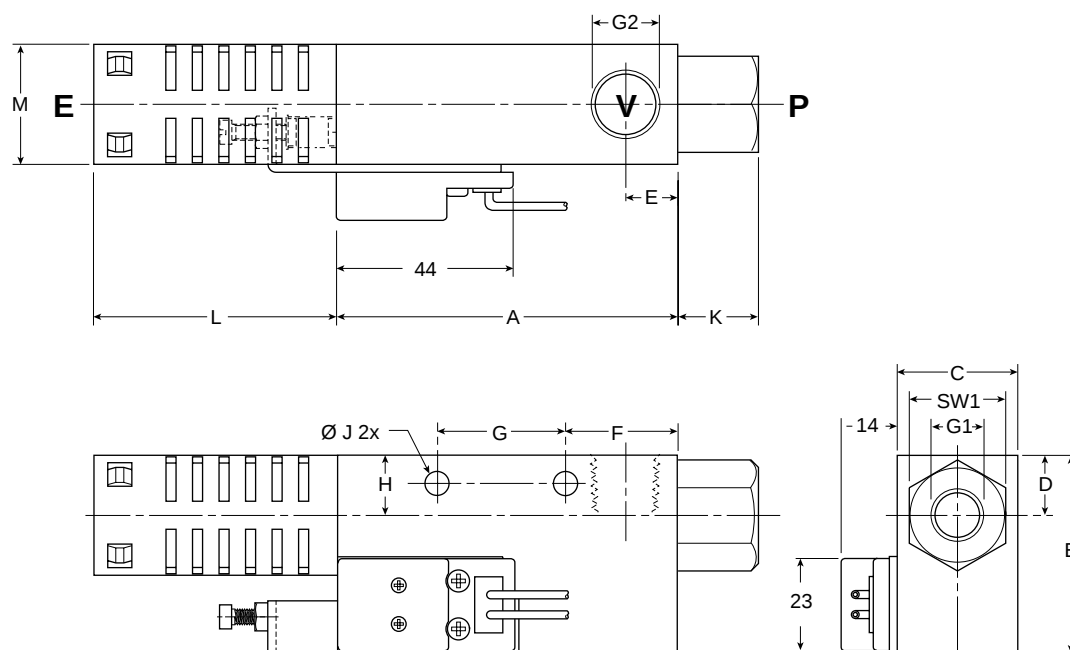
Cautions

Do not operate CV-CK generators outside the temperature range and pressures listed in the specifications section of this catalog.

All normally closed valve supply circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open valve supply circuit or an E-Stop system.

It is always recommended to dedicate one suction cup to a single CV-CK generator for the best response and maximize the vacuum level per individual cup. If more than one cup is used per generator, the vacuum level of the pick-and-place system may drop to an unsafe level if one of the pads separates from the product.

Dimensions



Item	A	B	C	D	E	F	G	H	J	K	L	M	G1	G2	SW1
CV05HS/LSCKG	45	33	16	10	8	14	20	4,5	4,2	10	36	18,5	BSPP 1/8	BSPP 1/8	14
CV10HS/LSCKG	45	33	16	10	8	14	20	4,5	4,2	10	36	18,5	BSPP 1/8	BSPP 1/8	14
CV15HS/LSCKG	63	35	20	11	10	20	25	5	4,5	15	45,5	20	BSPP 1/4	BSPP 1/4	17
CV20HS/LSCKG	85	40	30	15	13	28	32	7	6	20	60,5	30	BSPP 1/4	BSPP 3/8	24

Millimeter

CV-VR



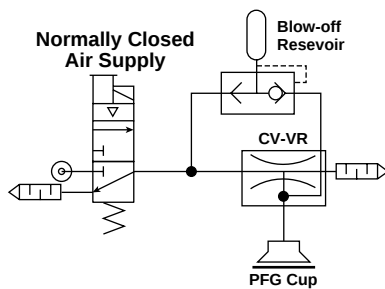
Features

- Auto Blow-off After Vacuum Cycle
- Rugged Aluminium Die Cast Construction
- Porting for Vacuum Sensor
- Porting for Additional Blow-off Flow Rate
- All Mechanical and Pneumatic
- Vacuum Flow Rate 60 l/min

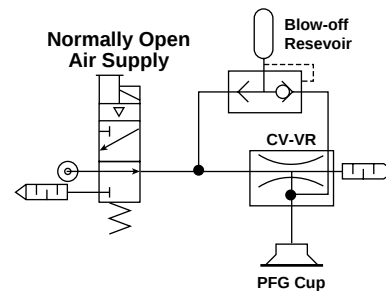
Characteristics

The CV-VR series venturi is perfect for applications that may require automatic blow-off capabilities for a totally pneumatic circuit; such as end of arm tooling or packaging applications. The CV-VR has a built-in reservoir that accumulates the blow-off release during the vacuum cycle. The blow-off release is immediate and automatic when the vacuum operation is discontinued.

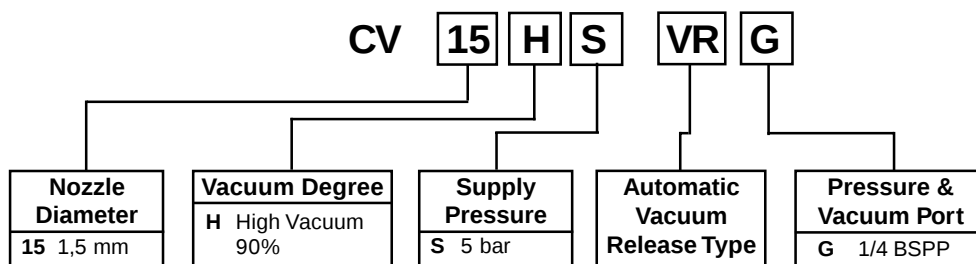
Energize the Normally Closed valve to initiate vacuum. When De-energized, accumulated blow-off pressure automatically releases the product.



Energize the Normally Open valve to Deactivate vacuum. When Energized, accumulated blow-off pressure automatically releases the product.



Model Number Index



Specifications

Media	Non-Lubricated Compressed Air, Non-Corrosive Gases
Operating Pressure	1 to 8 bar
Operating Temperature	0 to 50 °C
Material	Body: Die-Cast Aluminium Packing: NBR

Performance

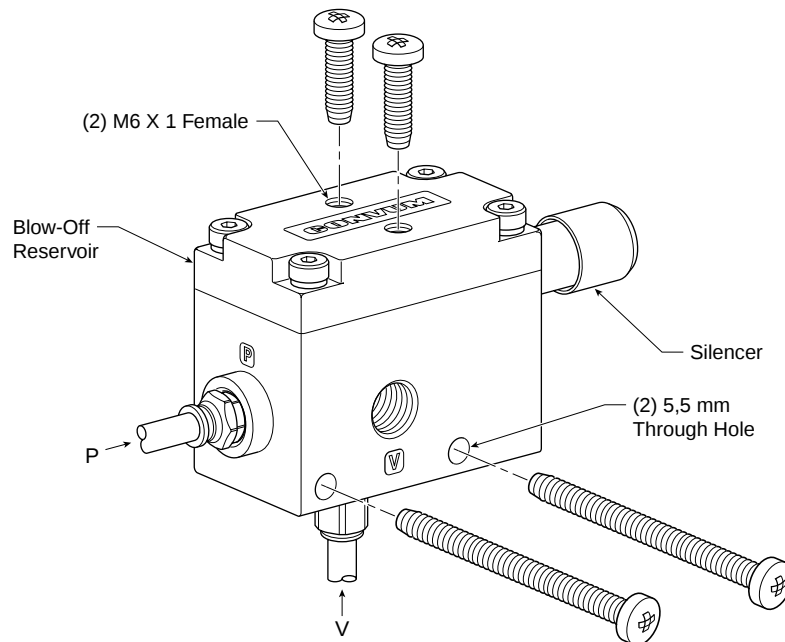
Item	Nozzle Diameter [mm]	Blow-off Time (s) 30cc Max.	Vacuum Degree at 5 bar	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
CV15HSVRG	1,5	0,20	0,92	63	100	253

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CV-15HS	5	100	0,09	0,17	0,26	0,39	0,55	0,78	1,13	1,65	3,97

Accessories

Item	Model Number	Generator
Silencer	MSM-01	CV15HSVRG



Installation

Secure the CV-VR unit. Silencers are not included with the CV-VR generator series. Silencers or exhaust mufflers must be ordered separately and properly installed to manage the exhaust created by the venturi. If a tube connector is selected for the exhaust port option, plumb the exhaust to an appropriate collector.

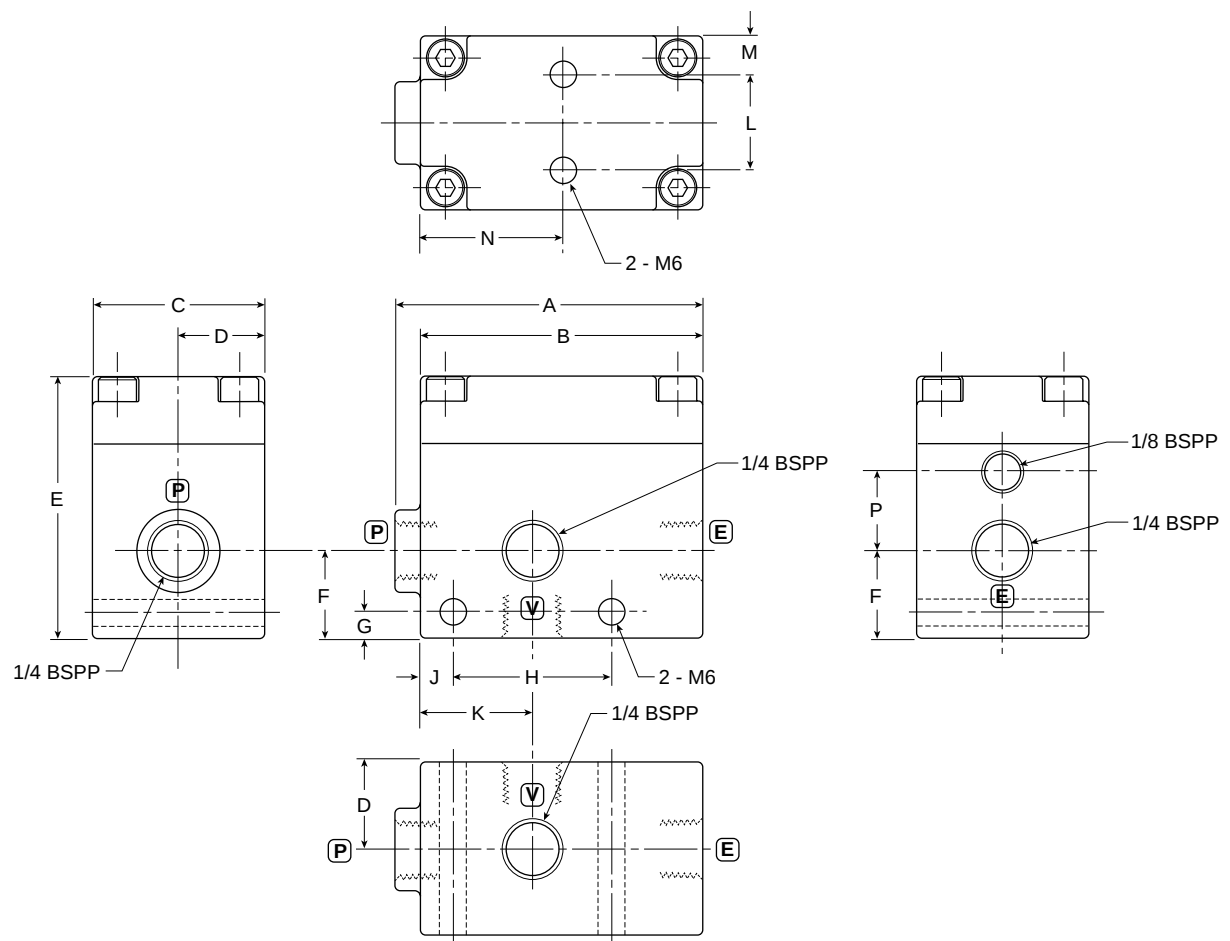
Cautions

Do not operate CV-VR generators outside the temperature range and pressures listed in the specifications section of this catalog.

All normally closed valve supply circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open valve supply circuit or an E-Stop system.

It is always recommended to dedicate one suction cup to a single CV-CR generator for the best response and maximize the vacuum level per individual cup. If more than one cup is used per generator, the vacuum level of the pick-and-place system may drop to an unsafe level if one of the pads separates from the product.

Dimensions



Item	A	B	C	D	E	F	G	H	J	K	L	M	N	P
CV15HSVRG	70	64	40	20	60	20	6	36	7	25	22	9	32	17,5

Millimeter

MC2

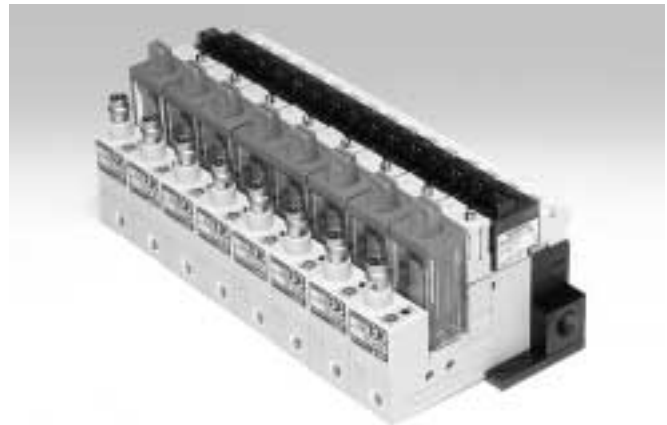


Features

- Vacuum Generating Pilot Valve
- Vacuum Blow-off Pilot Valve
- Vacuum Sensor - Filter - Silencer Available
- Regulating Blow-off Adjustment
- Manifold System
- Short Cycle Times for High Speed Pick and Place
- Vacuum Flow Rates from 6 to 20 l/min

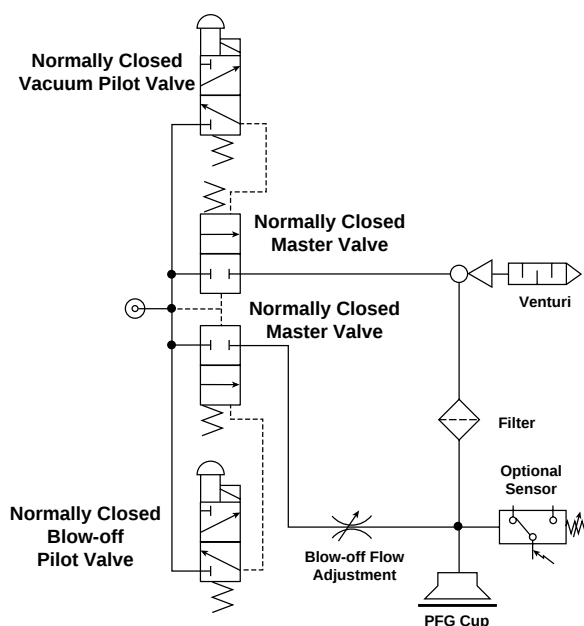
Characteristics

The MC2 is a complete package for factory automation. The MC2 has integrated vacuum generating and blow-off release pilot valves to minimize the response time to achieve vacuum. The small foot print and lightweight body allows the unit to be located close to the suction cup for maximum performance. The MC2 has additional features; regulating blow-off needle, 37 micron mesh filter, and a sensor platform for vacuum confirmation. The MC2 can be assembled into a maximum 8 station manifold. The unit can be ordered normally open or normally closed.



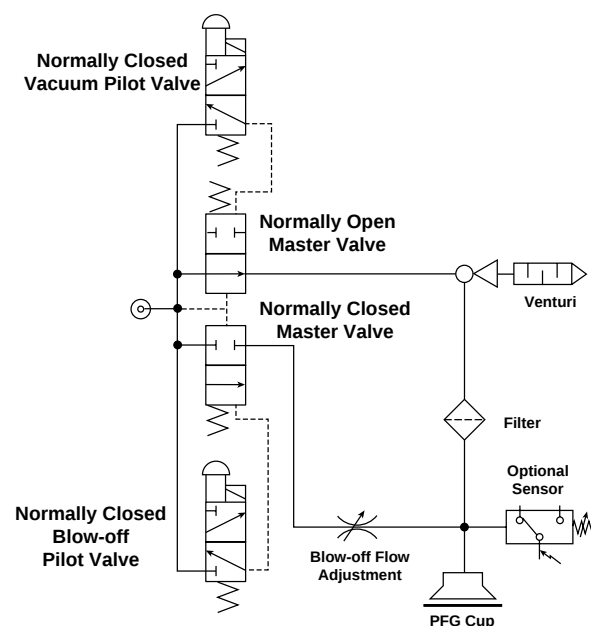
Normally Closed Vacuum Circuit

The Vacuum Pilot is Energized to Activate Vacuum

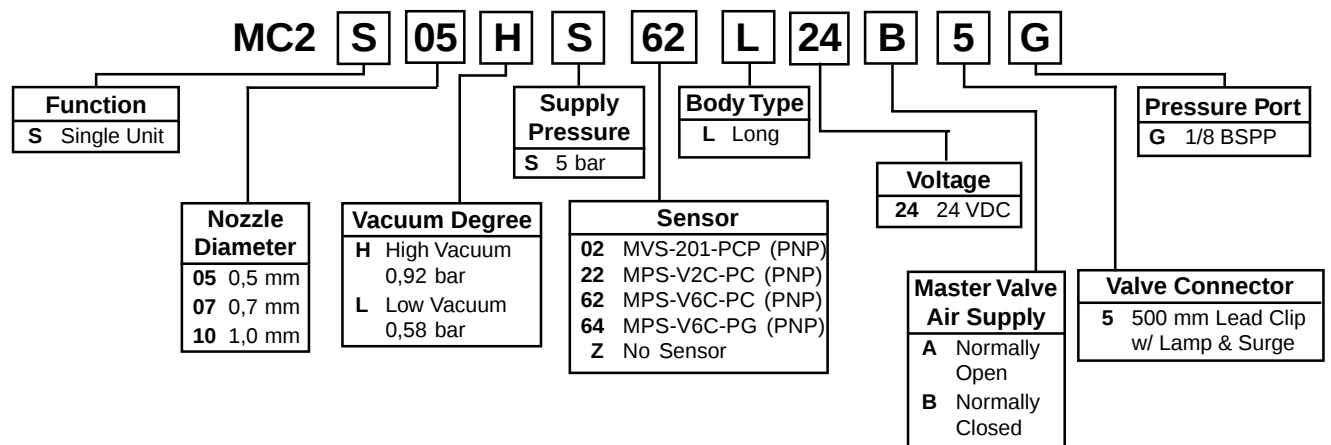


Normally Open Vacuum Circuit

The Vacuum Pilot is Energized to Deactivate Vacuum



Model Number Index



Specifications

Media	Non-Lubricated Compressed Air, Non-Corrosive Gases
Operating Pressure	1 to 6 bar
Optimum Operating Pressure	5 bar
Humidity	35 to 85%
Pressure Port	G: 1/8 BSPP Female
Vacuum Port	M5 Female
Operating Temperature	5 to 50 °C
Material	Aluminium, Polyamide, NBR

Vacuum Generating and Blow-off Release Pilot

Type of Control Valve	Pilot Valve
Manual Operation	Non-Locking Manual Override
Electrical Connection	Clip Type Connector with LED and Surge Protection
Power Supply	24 VDC ±10%
Power Consumption	0,6 W (0,7 W for Lamp Surge Killer Type)
Pressure Range	1 to 6 bar
Pilot Valve Air Supply	Normally Closed

Performance

Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
05HS	0,5	86	6	10	117
05LS	0,5	53	10	10	117
07HS	0,7	86	11	22,5	117
07LS	0,7	53	21	22,5	117
10HS	1,0	86	20	44	117

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
MC2-05HS	5	10	0,64	1,46	2,48	3,81	5,48	7,56	10,50	15,00	—
MC2-05LS	5	10	0,35	0,82	1,42	2,32	4,36	—	—	—	—
MC2-07HS	5	22,5	0,39	0,89	1,50	2,35	3,41	4,80	6,63	9,75	—
MC2-07LS	5	22,5	0,26	0,63	1,13	2,00	3,80	—	—	—	—
MC2-10HS	5	44	0,19	0,43	0,72	1,14	1,84	3,01	4,25	6,51	—

MC2 with MPS-6 Series



The “V6” sensor has one normally open and one normally closed NPN or PNP output available for vacuum confirmation. The MPS-6 sensor is a cost effective performer with an output response time less than 1 msec. and a nice adjustable 220 degree output range.

The “V6” sensor is available with an M8, 4-Pin or grommated (2M) electrical connector. The mating M8, 4-Pin cable is not included with the MPS-6 Sensor and must be ordered separately. See MC2 Accessories for cable options.

MC2 with MPS-2 Series



The “V2” sensor has 2 independent NPN or PNP outputs available for vacuum confirmation. Typical response times for the outputs with an average circuit is less than 50 msec. The output response time of this sensor is less than 2 msec.

The “V2” sensor is available with an M8, 4-Pin or grommated (2M) electrical connector. The mating M8, 4-Pin cable is not included with the MPS-2 Sensor and must be ordered separately. See MC2 Accessories for cable options.

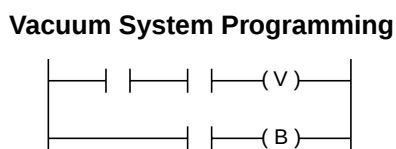
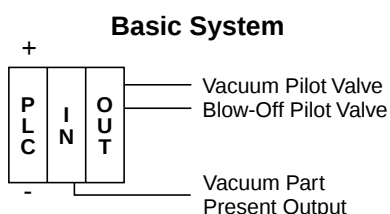
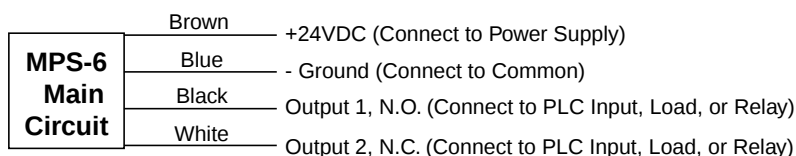
MC2 with MVS-201 Series



The “201” sensor has one output NPN or PNP for vacuum confirmation and a control output that interfaces directly with the blow-off release pilot valve. With programmable time control features and a special chip driver, the sensor automatically activates the blow-off release when the vacuum signal from the PLC is discontinued. This eliminates a PLC output to activate the blow-off release. This new technology reduces PLC output requirements by 50% and reduces installation to a simple 4 wire system. The output response of the sensor is less than 2 msec.

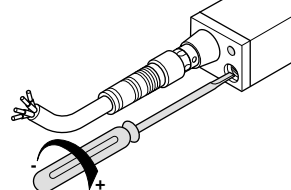
The “201” sensor is available with an M8, 4-Pin electrical connector. The MC2-201 valve cable and the mating M8, 4-Pin cable are not included with the MVS-201 Sensor and must be ordered separately. See MC2 Accessories for cable options.

MC2 with MPS-6 Series

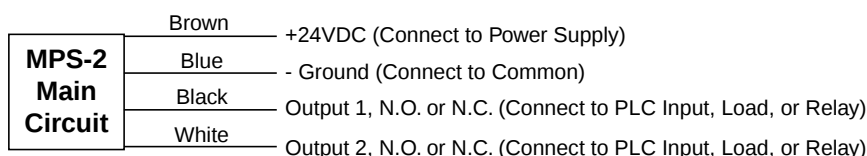


Output Adjustment

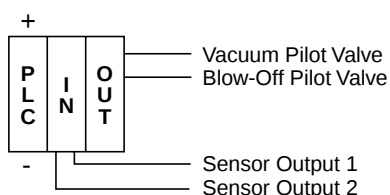
Rotate the potentiometer trimmer to increase or decrease pressure switch point output. Excessive force or exceeding the limits of the trimmers may cause damage.



MC2 with MPS-2 Series

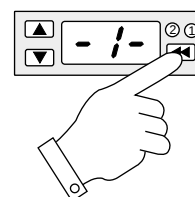


Basic System

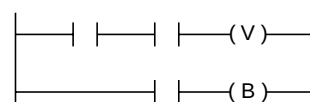


Output Adjustment

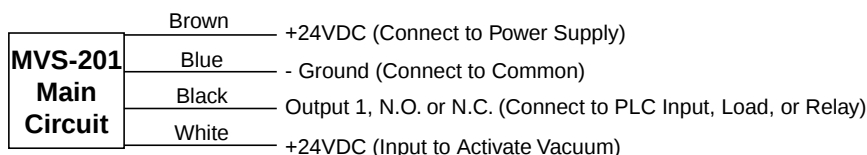
Sensor functions and outputs are programmed by touch panel.



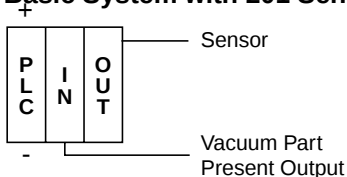
Vacuum System Programming



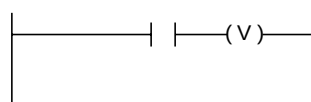
MC2 with MVS-201 Series



Basic System with 201 Sensor

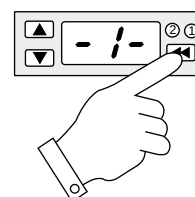


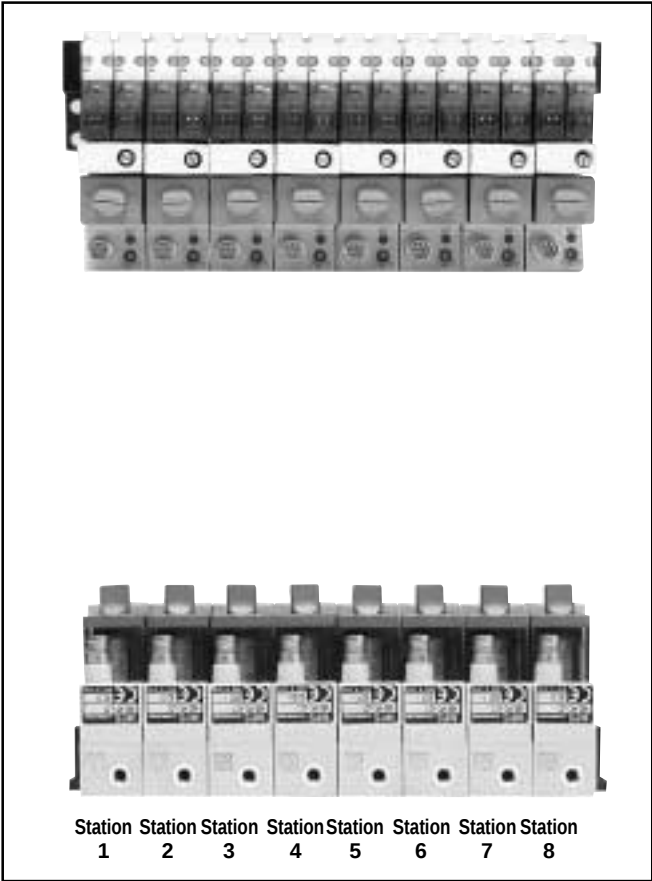
Vacuum System Programming



Output Adjustment

Sensor functions and outputs are programmed by touch panel.





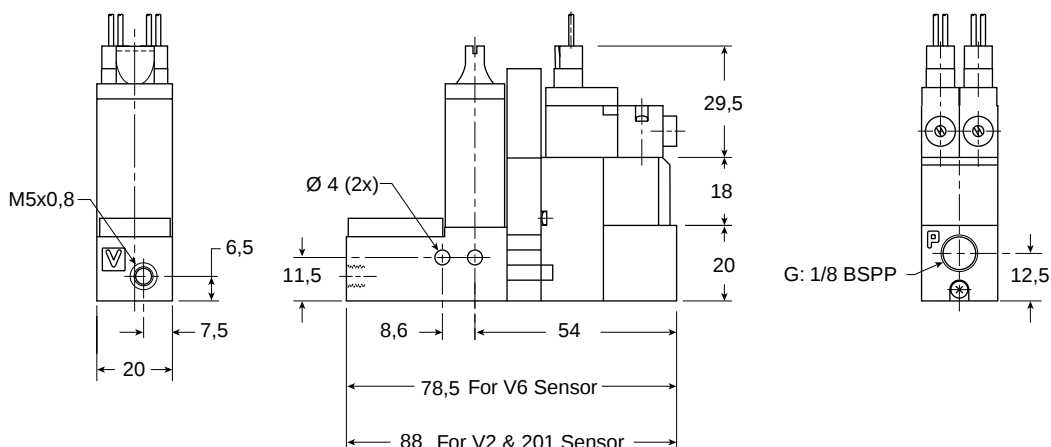
Manifold Part Number

MC2 - M **2** **G**

Stations
2
3
4
5
6
7
8

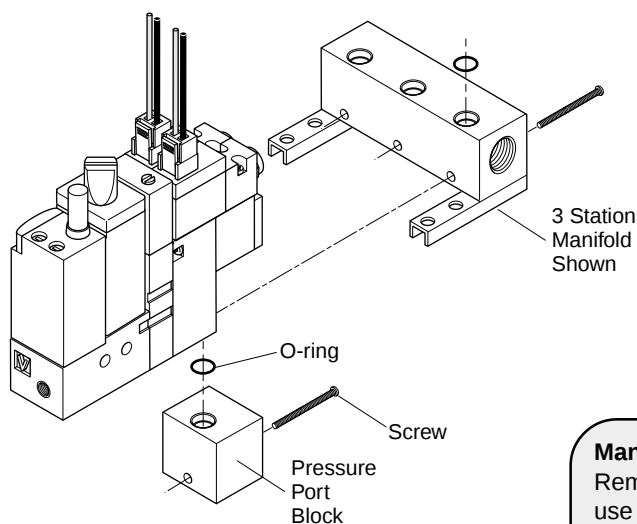
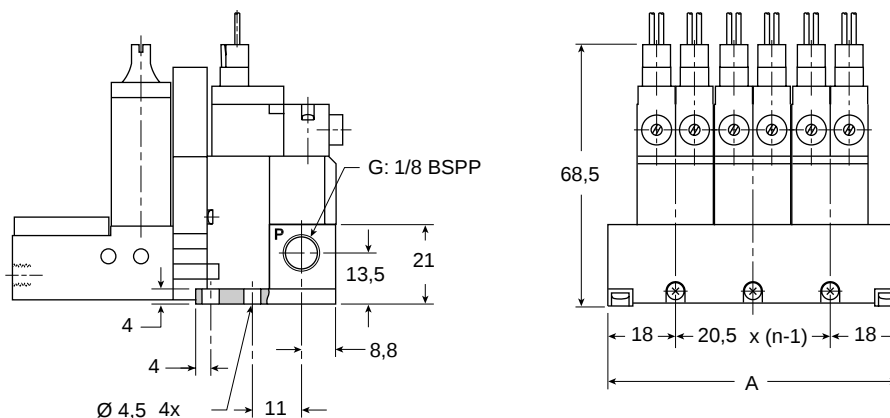
Port Size
G 1/8 BSPP

Generator



Manifold

3-Station Manifold Shown



Manifold Assembly

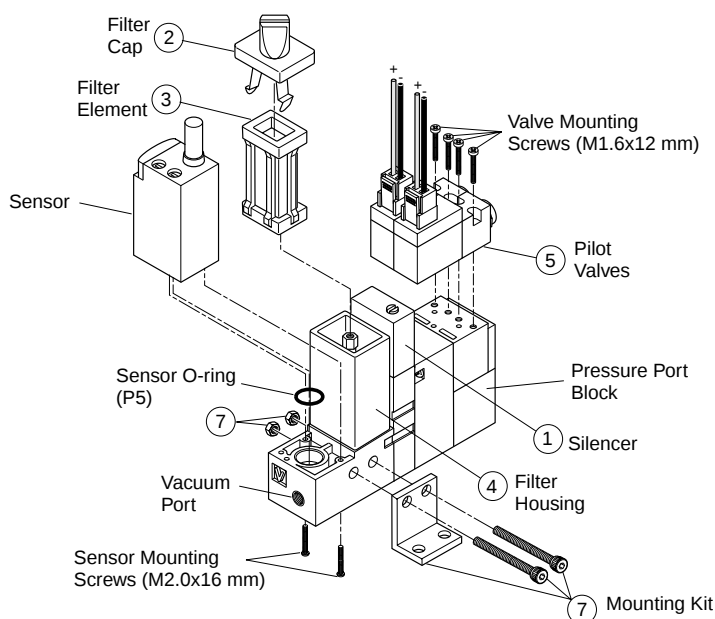
Remove Pressure Port Block and use existing O-ring and Screw to secure the MC2 unit to the Manifold.

n	2	3	4	5	6	7	8
A	56,5	77	97,5	118	138,5	159	179,5

Millimeter
n = Number of Stations

Replacement Components

Item	Part Number	Description
1	MC2-S	Silencer
2, 3, 4	MC2-F	Filter Kit
3	MC2-E	Filter Element
5	MC2-24B	N.C. Pilot Valve
7	MC2-B	Mounting Kit



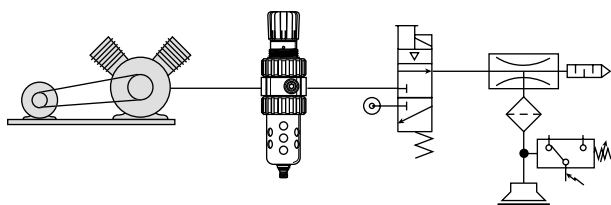
Cautions

Do not use or expose the MC2 with fluids or corrosive gases. Vacuum Venturi's are designed to be used with non-lubricated, non-corrosive, compressed air.

Do not operate MC2 generators outside the temperature range and pressures listed in the specifications section of this catalog. Regulate the compressed air to 4,8 bar and filtrate with a maximum 40 micron filter. Non-lubricated compressed air will maintain the life and vacuum level of the generator.

Check the insulation of all lead wires after installation to avoid shorts. Properly secure all lead wires to avoid stress or repeated movement that may fray lead wires.

Some electrical components are diode or zener diode protected. When installing solenoids and sensors, check the polarity of the component before applying power. Apply the appropriate voltage to the solenoids and sensors. Inappropriate voltage, shorts, or surges may damage the circuitry.

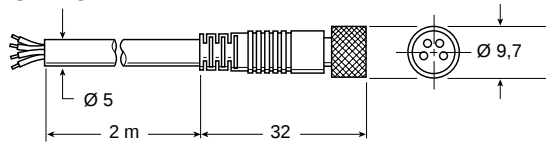


All normally closed vacuum circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open vacuum circuit.

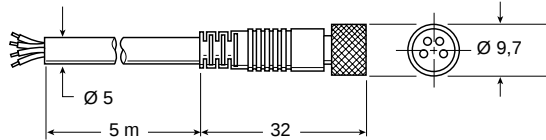
Accessories

Sensor Cables

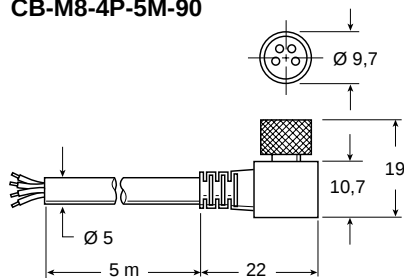
CB-M8-4P-2M



CB-M8-4P-5M



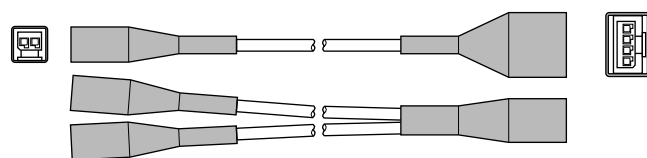
CB-M8-4P-5M-90



Valve Cable

(Connects Sensor to Vacuum & Blow-off Release Pilot Valves)

MC2-C201G



CVK

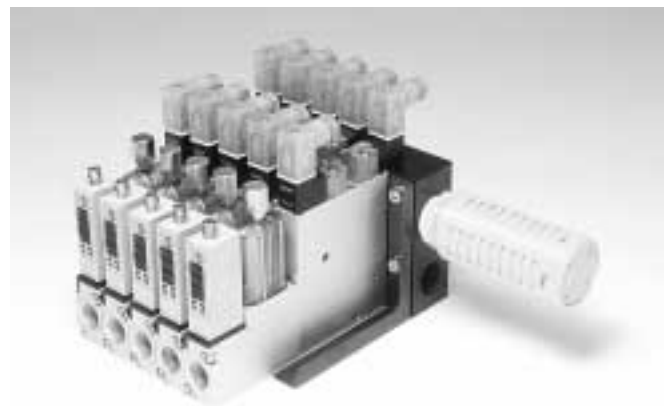


Features

- Vacuum Generating Pilot Valve
- Vacuum Release Pilot Valve Option
- Vacuum Sensor - Filter - Silencer Available
- Regulating Blow-off
- Check Valve Option
- Air-Economizing Controls
- Manifold System
- Vacuum Flow Rates from 60 to 130 l/min

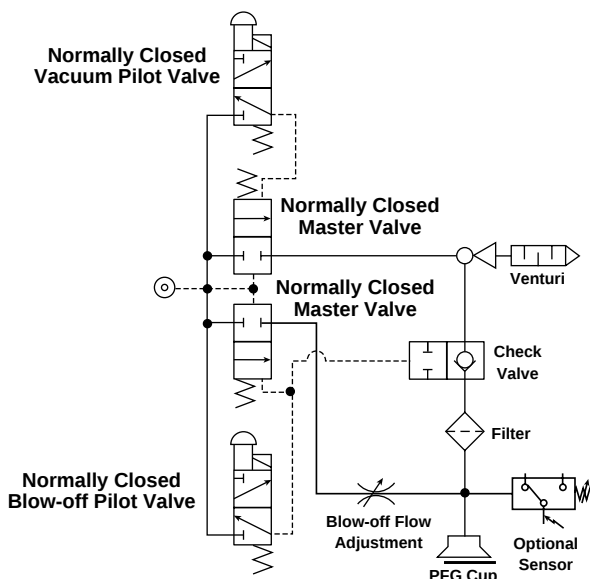
Characteristics

The CVK Series vacuum generator provides a complete solution for factory automation. The CVK is perfect for non-porous applications such as material handling, critical applications involving glass, or general transfer applications. The CVK has integrated vacuum pilot and blow-off release pilot valves to minimize response times. The CVK has additional features; regulating blow-off needle, 130 micron filter, optional check valve, and a sensor platform for vacuum confirmation. The CVK can be assembled into a maximum 5 station manifold. The unit can be ordered normally open or normally closed.



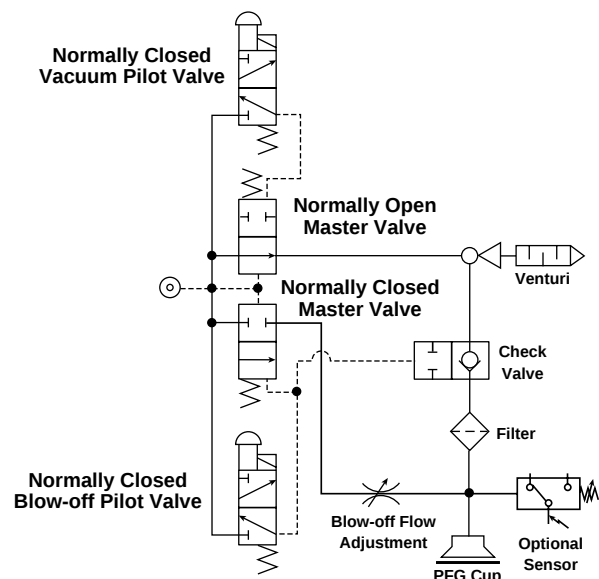
Normally Closed Vacuum Circuit

The Vacuum Pilot is Energized to Activate Vacuum

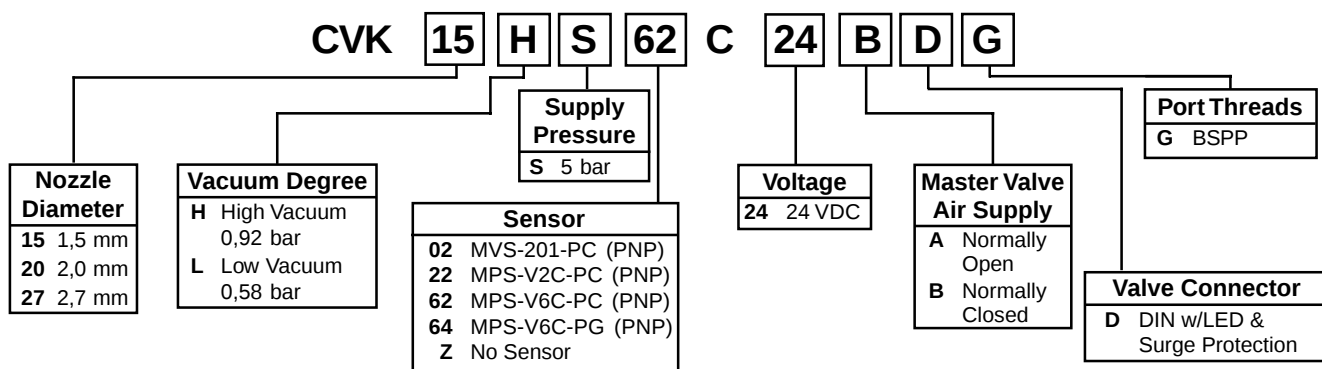


Normally Open Vacuum Circuit

The Vacuum Pilot is Energized to Deactivate Vacuum



Model Number Index



Specifications

Media	Non-Lubricated Compressed Air, Non-Corrosive Gases
Optimum Operating Pressure	5 bar
Humidity	35 to 85%
Pressure Port	G: 1/4 BSPP Female
Vacuum Port	G: 3/8 BSPP Female
Operating Temperature	5 to 50 °C
Material	Aluminium, Brass, NBR
Manifold Weight	2-Station: 680 g, 3-Station: 880 g, 4-Station: 1080 g, 5-Station: 1280 g

Vacuum Pilot and Blow-off Release Pilot

Type of Control Valve	Pilot Valve
Manual Operation	Non-Locking Manual Override
Electrical Connection	DIN Connector with LED and Surge Protection
Power Supply	24 VDC ± 10%
Power Consumption	1,8 W
Operating Pressure	5 bar
Pilot Valve Air Supply	Normally Closed

Performance

Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
15HS	1,5	90	60	100	750
15LS	1,5	57	90	100	750
20HS	2,0	90	95	180	750
20LS	2,0	57	130	180	750
27HS	2,7	90	125	295	750

Evacuation Time

Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CVK-15HS	5	100	0,08	0,17	0,28	0,44	0,65	0,93	1,43	2,20	6,70
CVK-15LS	5	100	0,04	0,10	0,19	0,33	0,59	—	—	—	—
CVK-20HS	5	180	0,04	0,09	0,16	0,27	0,43	0,66	1,06	1,89	4,60
CVK-20LS	5	180	0,03	0,08	0,15	0,27	0,55	—	—	—	—
CVK-27HS	5	295	0,02	0,07	0,12	0,20	0,30	0,47	0,70	1,49	—

CVK with MPS-6 Series



The “V6” sensor has one normally open and one normally closed NPN or PNP output available for vacuum confirmation. The MPS-6 sensor is a cost effective performer with an output response time less than 1 msec. and a nice adjustable 220 degree output range.

The “V6” sensor is available with an M8, 4-Pin or grommated (2M) electrical connector. The mating M8, 4-Pin cable is not included with the MPS-6 Sensor and must be ordered separately. See CVK Accessories for cable options.

CVK with MPS-2 Series



The “V2” sensor has 2 independent NPN or PNP outputs available for vacuum confirmation. Typical response times for the outputs with an average circuit is less than 50 msec. The output response time of this sensor is less than 2 msec.

The “V2” sensor is available with an M8, 4-Pin or grommated (2M) electrical connector. The mating M8, 4-Pin cable is not included with the MPS-2 Sensor and must be ordered separately. See CVK Accessories for cable options.

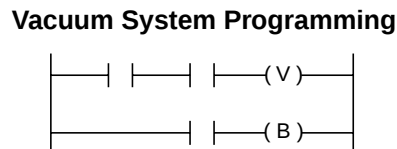
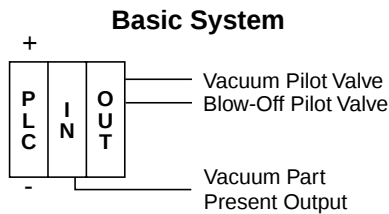
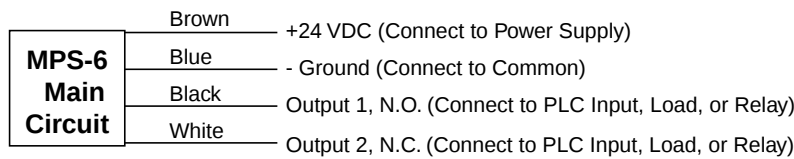
CVK with MVS-201 Series



The “201” sensor has one output NPN or PNP for vacuum confirmation and a control output that interfaces directly with the blow-off release pilot valve. With programmable time control features and a special chip driver, the sensor automatically activates the blow-off release when the vacuum signal from the PLC is discontinued. This eliminates a PLC output to activate the blow-off release. This new technology reduces PLC output requirements by 50% and reduces installation to a simple 4 wire system. The output response of the sensor is less than 2 msec.

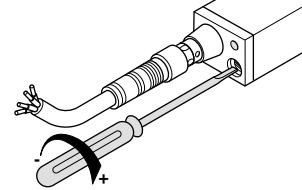
The “201” sensor is available with an M8, 4-Pin electrical connector. The MC2-201 valve cable and the mating M8, 4-Pin cable are not included with the MVS-201 Sensor and must be ordered separately. See CVK Accessories for cable options.

CVK with MPS-6 Series

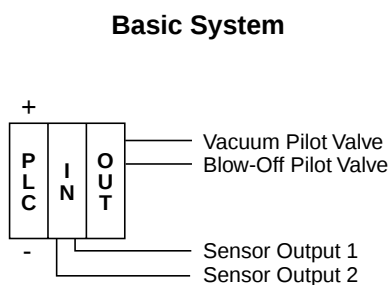
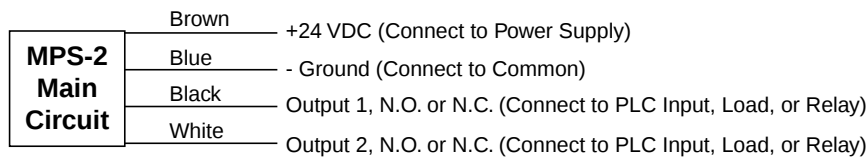


Output Adjustment

Rotate the potentiometer trimmer to increase or decrease pressure switch point output. Excessive force or exceeding the limits of the trimmers may cause damage.

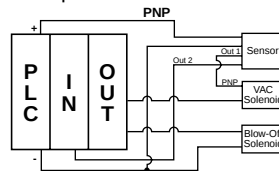


CVK with MPS-2 Series



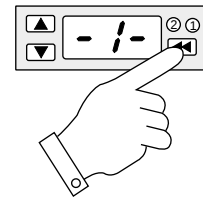
Air-Economizing System

N.C. Output 1 - Air Economizing
N.O. Output 2 - Part Present Output

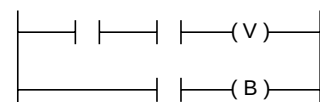


Output Adjustment

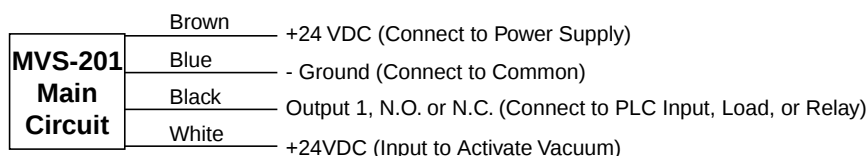
Sensor functions and outputs are programmed by touch panel.



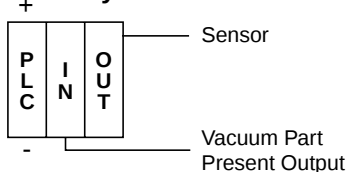
Vacuum System Programming



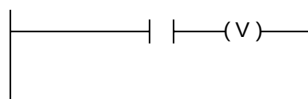
CVK with MVS-201 Series



Basic System with 201 Sensor

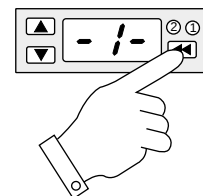


Vacuum System Programming



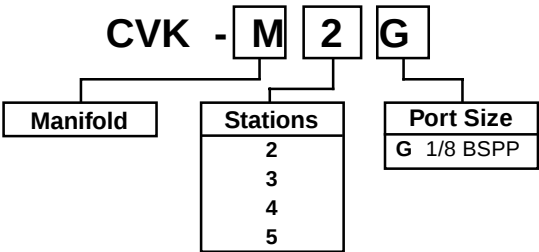
Output Adjustment

Sensor functions and outputs are programmed by touch panel.

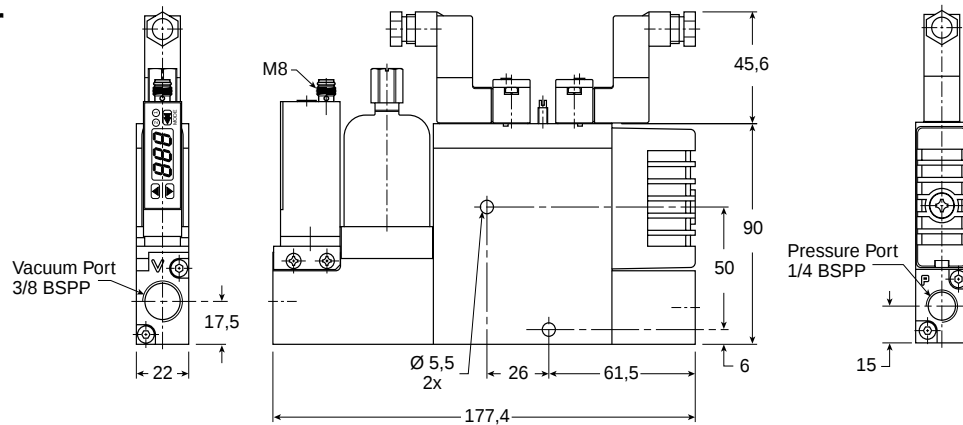




Manifold Block

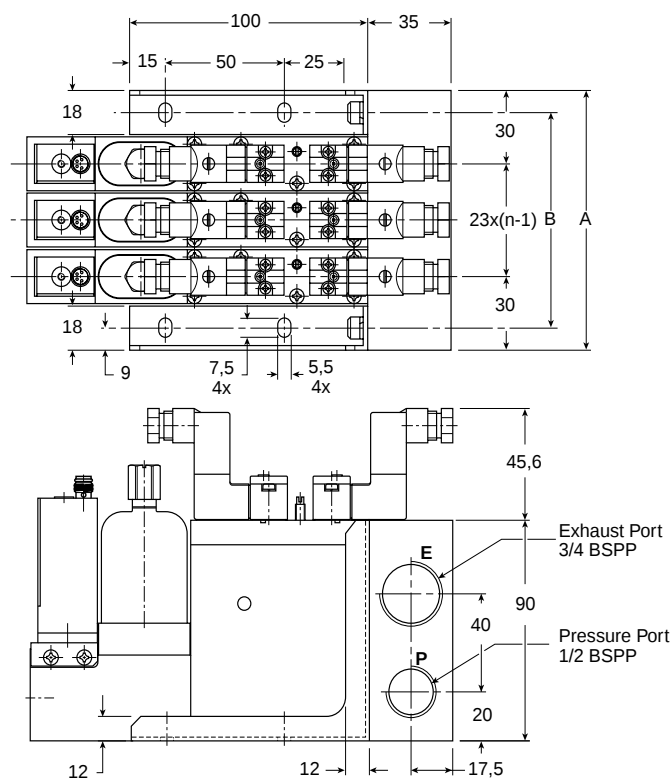


Generator



Manifold

3-Station Manifold Shown



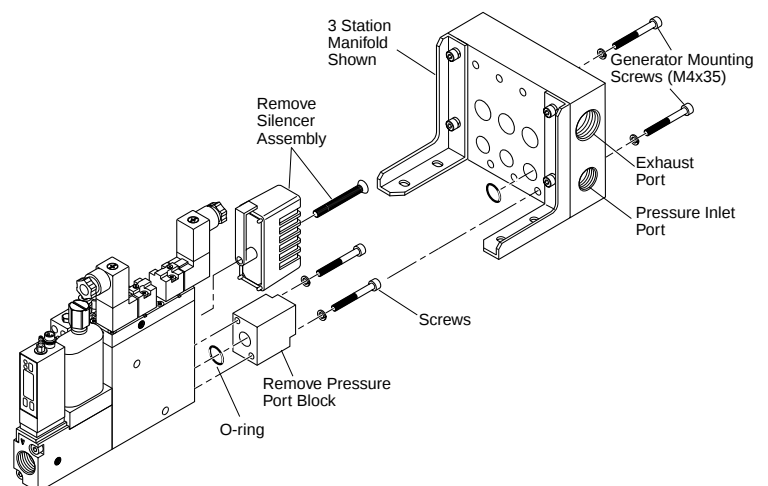
Manifold Assembly

Remove Pressure Port Block and Silencer Assembly. Use existing O-rings and Manifold Mounting Screws to secure the CVK unit to the Manifold.

n	2	3	4	5
A	83	106	129	152
B	65	88	111	134

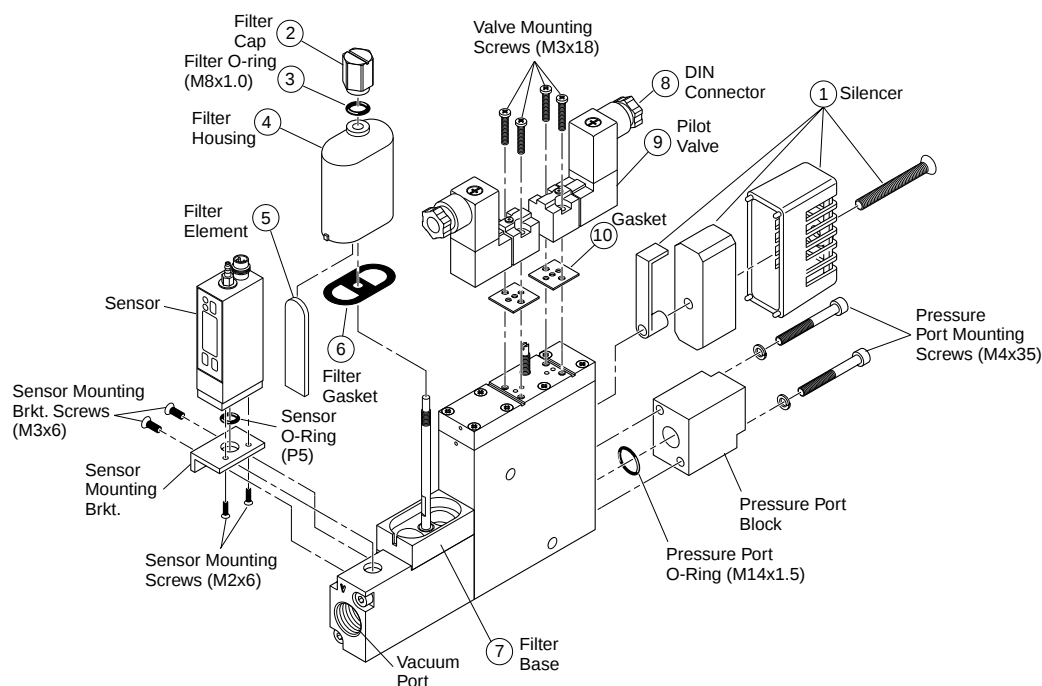
Millimeter

n = Number of Stations



Replacement Components

Item	Part Number	Description
1	CVK-S	Silencer
2 thru 7	CVK-F	Filter Kit
5	CVK-E	Filter Element
8, 9, 10	CVK-24D	Pilot Valve Kit



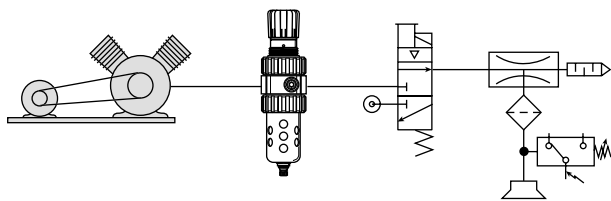
Cautions

Do not use or expose the CVK with fluids or corrosive gases. Vacuum Venturi's are designed to be used with non-lubricated, non-corrosive, compressed air.

Do not operate CVK generators outside the temperature range and pressures listed in the specifications section of this catalog. Regulate the compressed air to 4,8 bar and filtrate with a maximum 40 micron filter. Non-lubricated compressed air will maintain the life and vacuum level of the generator.

Check the insulation of all lead wires after installation to avoid shorts. Properly secure all lead wires to avoid stress or repeated movement that may fray lead wires.

Some electrical components are diode or zener diode protected. When installing solenoids and sensors, check the polarity of the component before applying power. Apply the appropriate voltage to the solenoids and sensors. Inappropriate voltage, shorts, or surges may damage the circuitry.

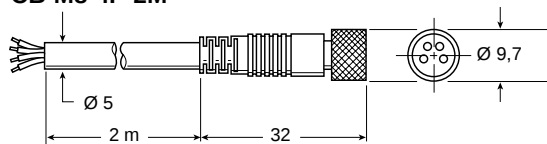


All normally closed vacuum circuits will interrupt the air supply to the venturi during a power failure or E-Stop condition. As a result, the product being transferred may be dropped, possibly creating a hazard to the surrounding environment. To avoid hazardous situations during a power loss or E-Stop condition, consider a normally open vacuum circuit.

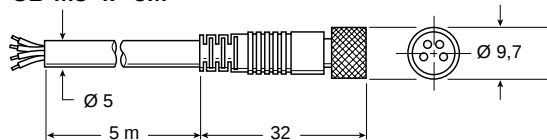
Accessories

Sensor Cables

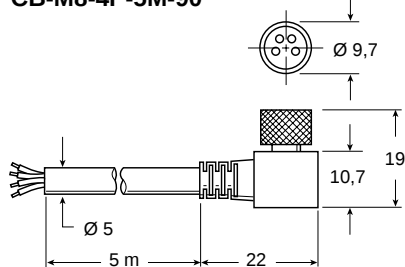
CB-M8-4P-2M



CB-M8-4P-5M



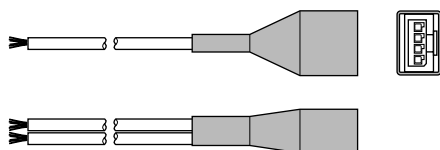
CB-M8-4P-5M-90



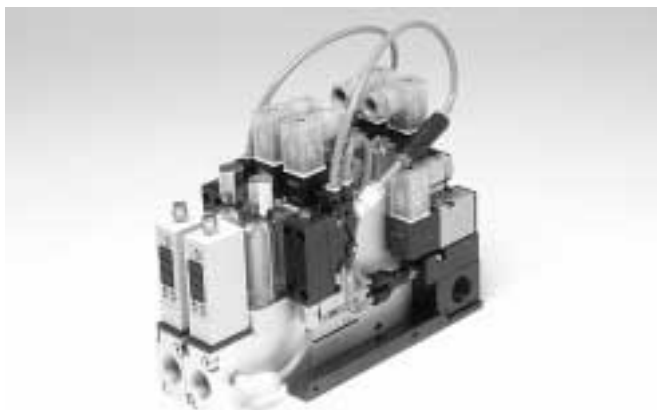
Valve Cable

(Connects Sensor to Vacuum & Blow-off Release Pilot Valves)

CVK-D201G



CVX-0260B E-Stop



Features

- Optional DeviceNet™ Communication
- E-Stop Operating System (Patented)
- Eliminates All Unnecessary Air Consumption
- Fast Sensor and Vacuum Flow Response Times
- Large Vacuum Flow Rates
- Independent Vacuum Channels

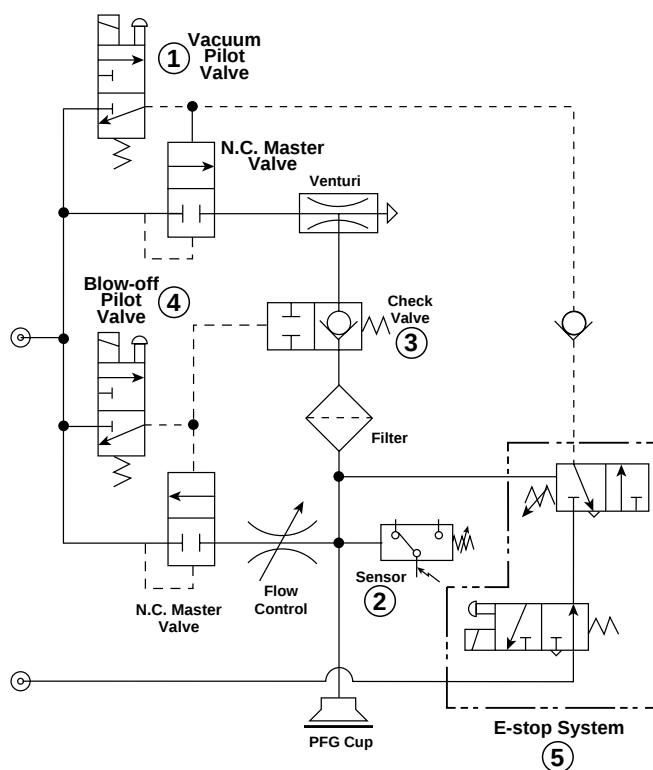
Characteristics

The CVX-0260B is a CVK package with the ultimate air circuit for all of your material handling systems. The CVX-0260B is ideal for non-porous applications that require fast response of large vacuum and blow-off release flow rates, E-Stop Management System, optional air-economizing features, and device net communication. The E-Stop Management System can operate a normally closed system during an E-Stop or power failure situation. Typically, with a normally closed air circuit, the user controls the vacuum with a command signal. During an E-stop or power failure event, the vacuum command signal is lost, but, the system can detect the presence of a part and continue to operate in the vacuum mode. If the system detects that a part is not present, each vacuum channel, operating independently, will close to eliminate any unnecessary air consumption. Additional air economizing features are controlled by the sensor outputs to make this unit the ultimate weapon against air consumption.

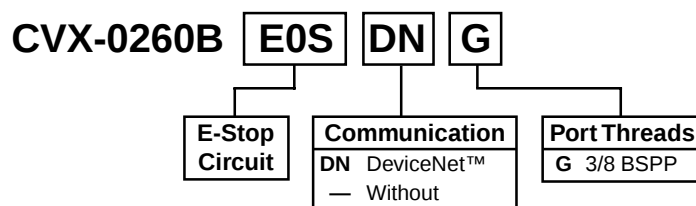
There are 4 separate states of air logic: vacuum, blow-off, idle, and EOS. The air circuit to the right illustrates a basic normally closed unit with the E-Stop operating system. Vacuum is created when a high signal is sent to Vacuum Pilot Valve (1). The output of the vacuum Sensor (2), controls the vacuum level and air economizing function by feedback to the Vacuum Solenoid Valve (1). The Check Valve (3) maintains the vacuum level until the Blow-off Pilot Valve (4) is activated to release or the hysteresis value of Sensor (2) is reached to restore the original vacuum level. The E-Stop operating system (5) is activated by an E-Stop or power failure.

Vacuum Controlled E-Stop Circuit

The Vacuum Pilot is Energized to Activate Vacuum. The E-Stop Management System can maintain the last state of air during E-Stop or power failure.



Model Number Index



Specifications

CVX-0260B Specifications	
Media	Non-lubricated Compressed Air, Dry Air
Pressure Port	G
Vacuum Ports	G Ports
Operating Temperature	0 to 55 °C
Humidity	35 to 85% R.H.
Operating Pressure	5 bar
Vacuum Filtration	130 µm
Noise Level	72 dB
Air Consumption	295 l/min
Vacuum Flow	125 l/min
Sensor Response Time	< 2 msec
Maximum Vacuum Level	-0,92 bar
Cover	300 Series 22 Gauge Stainless Steel

Control Valve Specifications	
3-Way	Pilot Valves
Manual Operation	Manual Overrides Available
Electrical Connector	DIN type w/LED and Diode Protection, IP65 Rating
Power Supply	24 VDC ± 10%
Power Consumption	1,8 W
Pressure Range	1,5 to 10 bar
Pilot Valve Air Supply	Normally Closed
Mass	57 g

E-Stop Operating System Specifications	
Two-Way Valve	Diaphragm Actuated, Pneumatic Output
Media	Non-lubricated Air, Dry Air
Switch Point Pressure	0,3 bar
Operating Range	-0,15 to -0,85 bar Vacuum
Pressure Through-put Range	1,51 to 8 bar
Accuracy	± 0,05 bar
Port Connection	M5 Female
Air Supply	Normally Closed
Mass	34 g

Aux. Power Electrical Valve Specifications	
3-Way Valve	Direct Acting
Media	Compressed Air, Non-lubricated
Operating Range	0 to 7,03 bar
Electrical Connection	DIN Connector w/LED and Diode Protection, IP65
Operating Voltage	24 VDC ± 10%
Power Consumption	1,8 W
Current	0,075 A
Air Supply	Normally Open
Mass	61 g

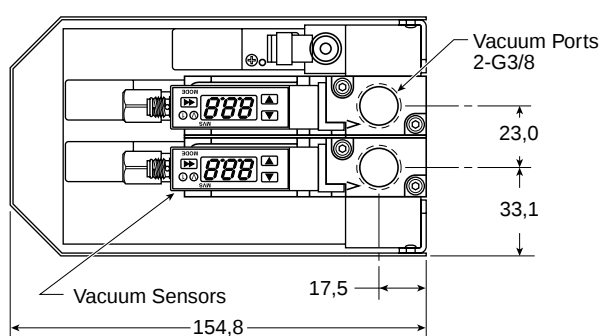
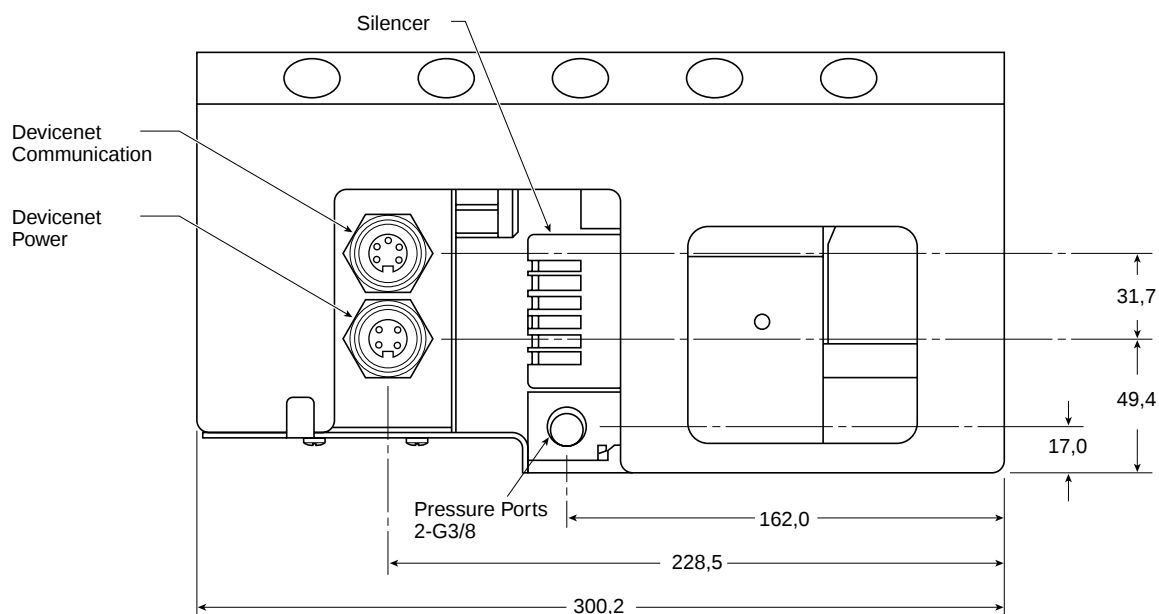
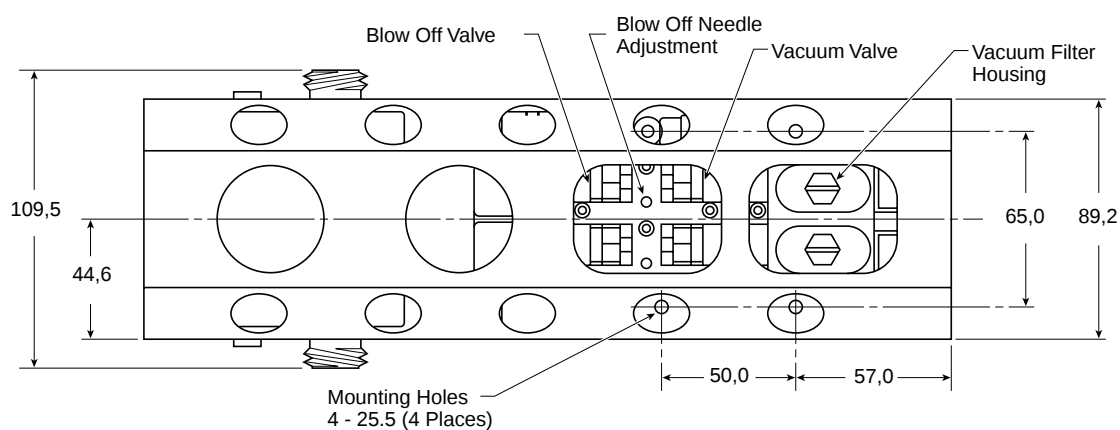
Check Valve Specifications	
One Way	One Way Spring Return
Operating Pressure	-0,9 to 16 bar
Mass	10 g

Performance

Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
27HS	2,7	90	125	295	748

Evacuation Time

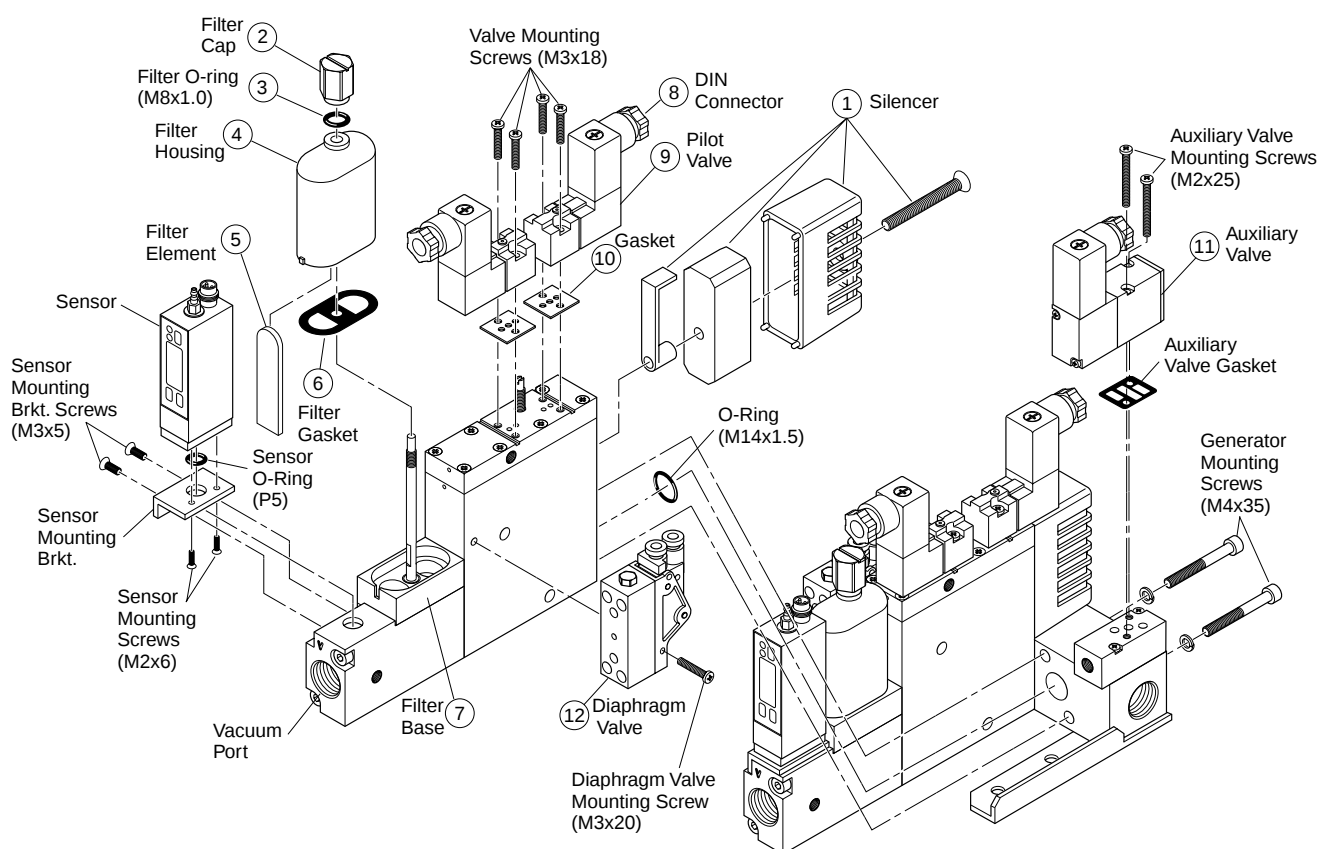
Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CVX-27HS	5	295	0,02	0,07	0,12	0,20	0,30	0,47	0,70	1,49	—



Replacement Components

Item	Part Number	Description
1	CVK-S	Silencer
2 thru 7	CVK-F	Filter Kit
5	CVK-E	Filter Element
8, 9, 10	CVK-24D	Pilot Valve Kit

B



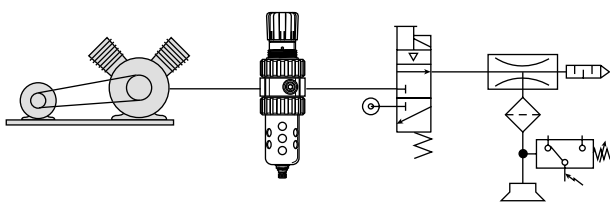
Cautions

Do not use or expose the CVX with fluids or corrosive gases. Vacuum Venturi's are designed to be used with non-lubricated, non-corrosive, compressed air.

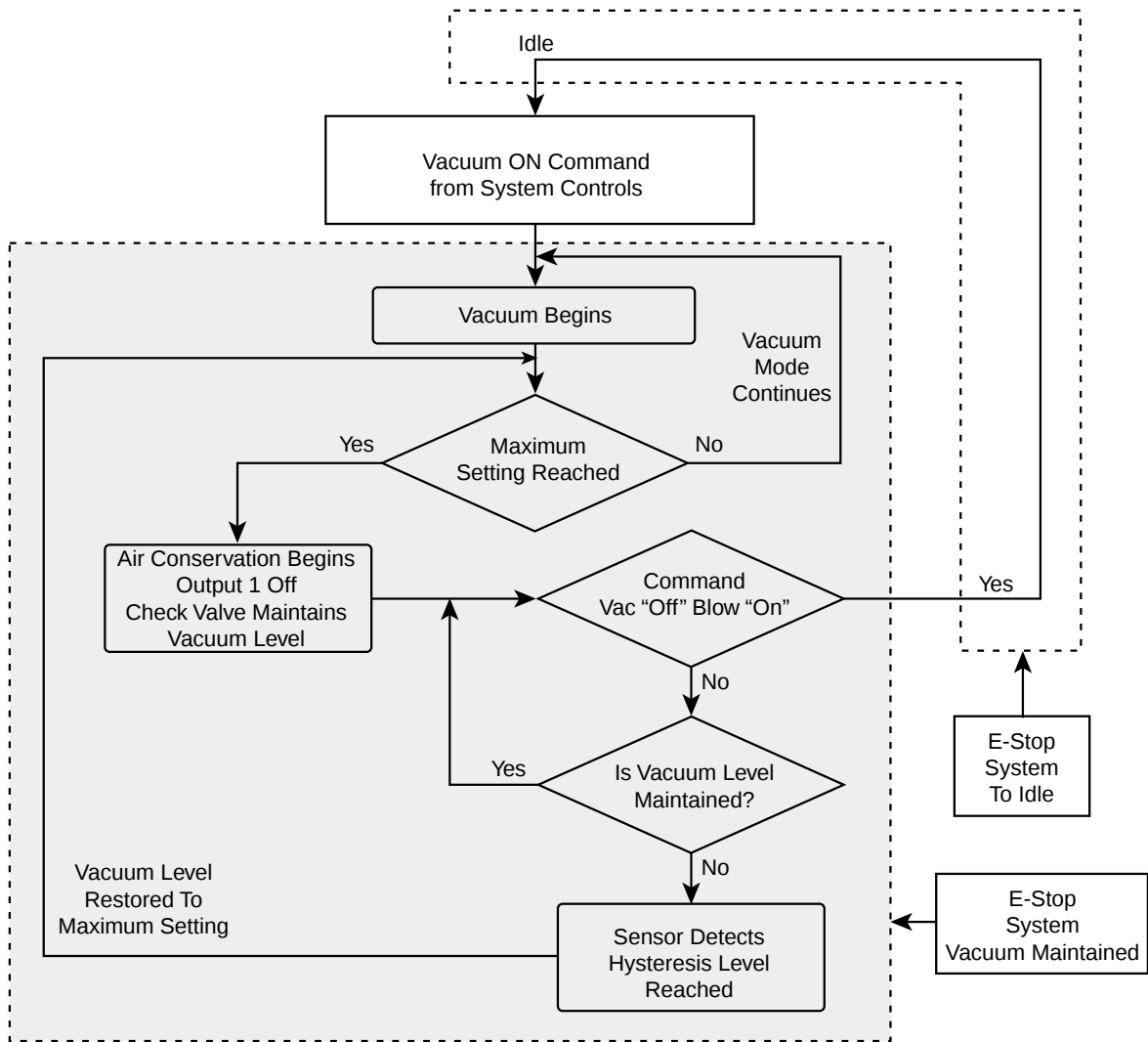
Do not operate CVX generators outside the temperature range and pressures listed in the specifications section of this catalog. Regulate the compressed air to 4,8 bar and filtrate with a maximum 40 micron filter. Non-lubricated compressed air will maintain the life and vacuum level of the generator.

Check the insulation of all lead wires after installation to avoid shorts. Properly secure all lead wires to avoid stress or repeated movement that may fray lead wires.

Some electrical components are diode or zener diode protected. When installing solenoids and sensors, check the polarity of the component before applying power. Apply the appropriate voltage to the solenoids and sensors. Inappropriate voltage, shorts, or surges may damage the circuitry.



CVX-0260-B - System Logic



CVX-0260-B - E-Stop Operating System (EOS)

The E-Stop Operating System is designed to maintain the last state of operation when an E-stop or power failure occurs.

The chart below illustrates the state of operation in different modes.

Modes	Vacuum On	Vacuum Off	Blow-Off	EOS
Normal Conditions	Air-economizing between 0,61-0,54 bar	Idle	Blow-Off On Blow-Off Idle	EOS Off
Emergency-Stop, Power Failure, Loss of DeviceNet™ Communications or Power	Vacuum On ↓ ↓ ↓ Vacuum On	Idle	Blow-Off	EOS On
			On or Idle ↓ ↓ ↓ Idle	
Restore Power	Vacuum On Air-economizing Function Resumes	Idle	Idle	EOS Off

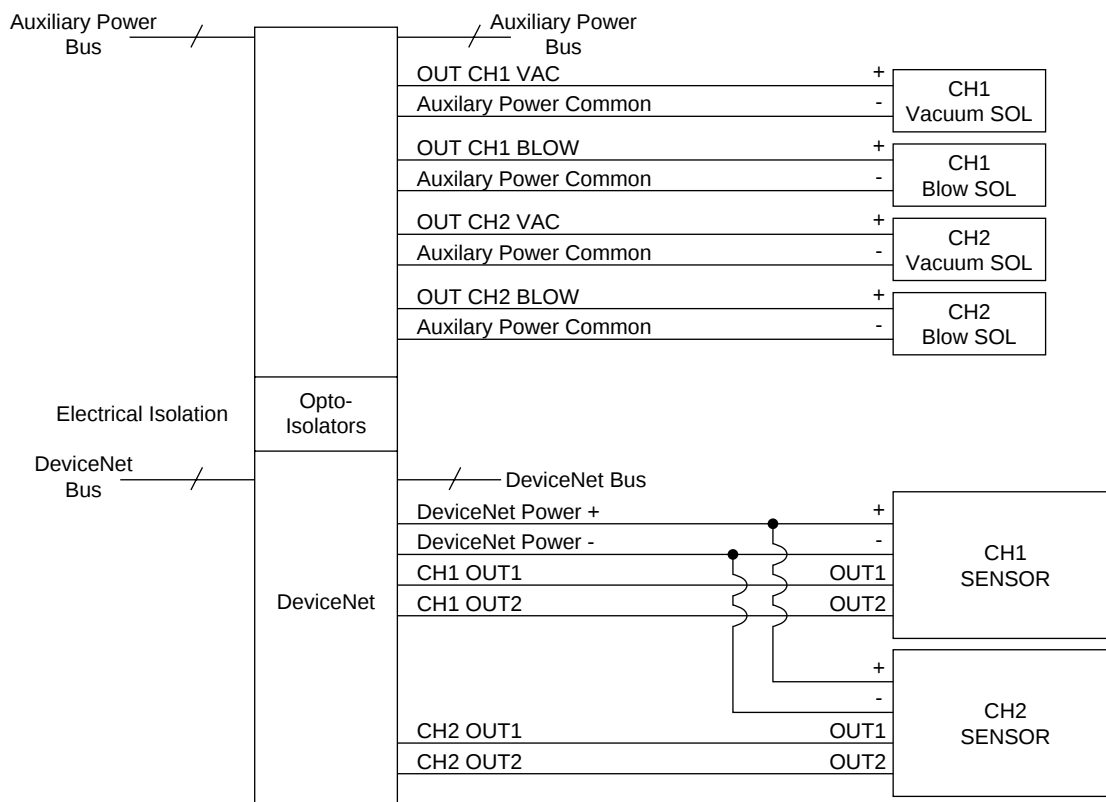
DeviceNet™

The DeviceNet™ power bus supplies power for the DeviceNet circuitry and the two sensors. The auxiliary power bus provides power for the vacuum solenoids and blow-off solenoids. The following are power requirements for the DeviceNet circuitry.



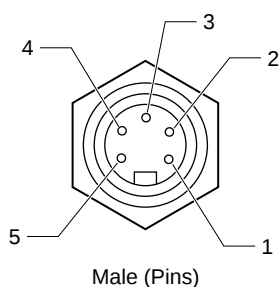
B

Voltage Range: 12,5 - 24 VDC
Current: 150 mA

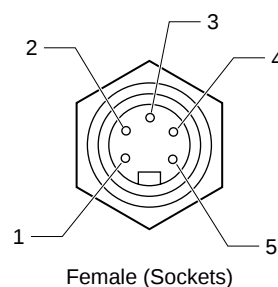


DeviceNet™ Bus Connectors

5-Pin Mini-Style



- 1.) Drain2.) V+
- 3.) V-
- 4.) CAN-H
- 5.) CAN-L



CEK E-Stop



Characteristics

The CEK is a CVK unit with a Normally Closed E-Stop valve that maintains the last state of air during an E-stop or power loss. In addition to this, an air-economizing valve has been added to interrupt the air supply by connecting the output signal from the sensor to minimize air consumption.

This unit is ideal for non-porous applications that require fast response of large vacuum and blow-off release flow, an E-Stop valve, optional air-economizing features, and DeviceNet™ communications.

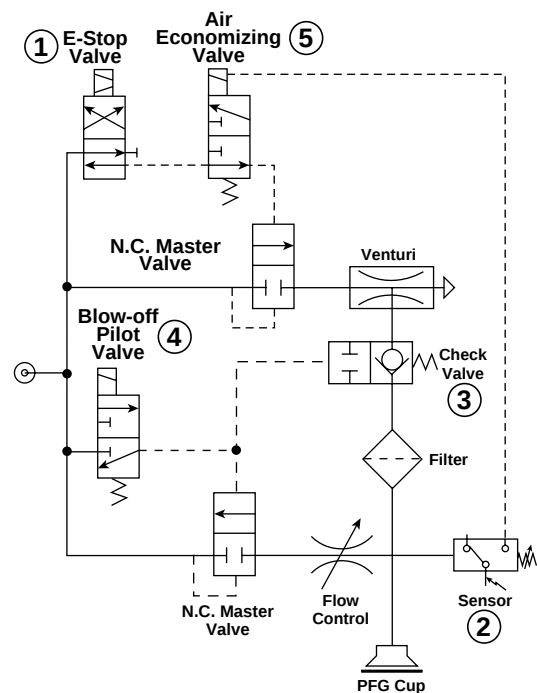
Typically, with a Normally Closed air Circuit, the user controls vacuum with a command signal. During an E-Stop or power failure event, the vacuum command signal is lost, but, the E-Stop valve **(1)** remains in the current operating position due to the construction of the valve. The air-economizing valve **(5)**, in a Normally Open configuration, passes the air supply from the E-Stop valve **(1)**. The Sensor **(2)** output activates the air-economizing valve **(5)** closing the air supply to the Normally Closed master valve. The Check Valve **(3)** maintains the achieved vacuum level until the hysteresis value of the Sensor **(2)** is reached or when the E-Stop valve **(1)** has been returned to the closed position to stop the vacuum operation.

Features

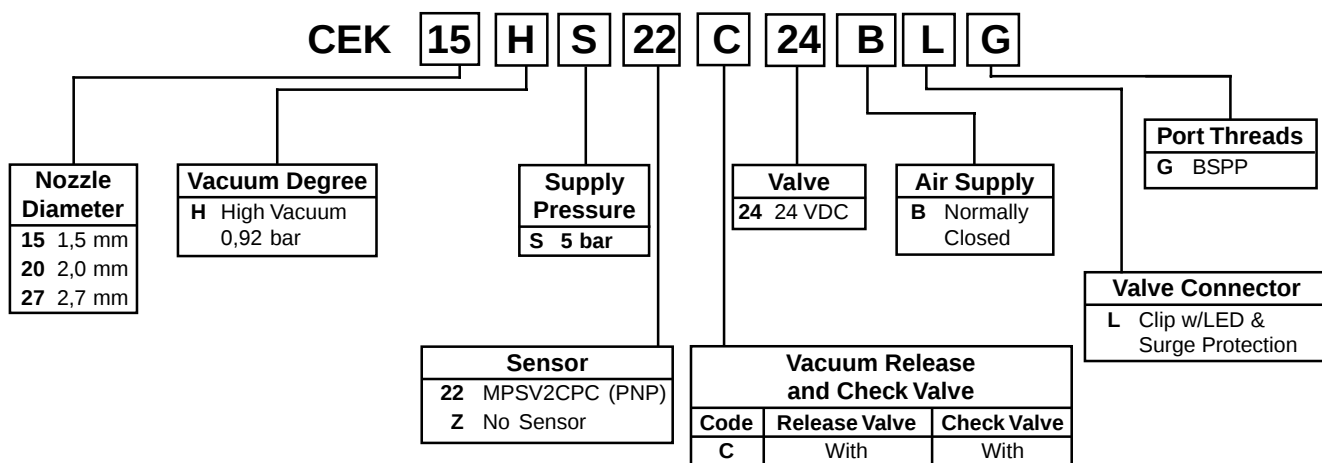
- Integrated Double Solenoid for Last State
- Integrated Vacuum Pilot
- Integrated Blow-off Pilot
- Integrated Filter, Silencer
- Air Economizing Capabilities
- DeviceNet™ Capable
- Manifolds for up to 5 Units



Valve Controlled E-Stop Circuit



Model Number Index



Specifications

Media	Non-Lubricated Compressed Air, Non-Corrosive Gases
Operating Pressure	5 bar
Humidity	35 to 85%
Pressure Port	G: 1/4 BSPP Female
Vacuum Port	G: 3/8 BSPP Female
Operating Temperature	5 to 50 °C
Material	Aluminium, Brass, NBR
Manifold Weight	2-Station: 680 g, 3-Station: 880 g, 4-Station: 1080 g, 5-Station: 1280 g

Air-Economizing Valve and Blow-off Release Pilot

E-Stop Valve

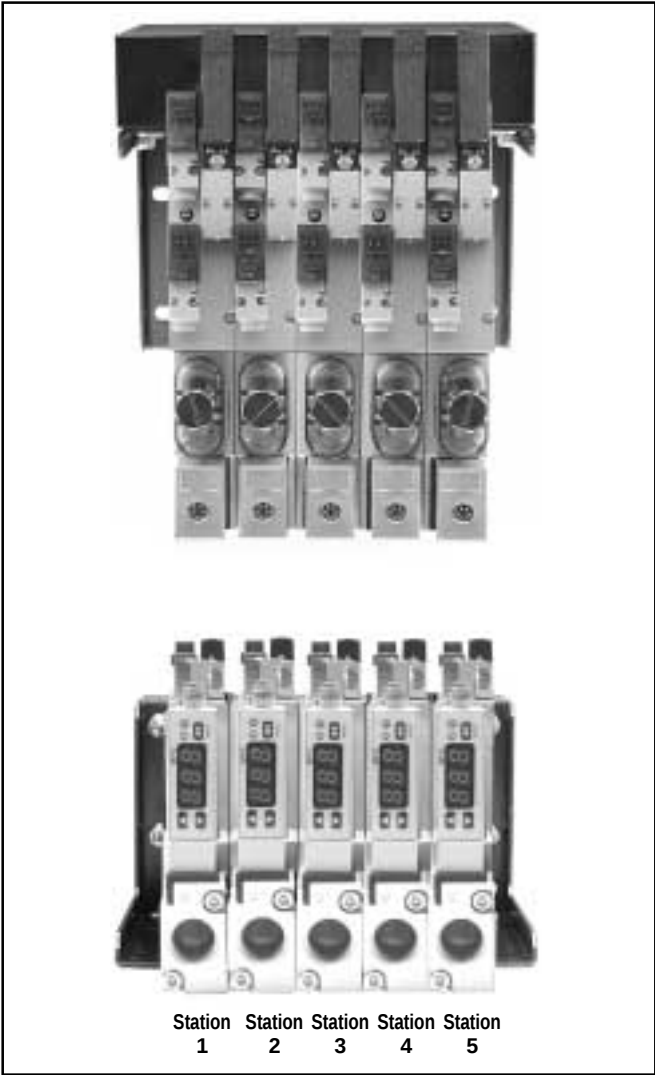
Type of Control Valve	Pilot Valve	Double Solenoid
Manual Operation	Manual Override	Manual Overrides
Electrical Connection	Clip Connector with LED and Surge	Clip Connector with LED and Surge
Power Supply	24 VDC ± 10%	24 VDC ± 10%
Power Consumption	0,9 W	0,9 W
Operating Pressure	5 bar	5 bar
Air Supply	Normally Closed	Normally Closed

Performance

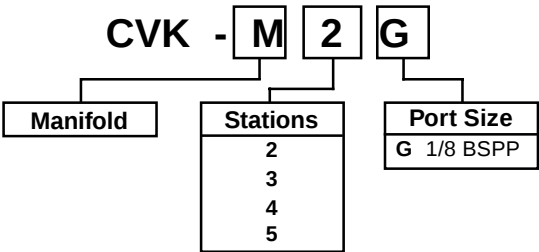
Item	Nozzle Diameter [mm]	Vacuum Degree at 5 bar [%]	Vacuum Flow [l/min]	Air Consumption [l/min]	Weight [g]
15HS	1,5	90	60	100	750
20HS	2,0	90	95	180	750
27HS	2,7	90	125	295	750

Evacuation Time

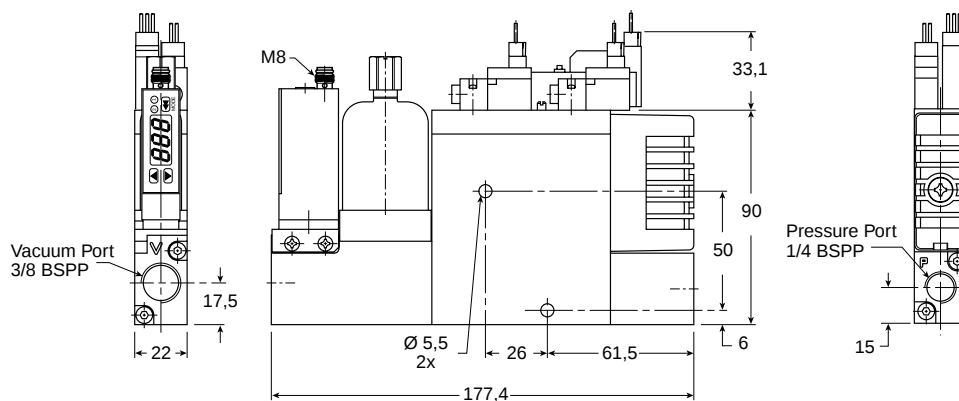
Series / Nozzle Diameter	Air Supply Pressure [bar]	Air Consumption [l/min]	Evacuation Time in sec / liter to reach different Vacuum Levels [%]								
			10	20	30	40	50	60	70	80	90
CEK-15HS	5	100	0,08	0,17	0,28	0,44	0,65	0,93	1,43	2,20	6,70
CEK-20HS	5	180	0,04	0,09	0,16	0,27	0,43	0,66	1,06	1,89	4,60
CEK-27HS	5	295	0,02	0,07	0,12	0,20	0,30	0,47	0,70	1,49	—



Manifold Block

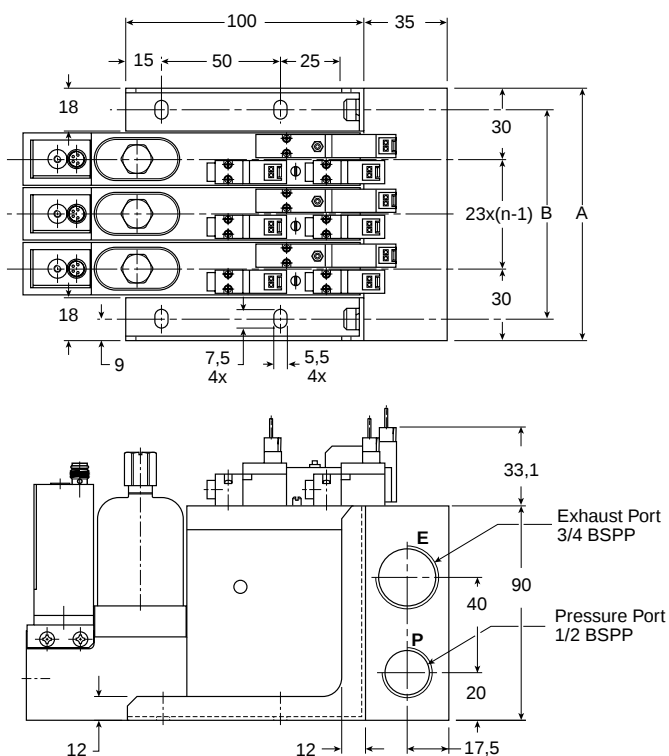


Generator



Manifold

3-Station Manifold Shown



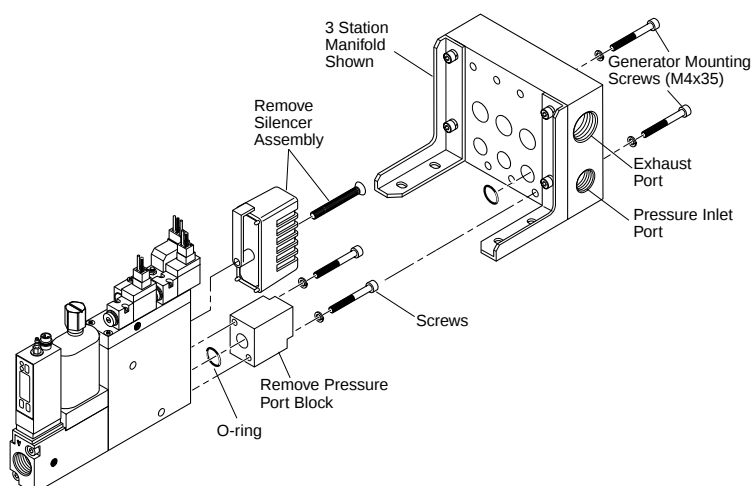
Manifold Assembly

Remove Pressure Port Block and Silencer Assembly. Use existing O-rings and Manifold Mounting Screws to secure the CEK unit to the Manifold.

n	2	3	4	5
A	83	106	129	152
B	65	88	111	134

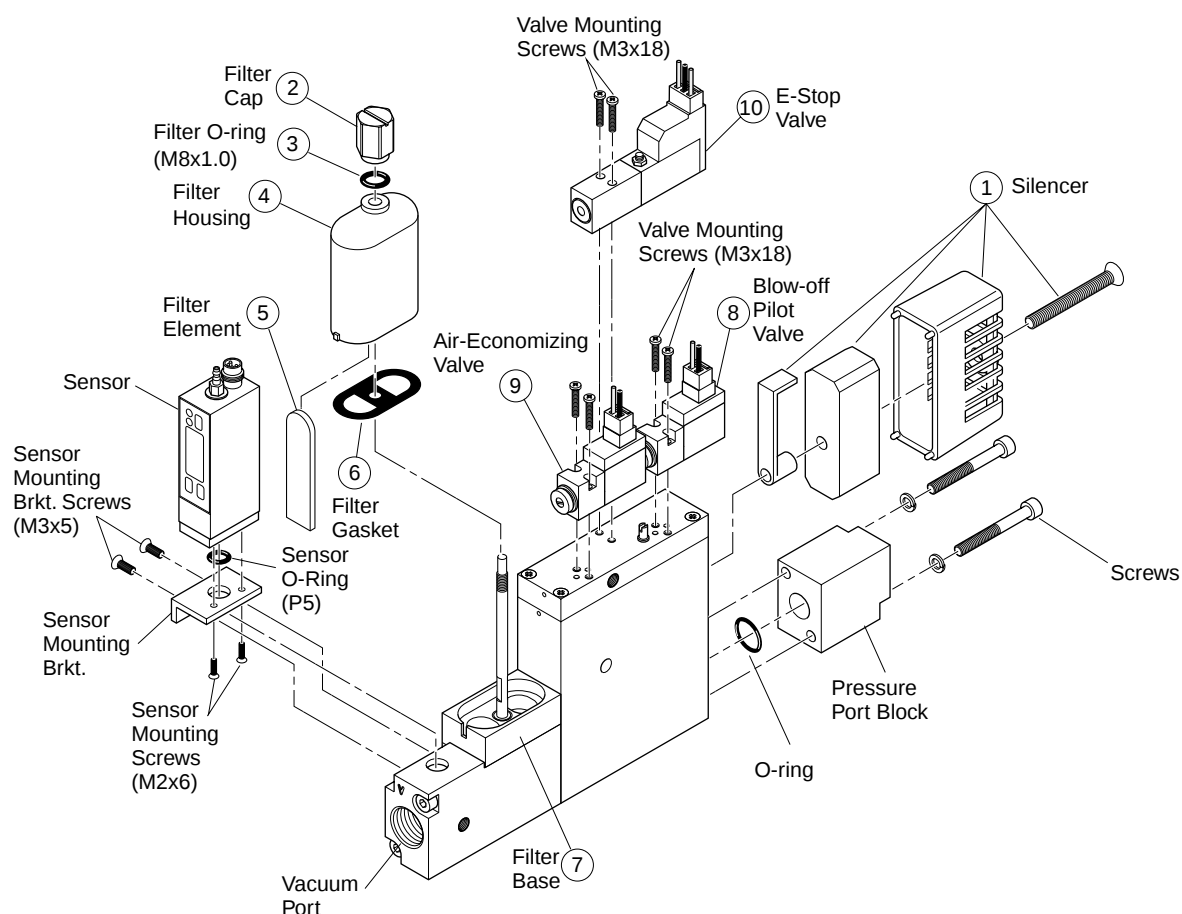
Millimeter

n = Number of Stations



Replacement Components

Item	Part Number	Description
1	CVK-S	Silencer
2 thru 7	CVK-F	Filter Kit
5	CVK-E	Filter Element



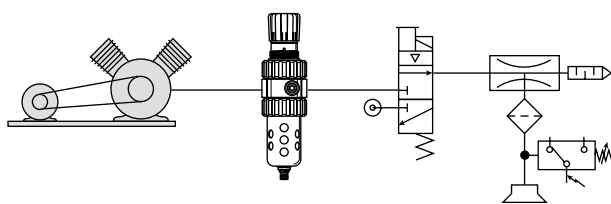
Cautions

Do not use or expose the CEK with fluids or corrosive gases. Vacuum Venturi's are designed to be used with non-lubricated, non-corrosive, compressed air.

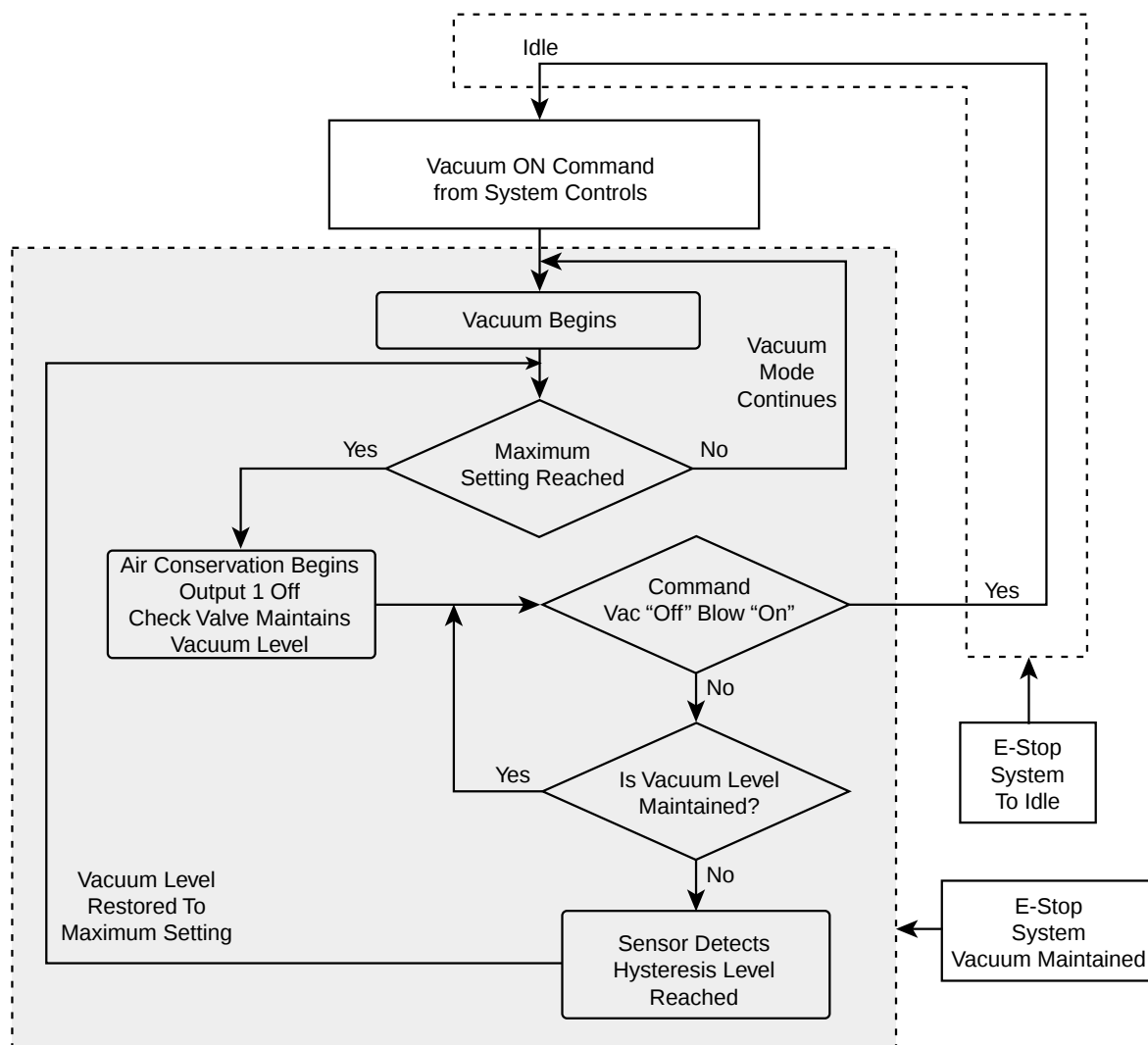
Do not operate CEK generators outside the temperature range and pressures listed in the specifications section of this catalog. Regulate the compressed air to 4,8 bar and filtrate with a maximum 40 micron filter. Non-lubricated compressed air will maintain the life and vacuum level of the generator.

Check the insulation of all lead wires after installation to avoid shorts. Properly secure all lead wires to avoid stress or repeated movement that may fray lead wires.

Some electrical components are diode or zener diode protected. When installing solenoids and sensors, check the polarity of the component before applying power. Apply the appropriate voltage to the solenoids and sensors. Inappropriate voltage, shorts, or surges may damage the circuitry.



CEK - System Logic



CEK - E-Stop Operating System (EOS)

The E-Stop Operating System is designed to maintain the last state of operation when an E-stop or power failure occurs.

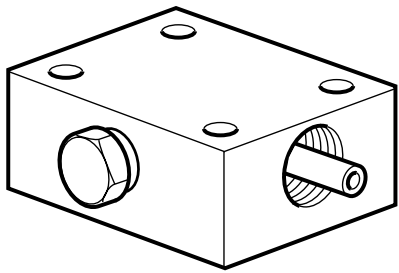
The chart below illustrates the state of operation in different modes.

Modes	Vacuum On	Vacuum Off	Blow-Off	EOS
Normal Conditions	Air-economizing between 0,61-0,54 bar	Idle	Blow-Off On Blow-Off Idle	EOS Off
Emergency-Stop, Power Failure, Loss of DeviceNet™ Communications or Power	Vacuum On ↓ ↓ ↓ Vacuum On	Idle	Blow-Off On or Idle ↓ ↓ ↓ Idle	EOS On
Restore Power	Vacuum On Air-economizing Function Resumes	Idle	Idle	EOS Off

This range of generators give high vacuum at low supply pressure, which makes them economical on energy. The generators provide more than 85% vacuum at 4 bar supply pressure, and are made from anodised aluminium with no moving parts, which gives them high reliability.

Typical applications are suction cups, evacuation of moulds, metering of fluids and powders, vacuum chucks, leakage finding, evacuation of contaminated media etc.

The generators are provided with a special union for quick and controlled component blow-off. This union can also be used to add optional equipment such as a vacuum monitor, vacuum gauge etc.



Model Number Index

P5V - GA

R 0 3 1 2

Options and accessories	
R*	With rapid release connection
V*	Fitted with holding valve with rapid release connection
N	No rapid release, only Size 72
*	These features are not available on size 72

Size	
03	30 NI/min
06	60 NI/min
12	120 NI/min
24	240 NI/min
42	420 NI/min
72	720 NI/min

Port size vacuum

Possible combinations and order codes, see main data sheet.

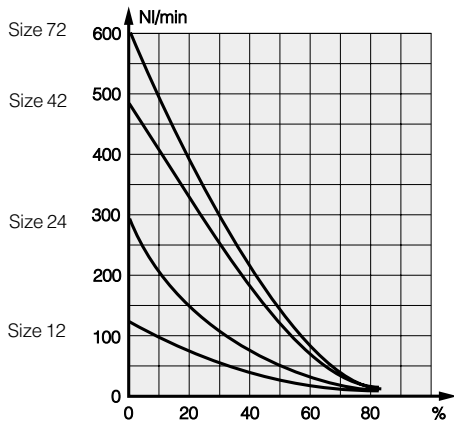
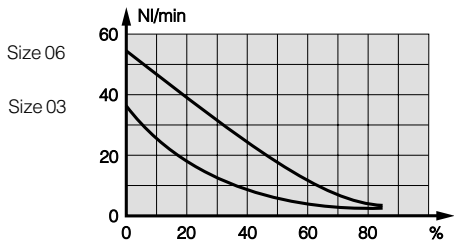
Specification

Material	
Body	Aluminium
Nozzle	Brass

Options and additional information

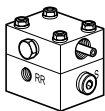
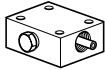
Nozzle in acetal plastic on request.

Suction flow as function of vacuum level



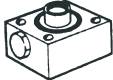
Main data for generator, Compact - Solid

	Time to evacuate 1litre to 75% vacuum [s]	Air consumption at 4 bar [l/min]	Port size (vacuum)	Weight [kg]	Order code
Basic					
	6,00	30	Female G1/4	0,08	P5V-GAR0312
	3,00	60	Female G1/2	0,11	P5V-GAR0614
	1,50	120	Female G1/2	0,14	P5V-GAR1214
	0,75	240	Female G1/2	0,19	P5V-GAR2414
	0,45	420	Female G3/4	0,24	P5V-GAR4216
	0,25	720	Female G1/2	0,55	P5V-GAR7214
With holding valve					
	3,00	60	Female G1/2	0,32	P5V-GAV0614
	1,50	120	Female G1/2	0,34	P5V-GAV1214
	0,75	240	Female G1/2	0,40	P5V-GAV2414
	0,45	420	Female G3/4	0,45	P5V-GAV4216



Air supply pressure for optimum vacuum level (92%): 4 bar

Main data for Vacuum Holding Valve, to be fitted to Compact Solid Generators from P5V-GAR0614 to P5V-GAR4216

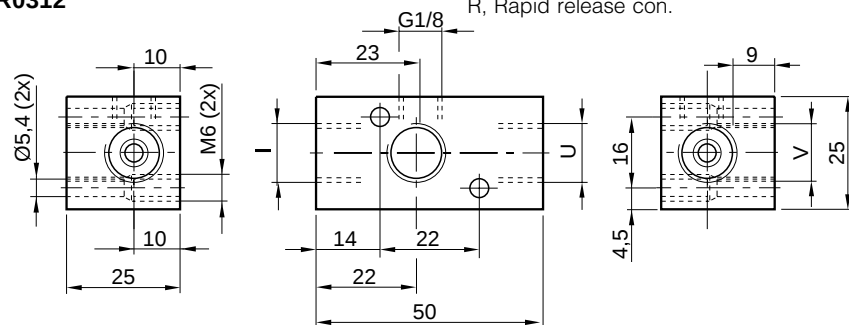
	Weight kg	Order code
	0,11	8204950201

Generators in sizes 06-42 can also be combined with a vacuum lock, VSA60, which is a valve manifold containing two independent valves, a vacuum latching valve and an air entry valve which is installed directly on the generator. The low spring force means that the vacuum drop across the latching valve is minimal. When air supply to the generator ceases, the VSA60 retains the load with vacuum maintained. This gives energy savings and offers increased safety at the same time. The workpiece can be released quickly with a controlled compressed air signal via the air entry port of the vacuum lock.

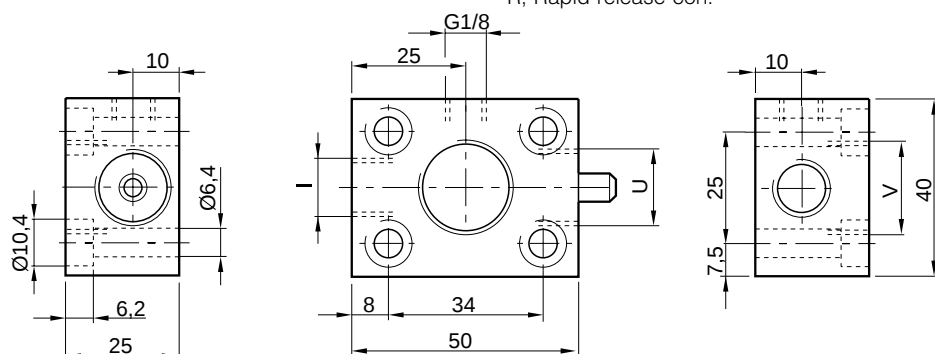
The VSA60 can also be used separately, complete with flange unions and a housing to cover it, when you want to install generators centrally, in order to supply several suction cups with vacuum at the same time.

P5V-GAR0312

R, Rapid release con.

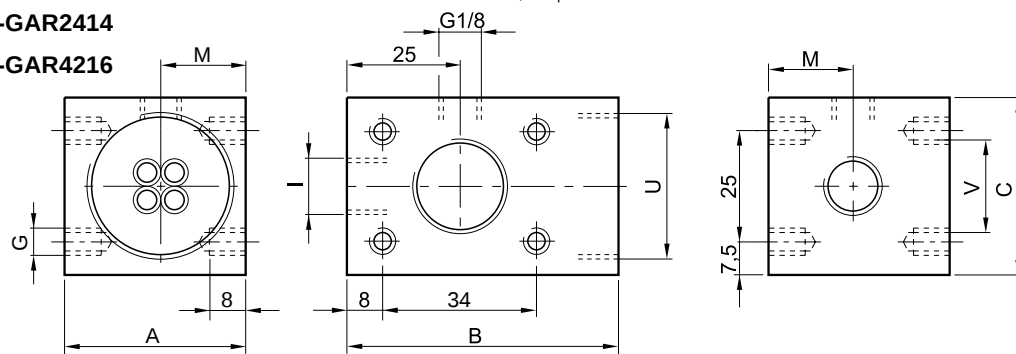


R, Rapid release con.



R, Rapid release con.

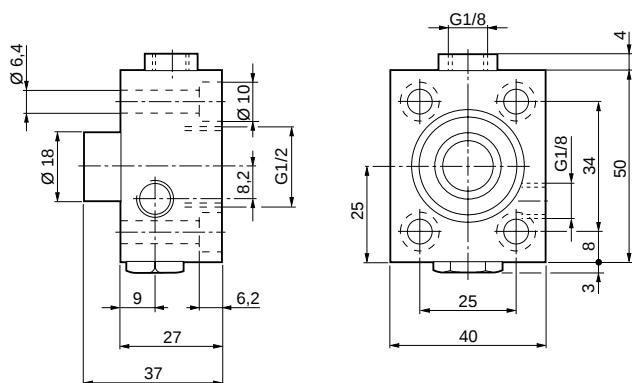
P5V-GAR4216



Order code	A	B	C	G	M	I Inlet	V Vacuum	U Outlet
P5V-GAR0312						G1/4	G1/4	G1/4
P5V-GAR0614						G1/4	G1/2	G3/8
P5V-GAR1214	25	50	40	M6	12,0	G1/4	G1/2	G1/2
P5V-GAR2414	40	60	40	M6	18,5	G1/4	G1/2	G1
P5V-GAR4216	40	60	40	M6	18,5	G1/4	G3/4	G1
P5V-GAN7214						G1/4	G1/2	G1/2

[illegible]

Holding valve

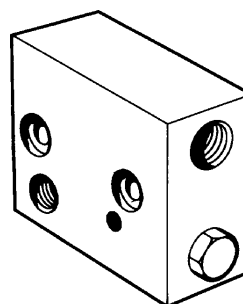


B

A range of generators, incorporating integral holding and rapid release valve features. The generators are available in four sizes, with air consumptions ranging from 20 l/min to 60 l/min at a supply pressure of 4 bar.

Incorporation of a holding valve allows vacuum to be maintained for a time after loss of the compressed air supply. The length of this time depends on the amount of leakage in the system. The holding function also allows compressed air to be saved, by operating the generator intermittently and monitoring the pressure with a vacuum switch.

The rapid release valve is used to break the vacuum by means of compressed air, in order quickly to release the load. Operation of this valve has been improved, so that it now opens at a pressure of only 0.5 bar, which means that a low pressure can be used for releasing the load.



Model Number Index

P5V - GW

V 0 2 1 4

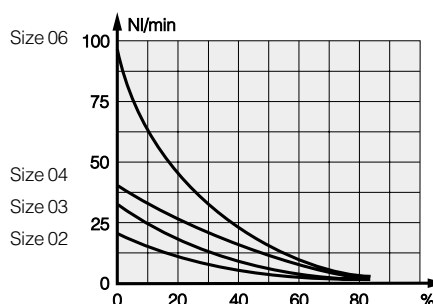
	Size
02	20 NI/min
03	30 NI/min
04	40 NI/min
06	60 NI/min

Specification

Material

Body	Aluminium
Nozzle	Brass
Seals	Nitrile, NBR

Suction flow as function of vacuum level

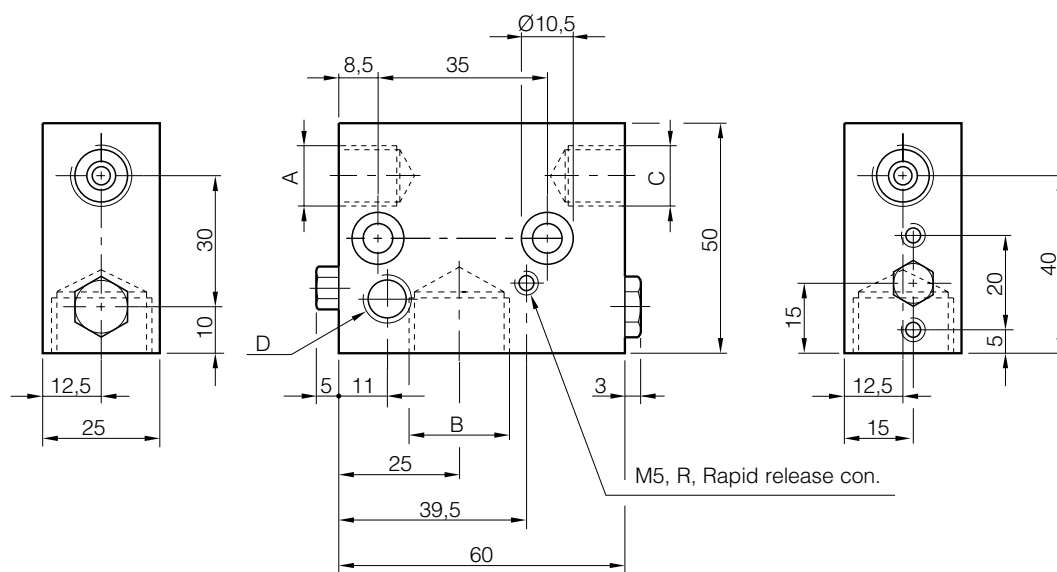


Main data for Generator Compact - AirSaver

Time to evacuate 1litre to 75% vacuum [s]	Air consumption at 4 bar [NI/min]	Port size (vacuum)	Weight [kg]	Order code
9,0	20	G1/2 Female	0,18	P5V-GWV0214
6,0	30	G1/2 Female	0,18	P5V-GWV0314
4,5	40	G1/2 Female	0,18	P5V-GWV0414
3,0	60	G1/2 Female	0,18	P5V-GWV0614

Air supply pressure for optimum vacuum level (90%): 4 bar

Generators Compact - AirSaver, serie GW



Order code	A Inlet	B Vacuum	C Outlet	D* Vacuum
P5V-GWW0214	G1/4	G1/2	G1/4	G1/8
P5V-GWW0314	G1/4	G1/2	G1/4	G1/8
P5V-GWW0414	G1/4	G1/2	G1/4	G1/8
P5V-GWW0614	G1/4	G1/2	G1/4	G1/8

* Connection for vacuum gauge etc



Convum

Technical Information

178 - 181

	Pressure Range	Output Type	Media	Maximum IP Rating	Hysteresis Output Mode Adjustment	Output Setting	Display	Page Number
MPS-1 	0 to 10 bar 0 to -1 bar 0 to 0,9 bar	(1) NPN / PNP With Analog	Air, Non-Corrosive Gas	65	Variable, 3 to 20% F.S.	Trim Pot	—	182 - 185
MPS-2 	0 to -1 bar -1 to 5 bar	(2) NPN / PNP	Air, Non-Corrosive Gas	65	Variable, 100% F.S.	Push Button	LED Display (Red)	186 - 191
MPS-3 	0 to 10 bar 0 to -1 bar 0 to 1 bar -1 to 5 bar	(2) NPN / PNP Analog Option	Air, Non-Corrosive Gas	65	Variable, 100% F.S.	Push Button	LED Display (Red)	192 - 197
MPS-31 	0 to 10 bar 0 to -1 bar -1 to 5 bar	(1) NPN / PNP	Air, Non-Corrosive Gas	65	Variable, 100% F.S.	Push Button	LED Display (Red / Green)	198 - 203
MPS-6 	0 to 10 bar 0 to -1 bar 0 to 1 bar	(1) NPN / PNP or (1) Analog	Air, Non-Corrosive Gas	40	—	Trim Pot	—	204 - 209
MPS-7 	Remote Panel: Use with MPS-5,6,8	71: (2) NPN/PNP Analog Option 74: (1) NPN/PNP	—	40	Variable, 100% F.S.	Push Button	LED Display (Red)	210 - 217
MPS-8 	0 to -1 bar -1 to 5 bar	(1) NPN / PNP or (1) Analog	Air, Non-Corrosive Gas	40	Fixed, < 2% F.S.	Trim Pot	—	218 - 221
MVS-201 	0 to -1bar -1 to 5 bar	(1) NPN / PNP	Air, Non-Corrosive Gas	40	Variable, 100% F.S.	Push Button	LED Display (Red)	222 - 229
MPS-3 Stainless 	0 to 10 bar 0 to -1 bar -1 to 5 bar	(2) NPN / PNP Analog Option	Fluid, Non-Corrosive to 316L or 630 SUS	65	Variable, 100% F.S.	Push Button	LED Display (Red)	230 - 235
MPS-5 Stainless 	0 to 10 bar 0 to -1 bar	Analog	Fluid, Non-Corrosive to 316L or 630 SUS	65	—	—	—	236 - 239
P5V-SV 	-0,15 to -0,9 bar	—	Air, Non-Corrosive Gas	—	20% of preset value	—	—	240 - 241

Accessories

242 - 243

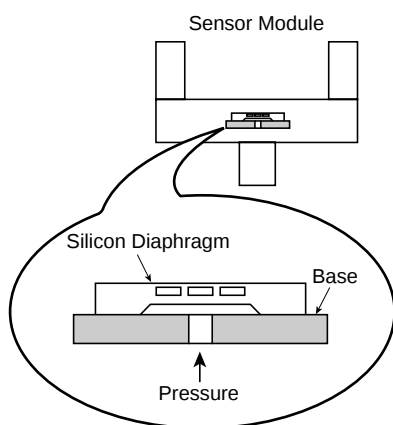
Solid State Sensors

Introduction

Electromechanical pressure sensors convert the applied pressure to an electrical signal. When pressure is applied, the diaphragm is deflected causing the diffused resistors to change resistance (piezoelectric effect), which yields an electrical signal proportional to the pressure change. Applications for pressure switches are numerous and important in today's high-tech manufacturing environment.

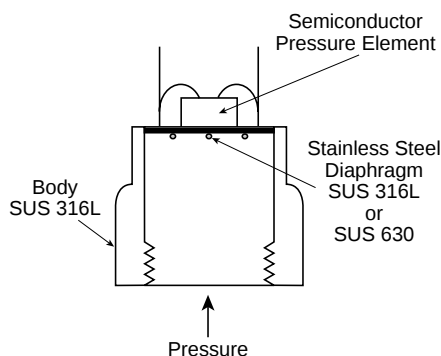
Silicon Diaphragm

This type of sensor is used for air and non-corrosive gas applications.



Stainless Steel Diaphragm

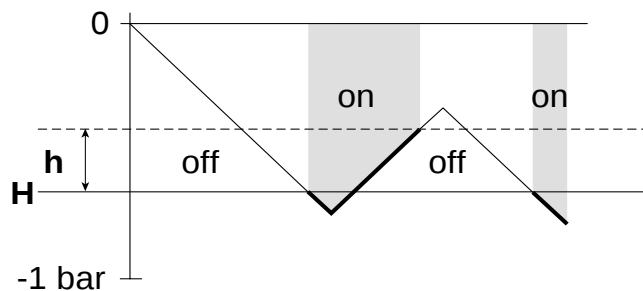
This type of sensor is used for liquids, non-corrosive to 316L or 630 stainless steel.



Difference Between Switch Output and Analog Output Type

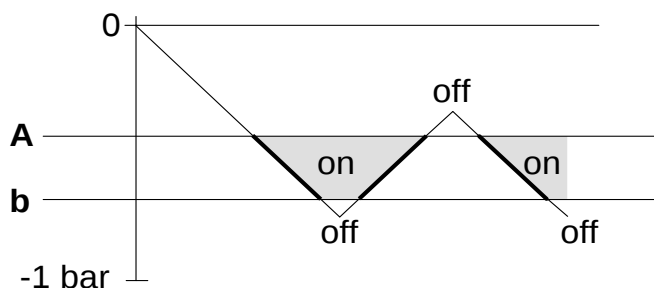
Switch Output

This is an NPN / PNP Open Collector transistor Output that "sinks" or "sources" the signal when the pressure switch point is achieved. The switch point is set by programming or potentiometer trimmer adjustment.



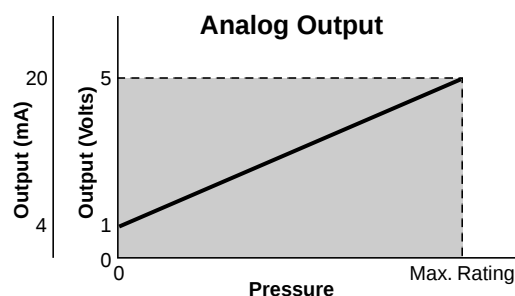
Window Comparator

Window Comparator provides two switch points at different pressures to activate the NPN / PNP open collector transistor outputs.



Analog Output

An analog output provides an output voltage that is proportional and linear to the pressure measured by the sensor. This output signal provides continuous feedback to the analog card of the PLC.

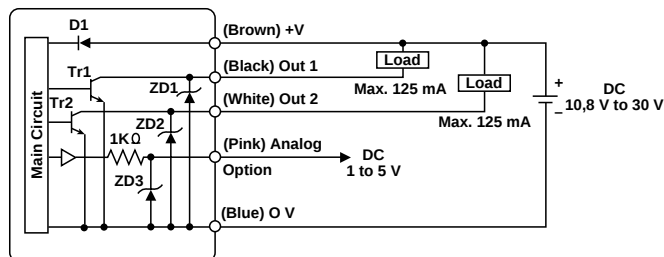


Difference Between NPN and PNP Output

NPN

NPN type open collector transistor outputs are solid state circuits that provide sinking output capabilities. When the transistor is on, the current for the load flows into the transistor. This output "sinks" toward 0 VDC, 0 mA.

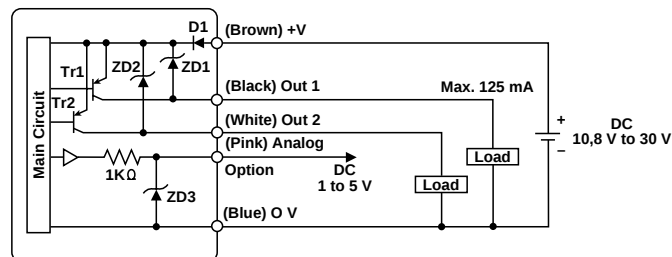
NPN Output (With Analog Output)



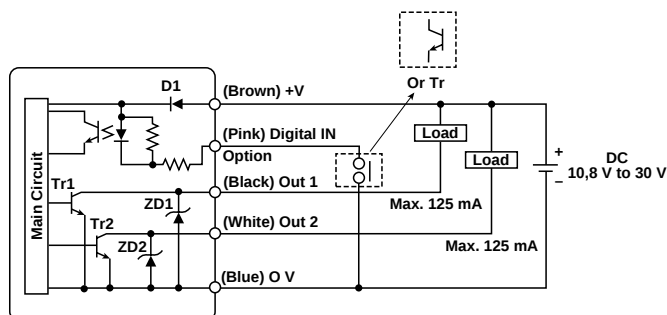
PNP

PNP type open collector transistor outputs are solid state circuits that provide sourcing output capabilities. When the transistor is on, the current for the load flows out of the transistor. This output "sources" toward 24 VDC, 125 mA.

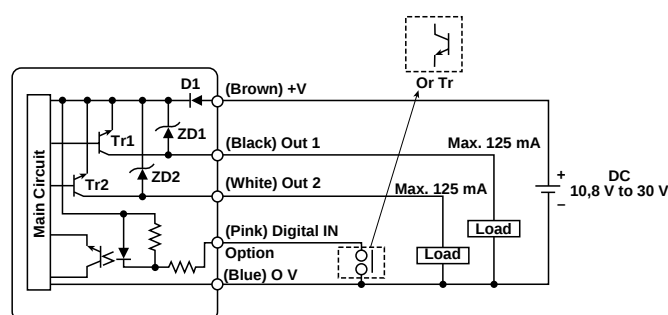
PNP Output (With Analog Output)



NPN Output (With Reset IN)

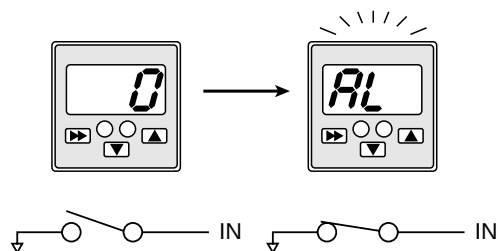
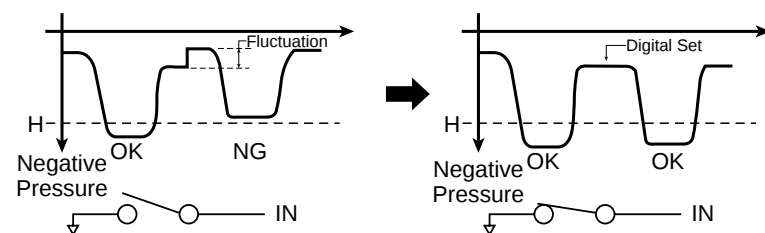


PNP Output (With Reset IN)



Reset Input Option

By sending a 5 VDC signal to the sensor, it is possible to automatically reset the sensor to ambient zero when small fluctuations in the system or atmosphere influence the beginning reference point.



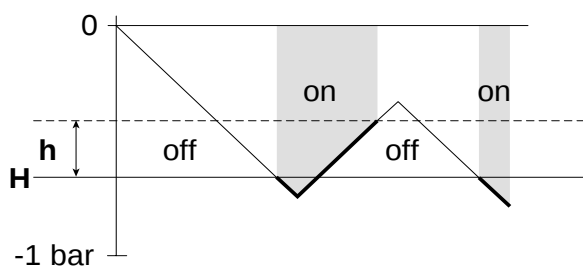
Flashing display of AL is displayed when the digital IN signal is entered.

Output Modes

Switch Point with Hysteresis Settings

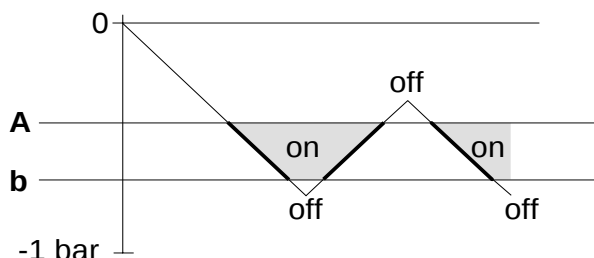
This output mode provides one switch point (**H**) and a hysteresis pressure adjustment. When the switch point pressure is achieved, the output (NPN / PNP) is activated if normally open or deactivated if normally closed. Typically, this mode is used for pressure confirmation. For positive pressure applications, this operating mode does not provide any output or alarms beyond the switch point in the case of excessive pressures.

The hysteresis setting (**h**) is the difference in pressure below the switch point pressure which controls the on / off status of the output.



Window Comparator Setting

This output mode provides two switch points (**A**) and (**b**) that control the output signals (NPN / PNP) between the two pressures. This creates a "window" that the sensor can provide an output and is sometimes referred to as "high / low" setting. The window comparator Mode provides an output or alarm when pressures exceed the upper limit.

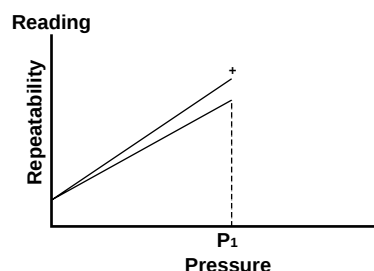


Pressure Unit Table

Units	Units								
	Pa	bar	PSI	kgf/cm ²	atm	mm H ₂ O	in H ₂ O	mm Hg	in Hg
Pa	1	10 ⁻⁵	0,145x10 ⁻³	1,0197x10 ⁻⁵	0,987x10 ⁻⁵	0,10197	0,402x10 ⁻²	0,750x10 ⁻²	0,295x10 ⁻³
bar	10 ⁵	1	14,5038	1,01972	0,98692	10197,16	401,46	750,062	29,53
PSI	6894,76	0,06895	1	0,07031	0,6805	703,07	27,68	51,715	2,036
kgf/cm ²	98066,5	0,9807	14,2233	1	0,96784	10000	393,70	735,56	28,96
atm	1,013x10 ⁻⁵	1,01325	14,696	1,03323	1	10332	406,77	760	29,92
mm H ₂ O	9,807	0,098x10 ⁻³	0,00142	0,0001	0,097x10 ⁻³	1	0,0394	0,07355	0,29x10 ⁻²
in H ₂ O	249,09	0,249x10 ⁻²	0,0361	0,00254	0,246x10 ⁻²	25,4	1	1,868	0,07355
mm Hg	133,322	0,00133	0,01934	0,00136	0,00132	13,5951	0,535	1	0,0394
in Hg	3386,4	0,03378	0,4912	0,0345	0,03353	345,32	13,589	25,4	1

Repeatability

The repeatability refers to the sensor's ability to provide the same output with consecutive applications of the same pressure input.



Repeatability is represented as a percentage of the full scale value of the sensor. All Parker / Convum sensors are rated $\pm 0,2\%$ F.S. P_1 would be represented as $10 \text{ bar} \times 0,002 = \pm 0,02 \text{ bar}$.

Accuracy

The PERCENTAGE difference between the true value and that indicated by an instrument is the measure of the instrument's accuracy. It is expressed as a percentage of the full-scale value of the reading according to the type of instrument.

Display Resolution

The least possible unit increment shown on the display.

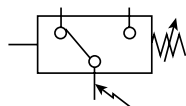
IP Ratings

- IP40 - Protected against solid foreign objects of 0,04" (1 mm) and greater.
Non-protected against the penetration of liquids.
- IP65 - Dust tight.
Protected against water jets.
- IP67 - Dust tight.
Protected against the effects of temporary immersion water.

Technical Information

ou1	Output 1	Pb	Pressure Value Display Mode. Displays Pressure for a specific time period and then updates for next time period
ou2	Output 2	Pbt	Time Range for Pressure Value Display Mode
ou3	Output 3	Pbd	Value Setting for Pressure Value Display Mode
ou4	Output 4	PE	Display Peak Value over selected time range
nc	Output Normally Closed (Passing)	bo	Display Bottom Value over selected time range
no	Output Normally Open (Non-Passing)	du	Display Difference over selected time range
-PA PA	Pressure Units (Pascal). Negative Units for Vacuum Sensors	dSF	Display Function Mode. On/Off
-bA bA	Pressure Units (Bar). Negative Units for Vacuum Sensors	Fnc	Display Function. Selects display types.
-Hg Hg	Pressure Units (in.Hg). Negative Units for Vacuum Sensors	lb	Display blinks pressure when Output 1 is Passing Normal when Output 1 is Non-Passing
-H	Pressure Units (in.Hg). Negative Units for Vacuum Sensors	2b	Display blinks pressure when Output 2 is Passing Normal when Output 2 is Non-Passing
-Fg Fg	Pressure Units (kgf/cm²). Negative Units for Vacuum Sensors	ld	Display shows pressure when Output 1 is Passing Display shows special screen when Non-Passing
PS	Pressure Units (PSI)	2d	Display shows pressure when Output 2 is Passing Display shows special screen when Non-Passing
ESY	Easy Mode. Sensor will only allow changes to set points	SEt	Select Switch Output setting for MPS-31
off	Off, or Energy Saving Display; reduces current consumption of Sensor	Col	Color Setting for MPS-31
on	On	Pot	MPS-4, Port Reference Selection
HYS	Hysteresis Mode. Select Hysteresis Set Point and Hysteresis Range	A	MPS-4, Display change of B port to A port static
CnP	Windows Comparative Mode Select High and Low Set Point	b	MPS-4, Display change of A port to B port static
H-1	Hysteresis Mode Set Point. Output 1	Ab	MPS-4, Display change of A port to change of B port
H-2	Hysteresis Mode Set Point. Output 2	P1	MPS-7, Pressure Range Selection Vacuum
h-1	Hysteresis Mode. Hysteresis Range Output 1	P2	MPS-7, Pressure Range Selection Low Pressure
h-2	Hysteresis Mode. Hysteresis Range Output 2	P3	MPS-7, Pressure Range Selection Positive Pressure
A-1	Windows Comparative Mode Low Set Point Output 1	P4	MPS-7, Pressure Range Selection Compound Pressure
b-1	Windows Comparative Mode High Set Point Output 1	SAUE	MPS-7, Energy Savings Mode, reduces current consumption
A-2	Windows Comparative Mode Low Set Point Output 2	P-1	MPS-7, Peak Surveillance
b-2	Windows Comparative Mode High Set Point Output 2	oPl	Digital Input Sensors Only. Digital Input Mode for remote Zero reset of sensors
AUE	Automatic Teach Mode. Automatically sets Outputs 1 and 2 while cycling system. Output 1 set to Hysteresis Mode, Output 2 set to Window Comparative Mode	d in	Digital Input
AL	Auto Surveillance Mode On/Off. Set after Automatic Teach	dch	Digital Channel
ALn	Auto Surveillance based on cycles times. Provides output if Peak Value is not obtained in a specified number of cycles. (1-100)	Scn	MPS-7 Scan Mode. Sensor scans and displays each channel for 3 sec.
dSP	Display Refresh Setting. Display updates from 0,1 to 1 sec. 0,3 sec factory set. Does not affect Sensor Response Time	Loc	Locked. Sensor programs cannot be changed
AE	Output Response Time. Multiplies the sensor response time. Increases sensor response time. (Anti-chatter Mode)	UnC	Unlocked. Sensor programs can be changed
		Zero Reset	Sets Sensors reference point to current atmospheric conditions

MPS-1



Features

- **Pressure Ranges:**
 Vacuum 0 to -1 bar
 Positive Pressure 0 to 10 bar
- **Sensor Outputs**
 1 Normally Open NPN or PNP Open Collector Transistor Output;
 30 VDC, 125 mA
 1 Analog 1 to 5 VDC
- **Switch Output Adjusted with Potentiometer 3-Turn Trimmer**
- **Switch Hysteresis Adjusted with Potentiometer 3/4 Turn Trimmer**
- **Output Response Time Less Than 2,5 Milliseconds**
- **IP65 Rated and CE Marked**
- **Air and Non-Corrosive Gases**



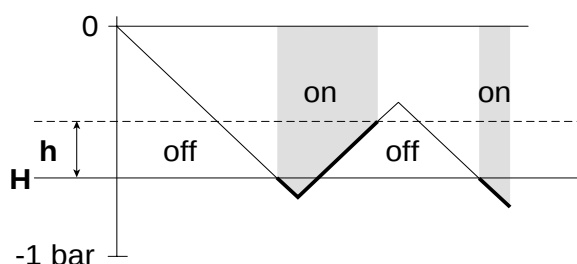
Model Number	Output	Pressure Range
MPS-V1G-PC	PNP	0 to -1 bar
MPS-P1G-PC	PNP	0 to 10 bar
MPS-V1E-PC	PNP	0 to -1 bar
MPS-P1E-PC	PNP	0 to 10 bar

Output Modes

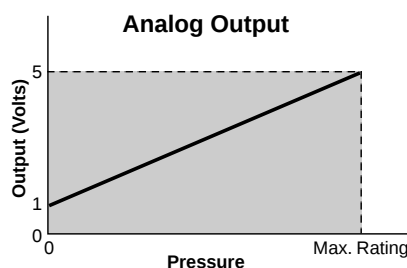
The MPS-1 Series Sensor has two outputs, one open NPN or PNP switch output and one analog output. The Hysteresis Range (**h**) controls the output signal below the Switch Point (**H**).

The Pressure Output Signal is a 3 turn trimmer that sets the switch point of the output. The hysteresis adjustment is a 3/4 turn trimmer to control the output signal 3 to 20% below the pressure output signal. The Analog Output is a 1 to 5 VDC signal calibrated to the pressure scale of the sensor.

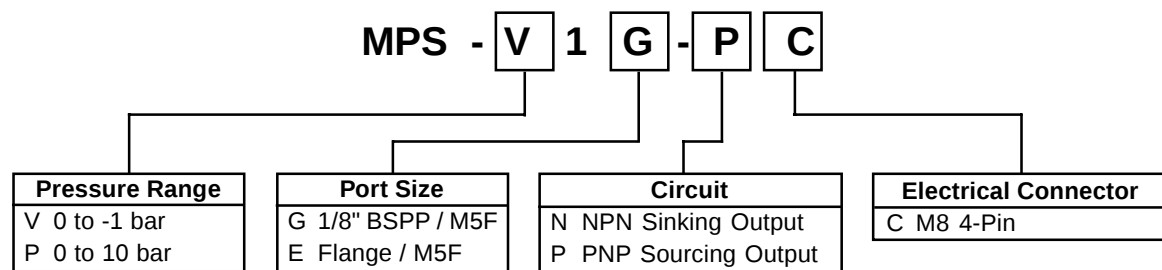
Switch Output



Analog Output



Model Number Index



MPS-L1G-PC



MPS-V1E-PC

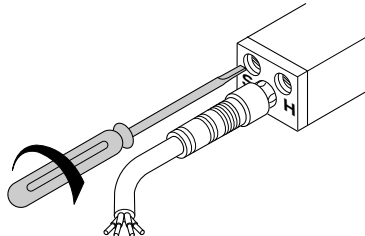
Specifications

Media	Air and Non-Corrosive Gases
Pressure Port	G: 1/8" BSPP, E: Flange Mount with M5 Female
Proof Pressure	V: 5 bar, P: 15 bar
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 60 °C
Humidity	35 to 85% RH
Electrical Connection	4-Pin, M8 Connector with Built-in LED
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection
Analog Output	1 to 5 VDC ±0,04, Accuracy Linear 0,5% F.S.
Switch Output	N.O., Switch Output Mode with Hysteresis Adjustment
Output Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor 30 VAC, 80 mA
Switch Output Setting H	3-Turn Trimmer
Hysteresis Setting h	3/4-Turn Trimmer (3 to 20% of Switch Output Setting)
Response Time	< 2,5 ms
Repeatability	±1% F.S.
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)
General Protection	IP65 or IP40, EMC Rating : EN55011 Class B, EN50082-2
Current Consumption	< 20 mA
Spike Protection	400 VP, 1 µs
Dielectric Strength	1000 VAC, 1 min.
Insulation Resistance	> 100 Mohms at 500 VDC
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.
Shock Resistance	100 G, XYZ
Material	Housing: Polycarbonate, Pressure Port: Zinc Die-cast
Mass	30 g

Output Setting

Switch Output Setting

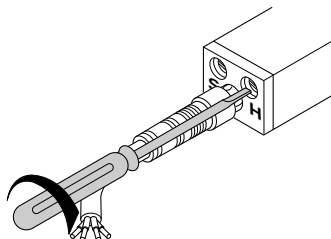
The Switch Point of the output signal is adjusted with a 3-turn potentiometer trimmer (**S**). To set the switch point pressure, rotate the trimmer clockwise to raise the switch pressure and rotate the trimmer counter clockwise to lower the switch pressure.



Hysteresis Setting

The Hysteresis setting is a 3/4 - turn potentiometer trimmer with a range of 3% to 20% **below** the switch point (**S**). Rotate the Hysteresis trimmer (**H**) clockwise to increase the Hysteresis range and rotate the trimmer counter clockwise to lower the Hysteresis range (**h**). A separate pressure gauge is necessary to accurately adjust these values.

For best results, set the switch point (**H**) of the output signal before adjusting the hysteresis range. For fine tuning the hysteresis range, re-adjust the switch point (**S**) of the output signal.



⚠ Cautions

The MPS-1 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

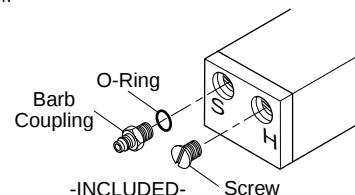
Potentiometer for the Switch Point Pressure and Hysteresis Range is sensitive. Excessive force or exceeding the limits of the trimmers may cause damage.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using the metal mounting base.
- To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2 mm I. D. tube and install screw as shown.

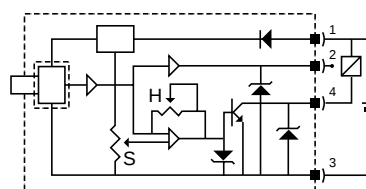


Wiring Diagram

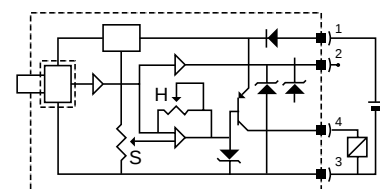
Pin #

- 1 Brown: 24 VDC
- 2 White: Analog 1 to 5 VDC Output
- 3 Blue: 0 VDC
- 4 Black: NPN / PNP Open Collector Output

Internal Circuit



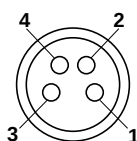
NPN (Sinking)



PNP (Sourcing)

Sensor Male

Pin Out

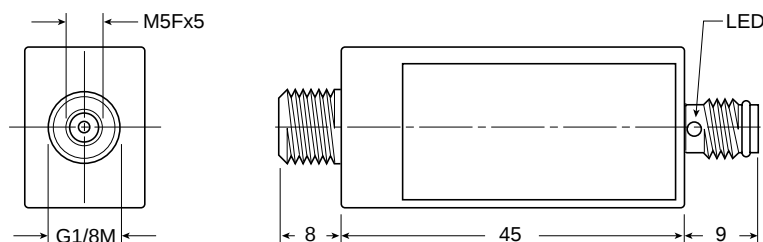


Dimensions

G

1/8" Male

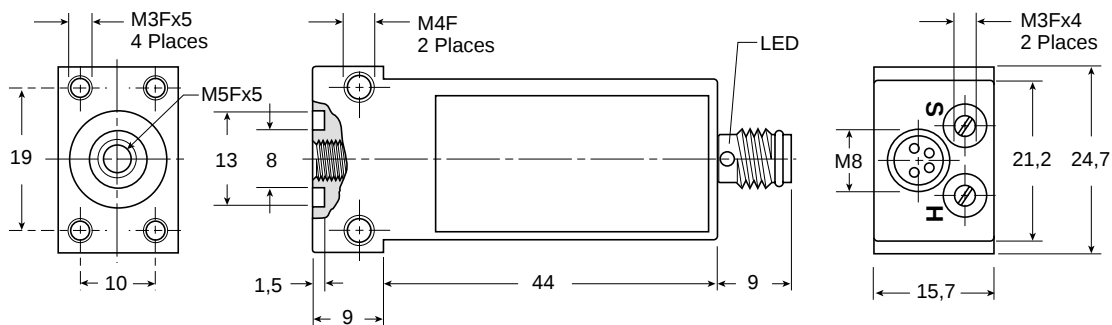
M8, 4-Pin



E

Flange Mount

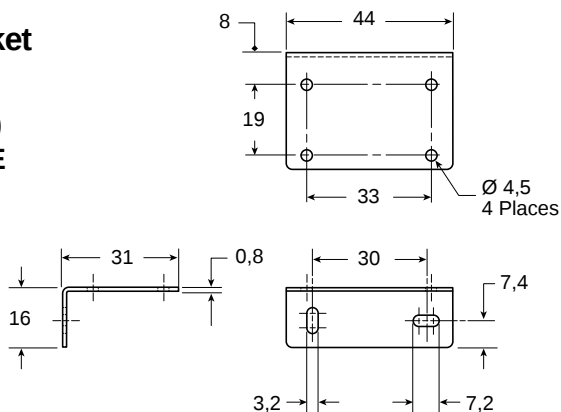
M8, 4-Pin



Accessories

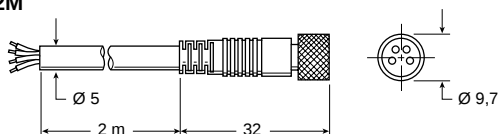
**Flange Bracket
for V1E Type**

**(Not included)
= ACCMPS-1E**

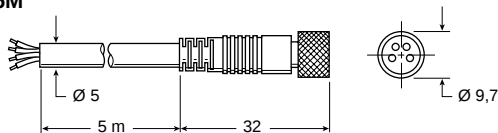


Cables

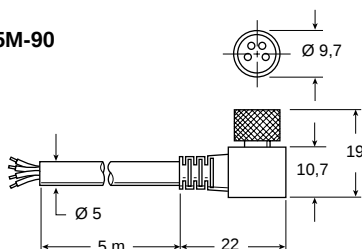
CB-M8-4P-2M



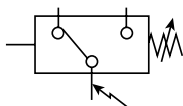
CB-M8-4P-5M



CB-M8-4P-5M-90



MPS-2



Features

- **Pressure Ranges:**
 Vacuum 0 to -1 bar
 Positive Pressure 0 to 10 bar
- **Sensor Outputs:**
 2 NPN or PNP Open Collector Transistor Output , 30 VDC, 125 mA
- **Switch Point and High-low Programming**
- **4 Selectable Units of Measure**
 (mmHg, -bar, -kPa, inHg)
 (kgf/cm², PSI, bar, kPa)
- **Output Response Time Less Than 2,0 Milliseconds**
- **IP65 Rated and CE Marked**
- **Air and Non-Corrosive Gases**
- **Error Message**

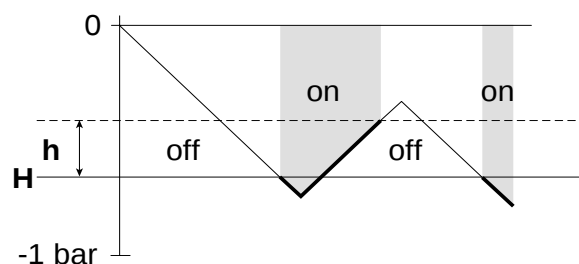
Model Number	Output	Pressure Range
MPS-V2G-PC	PNP	0 to -1 bar
MPS-P2G-PC	PNP	0 to 10 bar

Output Modes

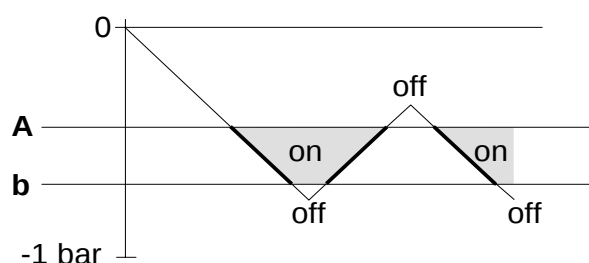
The MPS-2 Series Sensor has two independent NPN or PNP open collector output signals. The Switch Output Mode has a switch point programmed by the user at a specified pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

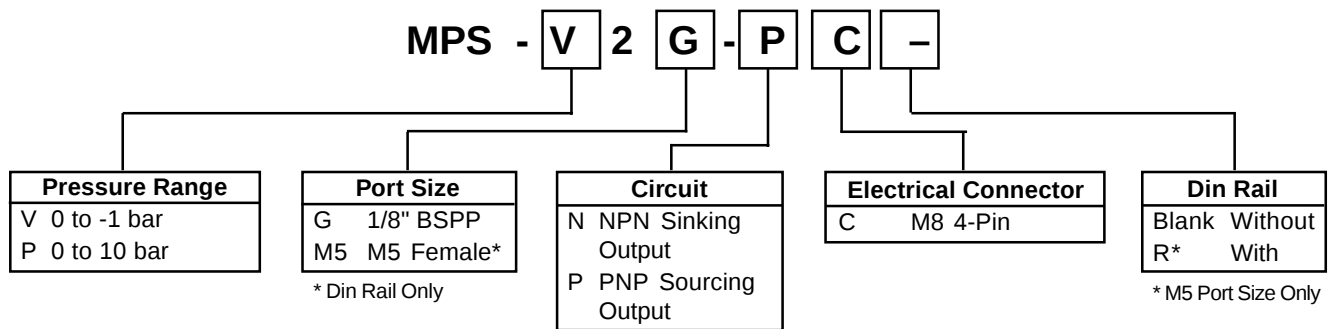
Switch Output



Window Comparator Output



Model Number Index



MPS-V2G-PC



MPS-P2M5-PGR

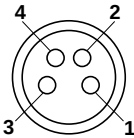
Specifications

Pressure Range	Vacuum (V)		Positive (P)	
Units of Measure Display Resolution	kPa:	0,1	MPa:	0,001
Media	Air and Non-Corrosive Gases			
Pressure Port	G: 1/8" BSPP, M5: M5 Female			
Proof Pressure	V: 5 bar, P: 15 bar			
Operating Temperature	0 to 50 °C			
Storage Temperature	-10 to 60 °C			
Humidity	35 to 85% RH			
Electrical Connection	C: 4-Pin, M8 Connector			
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection			
Display	3-Digit, 7-Segment LED			
Display Refresh	0,1 to 3,0 sec. (Factory set at 0,1)			
Output Circuit	NPN (Sinking) or PNP (Sourcing) Output, Open Collector Transistor 30 VDC, 125 mA			
Switch Output	2 Output Signals, NPN or PNP, Normally Open or Closed, LED Indicator			
Output Modes	Hysteresis or Window Comparator			
Response Time	< 2 ms, with Programmable Increments 32, 128, 1024 ms			
Repeatability	± 0,2% F.S.			
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)			
General Protection	IP65 or IP40, CE Rating, EMC-EN55011 Class B, EN 50082-2			
Insulation Resistance	> 100 Mohms at 500 VDC			
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.			
Shock Resistance	10 G, XYZ			
Material	Housing: Polycarbonate, Pressure Port: Zinc Die-cast			
Mass	45 g			

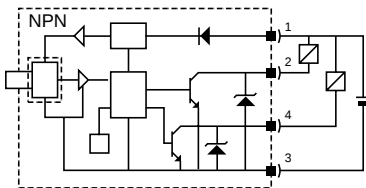
Wiring Diagram

- Pin #
- 1 Brown: 24 VDC
 - 2 White: NPN / PNP Open Collector Output
 - 3 Blue: 0 VDC
 - 4 Black: NPN / PNP Open Collector Output

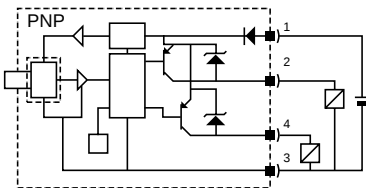
Sensor Male
Pin Out



Internal Circuit



NPN Sinking



PNP Sourcing

 Cautions

The MPS-2 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents. The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

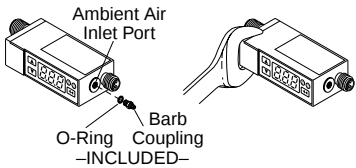
- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install as shown using the metal mounting base.
- To achieve IP65 rating, connect the o-ring and barb as shown to a normal environment with a 2 mm I. D. tube.



Error Messages

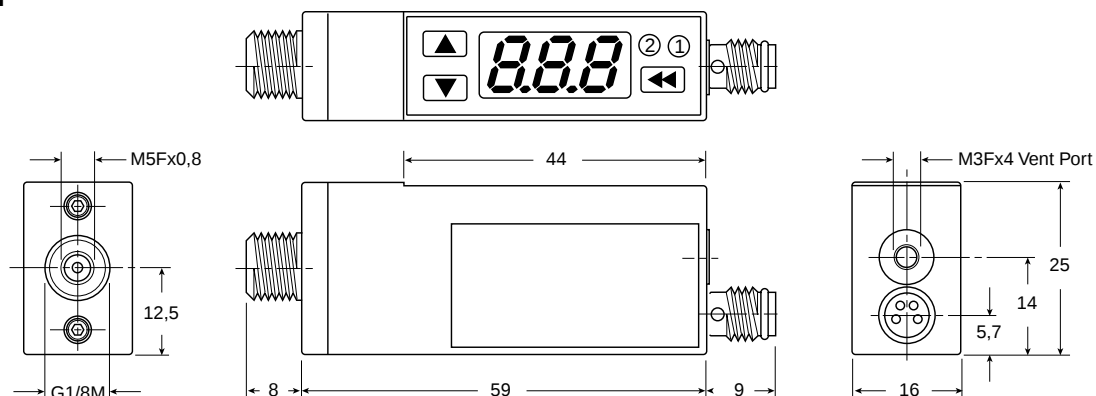
Display	Description	Solutions
Err	Zero Reset Error 3% of F.S.	Reset Zero Below
Er1	System Error (Internal)	Contact Factory
Er2	Auto Teach Mode Error	Restart Function
CE1	Over current of Output 1	Load current exceeds maximum 125 mA.
CE2	Over current of Output 2	
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

Dimensions

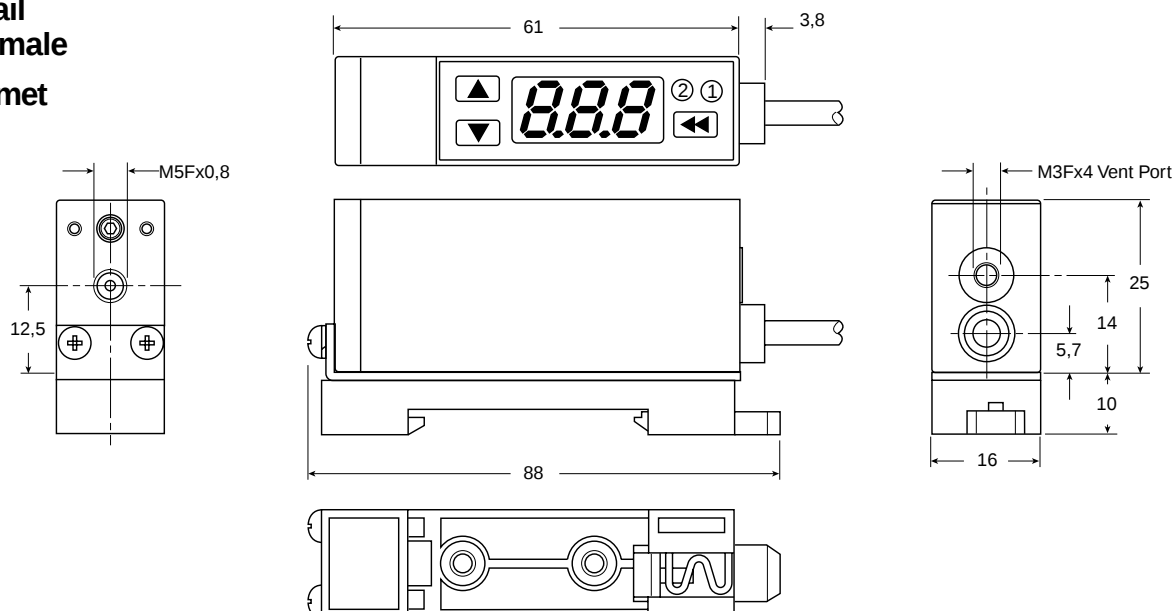
G

1/8" Male

M8, 4-Pin



Din Rail
M5 Female
Grommet



See page 181 for Symbol Explanation

1 Hold Press 1x

Output Set Open or Closed Selecting Units of Measure Easy Mode Activation

ou1 $\leftrightarrow$ no $\uparrow$ $\downarrow$ nc

ou2 $\leftrightarrow$ no $\uparrow$ $\downarrow$ nc

-PR $\uparrow$ -bA $\uparrow$ -H9 $\uparrow$ -iH

PR $\uparrow$ bA $\uparrow$ F9 $\uparrow$ PS

ESY $\leftrightarrow$ OFF $\uparrow$ on

2 Press 2x

Output Mode 1 Hysteresis or Window Comparator

ou1 $\leftrightarrow$ HYS $\uparrow$ CnP $\uparrow$ OFF

End

3 Press 4x

Output Mode 2 Hysteresis or Window Comparator

ou2 $\leftrightarrow$ HYS $\uparrow$ CnP $\uparrow$ OFF

End

4 Press 1x

Output 1 Setting Hysteresis Mode

H-1 $\leftrightarrow$ 70 $\uparrow$ 145 $\downarrow$ 0

h-1 $\leftrightarrow$ 13 $\uparrow$ 145 $\downarrow$ 0

Window Comparator Mode

Low

A-1 $\leftrightarrow$ 42 $\uparrow$ 144 $\downarrow$ 0

High

b-1 $\leftrightarrow$ 71 $\uparrow$ 145 $\downarrow$ 1

End

5 Press 3x

Output 2 Setting Hysteresis Mode

H-2 $\leftrightarrow$ 97 $\uparrow$ 145 $\downarrow$ 0

h-2 $\leftrightarrow$ 13 $\uparrow$ 145 $\downarrow$ 0

Window Comparator Mode

Low

A-2 $\leftrightarrow$ 85 $\uparrow$ 144 $\downarrow$ 0

High

b-2 $\leftrightarrow$ 113 $\uparrow$ 145 $\downarrow$ 1

End

6 Press 5x

Automatic Teach Mode & Auto Surveillance

AL $\leftrightarrow$ on $\uparrow$ OFF

ALn $\leftrightarrow$ 1 $\uparrow$ 100 $\downarrow$ 1

End

7 Press 6x

Display Refresh Settings / Output Response Time Interval

dSP $\leftrightarrow$ 0.1 $\uparrow$ 30 $\downarrow$ 0.1

ALe $\leftrightarrow$ 1 $\uparrow$ 16 $\uparrow$ 64 $\downarrow$ 5 12

End

8 Press 7x

Display Peak Value Bottom Value or Their Difference

Pb $\leftrightarrow$ OFF $\uparrow$ on

Pbt $\leftrightarrow$ 10 $\uparrow$ 99 $\downarrow$ 2

Pbd $\leftrightarrow$ PE $\uparrow$ 60 $\uparrow$ du

End

9 Press 8x

Special Display Features

dSF $\leftrightarrow$ OFF $\uparrow$ on

Fnc $\leftrightarrow$ 1b $\uparrow$ 1d $\uparrow$ 2b $\uparrow$ 2d

End

off

AL

10 Hold Press

Lock

Hold Press

Unlock

11 Press 1x

Peak Value

Press 1x

Bottom Value

12 Press for 3 Seconds

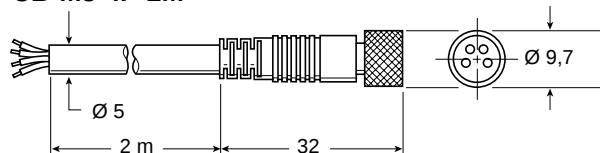
Zero Reset

0

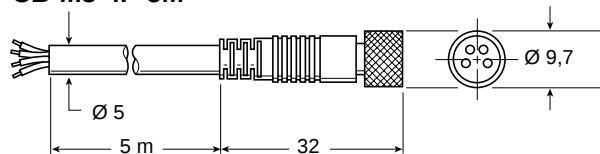
Accessories

Cables

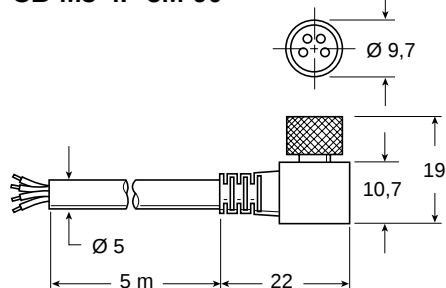
CB-M8-4P-2M



CB-M8-4P-5M

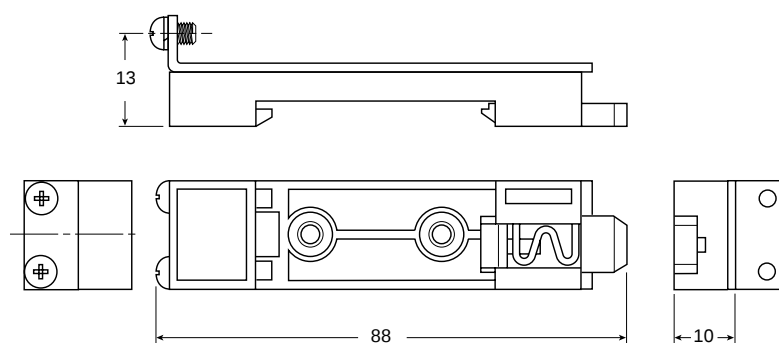


CB-M8-4P-5M-90

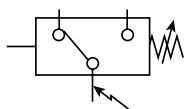


Din Rail

MPS-ACCK4



MPS-3



Features

- **Pressure Ranges:**
 Vacuum 0 to -1 bar
 Positive Pressure 0 to 10 bar
- **Sensor Outputs:**
 2 NPN or PNP Open Collector Transistor Output, 30 VDC, 125 mA
 Optional Analog 1 to 5 VDC
- **Switch Point and High-low Programming**
- **4 Selectable Units of Measure**
 (mmHg, -bar, -kPa, inHg)
 (kgf/cm², PSI, bar, kPa)
- **Output Response Time Less Than 2,0 Milliseconds**
- **IP65 Rated and CE Marked**
- **Air and Non-Corrosive Gases**
- **Error Message**

Model Number	Output	Pressure Range
MPS-V3G-PC	PNP	0 to -1 bar
MPS-V3G-PG	PNP	0 to -1 bar
MPS-P3G-PC	PNP	0 to 10 bar
MPS-P3G-PG	PNP	0 to 10 bar

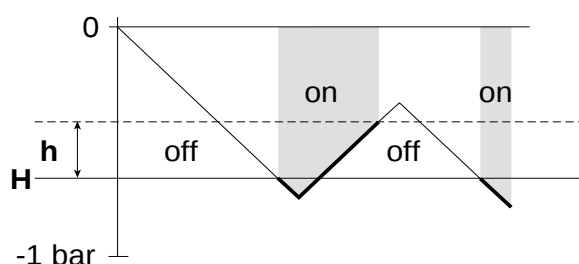
Output Modes

The MPS-3 Series Sensor has two independent NPN or PNP open collector output signals. An analog output is optional. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

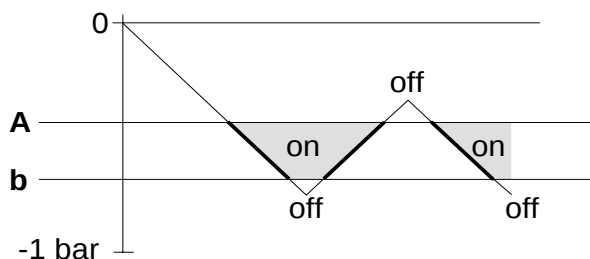
The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

The optional Analog Output Signal is calibrated to the pressure scale of the sensor.

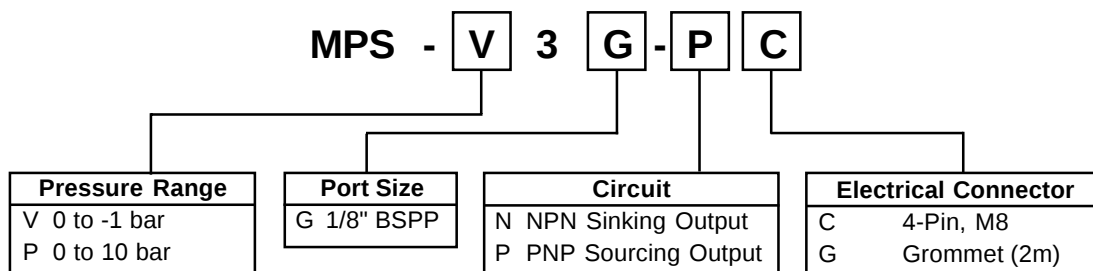
Switch Output



Window Comparator Output



Model Number Index



MPS-V3G-PC



MPS-V3G-PG

Specifications

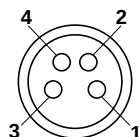
Pressure Range	Vacuum (V)	Positive (P)
Units of Measure Display Resolution	kPa: 0,1	MPa: 0,001
Media	Air and Non-Corrosive Gases	
Pressure Port	G: 1/8" BSPP Female	
Proof Pressure	V: 10 bar, P: 15 bar	
Operating Temperature	0 to 50 °C	
Storage Temperature	-10 to 60 °C	
Humidity	35 to 85% RH	
Electrical Connection	C: 4-Pin, M8 Connector, G: Grommet Open Lead	
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection	
Display	3-Digit, 7-Segment LED	
Display Refresh	0,1 to 3,0 sec. (Factory set at 0,1)	
Output Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30 VDC, 125 mA	
Switch Outputs	2 Output Signals, NPN or PNP, Normally Open or Closed, LED Indicator	
Output Modes	Hysteresis or Window Comparator	
Output Response Time	< 2 ms with Programmable Increment 32, 128, 1024 ms (XS2H2-32, 256, 512 ms)	
Repeatability	± 0,2% F.S.	
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)	
General Protection	IP65 or IP 40, CE Rating, EMC-EN55011 Class B, EN 50082-2	
Current Consumption	< 55 mA	
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.	
Shock Resistance	10 G, XYZ	
Material	Housing: Polycarbonate, Pressure Port: Zinc Die-cast	
Mass	45 g	

Open Collector Wiring

Pin #

- 1 Brown: 24 VDC
- 2 White: NPN / PNP Open Collector Output
- 3 Blue: 0 VDC
- 4 Black: NPN / PNP Open Collector Output

Sensor Male Pin Out



⚠ Cautions

The MPS-3 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

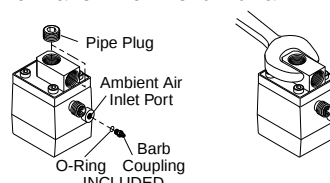
- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install as shown using the metal mounting bracket.
- To achieve IP65 rating, connect the o-ring and barb as shown to a normal environment with a 2 mm I. D. tube.



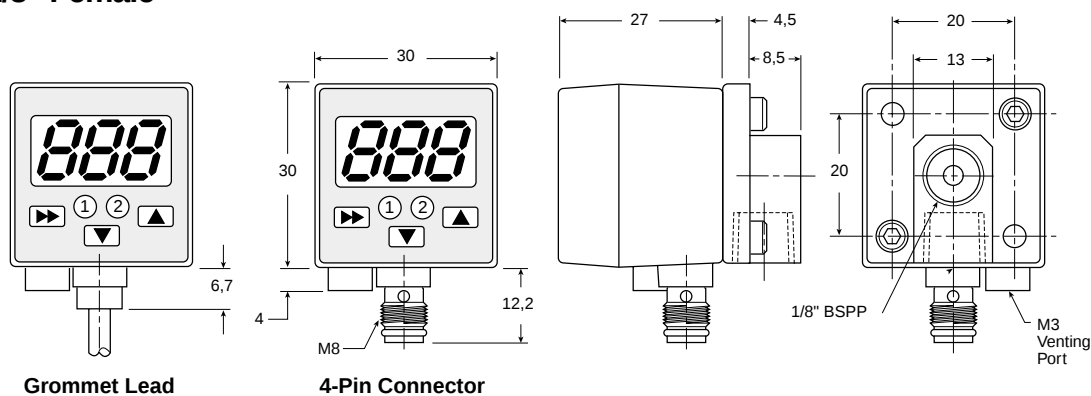
Error Messages

Display	Description	Solutions
Err	Zero Reset Error 3% of F.S.	Reset Zero Below
Er1	System Error (Internal)	Contact Factory
Er2	Auto Teach Mode Error	Restart Function
CE1	Over current of Output 1	Load current exceeds maximum 125 mA.
CE2	Over current of Output 2	
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

Dimensions

G

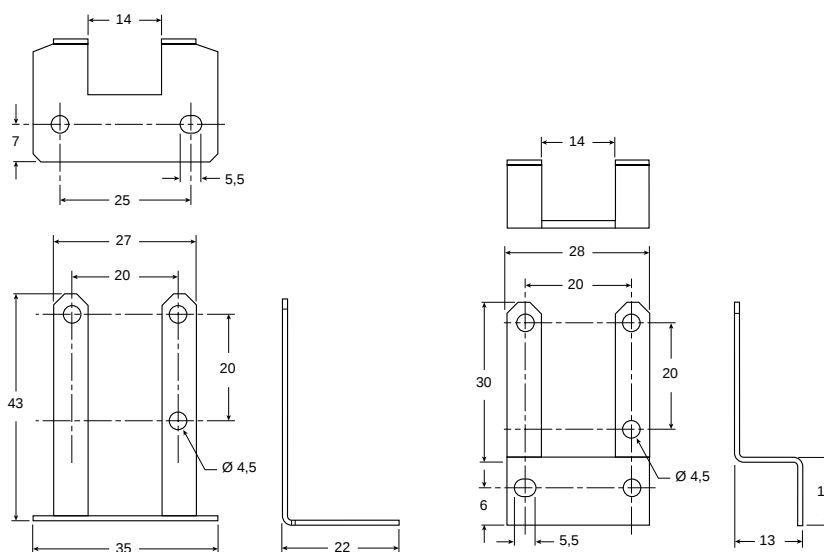
1/8" Female



MPS-ACCK1

**Mounting
Brackets**

(Included)



See page 181 for Symbol Explanation

1 Hold Press 1x

Output Set Open or Closed Selecting Units of Measure
Easy Mode Activation

ou1 $\Rightarrow$ no Δ nc
ou2 $\Rightarrow$ no Δ nc
-PR Δ -bR Δ -H9 Δ -iH
PR Δ bR Δ F9 Δ PS
ESY $\Rightarrow$ off Δ on

4 Press 1x

Output 1 Switch Point Setting
Hysteresis Mode

H-1 $\Rightarrow$ 70 Δ 145
h-1 $\Rightarrow$ 13 Δ 145
Window Comparator Mode
Low
A-1 $\Rightarrow$ 42 Δ 144
High
b-1 $\Rightarrow$ 71 Δ 145
End

7 Press 6x

Display Refresh Settings / Output Response Time Interval

dSP $\Rightarrow$ 0.1 Δ 30
ALe $\Rightarrow$ 1 Δ 16 Δ 64
End Δ 5 12

10 Hold Press 1x

Lock

Hold Press 1x

Unlock

2 Press 2x

Output Mode 1 Hysteresis or Window Comparator

ou1 $\Rightarrow$ HYS Δ CnP Δ off
End

5 Press 3x

Output 2 Switch Point Setting
Hysteresis Mode

H-2 $\Rightarrow$ 97 Δ 145
h-2 $\Rightarrow$ 13 Δ 145
Window Comparator Mode
Low
A-2 $\Rightarrow$ 85 Δ 144
High
b-2 $\Rightarrow$ 113 Δ 145
End

8 Press 7x

Display Peak Value Bottom Value or Their Difference

Pb $\Rightarrow$ off Δ on
Pbt $\Rightarrow$ 10 Δ 99
Pbd $\Rightarrow$ PE Δ bo Δ du
End

11 Press 1x

Peak Value

Press 1x

Bottom Value

3 Press 4x

Output Mode 2 Hysteresis or Window Comparator

ou2 $\Rightarrow$ HYS Δ CnP Δ off
End

6 Press 5x

Automatic Teach Mode & Auto Surveillance

AL $\Rightarrow$ on Δ off
ALn $\Rightarrow$ 1 Δ 100
End

Vacuum Cycle 803
Release Cycle 0

9 Press 8x

Special Display Features

dSF $\Rightarrow$ off Δ on
Fnc $\Rightarrow$ 1b Δ 1d Δ 2b Δ 2d
End Δ off
AL

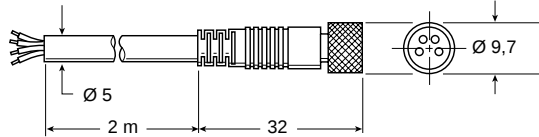
12 Press for 3 Seconds

Zero Reset

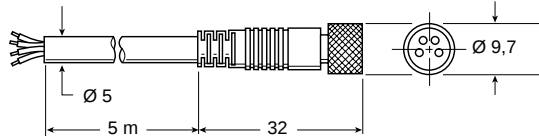
Accessories

Cables

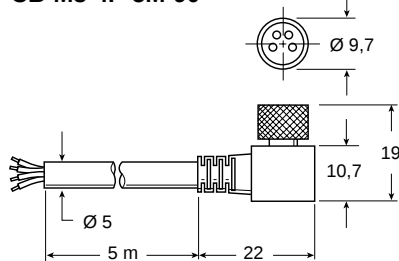
CB-M8-4P-2M



CB-M8-4P-5M

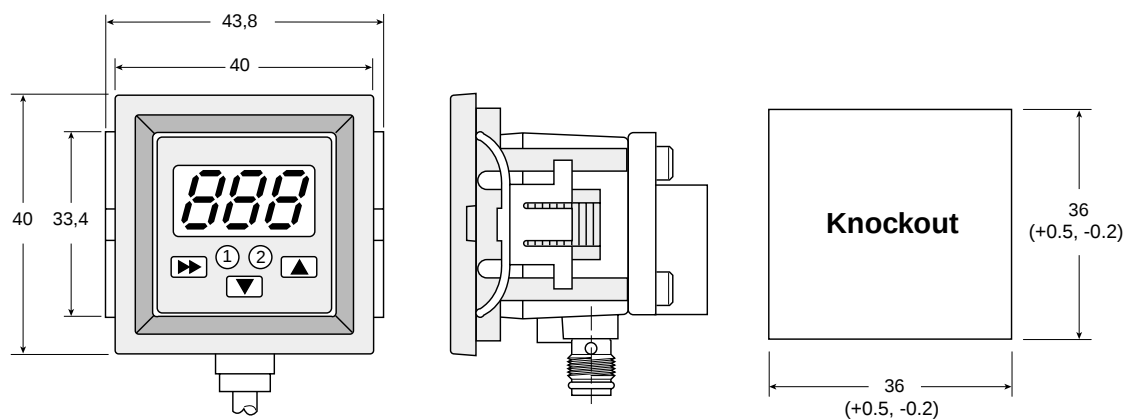


CB-M8-4P-5M-90



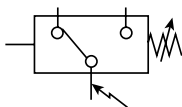
MPS-ACCH7

Panel Mounting Bracket



MPS-31

Red ↔ Green Display



Model Number	Output	Pressure Range
MPS-V31G-PC	PNP	0 to -1 bar
MPS-V31G-PG	PNP	0 to -1 bar
MPS-P31G-PC	PNP	0 to 10 bar
MPS-P31G-PG	PNP	0 to 10 bar

Features

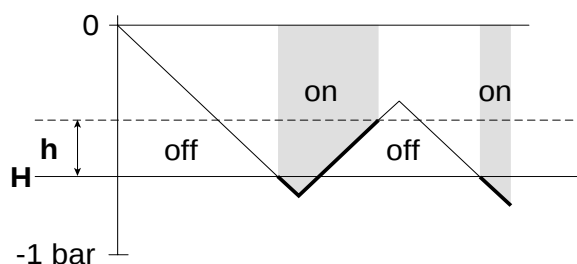
- **Pressure Ranges:**
 Vacuum 0 to -1 bar
 Positive Pressure 0 to 10 bar
- **Sensor Output:**
 1 NPN or PNP Open Collector
 Transistor Output , 30 VDC, 125 mA
- **Switch Point and High-low Programming**
- **4 Selectable Units of Measure**
 (mmHg, -bar, -kPa, inHg)
 (kgf/cm², PSI, bar, kPa)
- **Output Response Time Less Than 2,0 Milliseconds**
- **IP65 Rated and CE Marked**
- **Air and Non-Corrosive Gases**
- **Error Message**

Output Modes

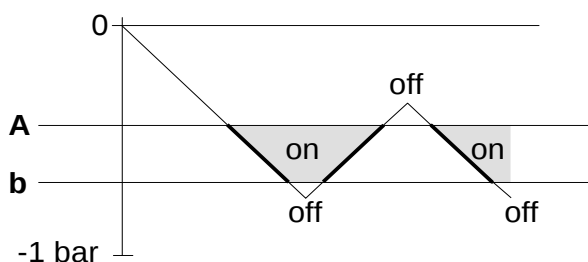
The MPS-31 Series Sensor has one independent NPN or PNP open collector output signal. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the “High / Low” setting.

Switch Output

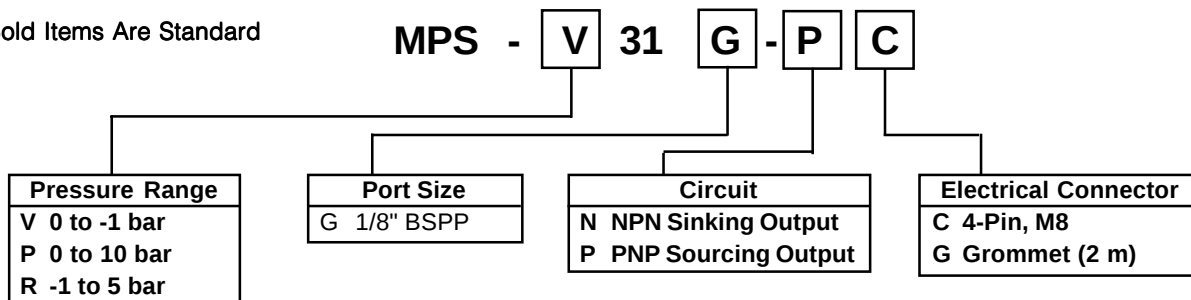


Window Comparator Output



Model Number Index

Bold Items Are Standard



MPS-V31G-PG

Mounting Bracket MPS-ACCK1 Included with Sensors.



MPS-V31G-PC

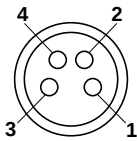
Specifications

Pressure Range	Vacuum (V)	Positive (P)	Compound (R)
Units of Measure Display Resolution	kPa: 0,1	MPa: 0,001	kPa: 1
Media	Air and Non-Corrosive Gases		
Pressure Port	G: 1/8" BSPP		
Proof Pressure	V: 10 bar, P: 15 bar, R: 10 bar		
Operating Temperature	0 to 50 °C		
Storage Temperature	-10 to 60 °C		
Humidity	35 to 85% RH		
Electrical Connection	C: 4-Pin, M8 Connector, G: Grommet Open Lead		
Power Supply	10,8 to 26,4 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection		
Display	3-Digit, 7-Segment LED		
Display Refresh	0,1 to 3,0 sec. (Factory set at 0,1)		
Output Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30 VDC, 125 mA		
Switch Output	Output Signal, NPN or PNP, Normally Open or Closed, LED Indicator		
Output Modes	Hysteresis or Window Comparator		
Output Response Time	< 2 ms, 32, 256, 512 ms Programmable (Factory set 2 ms)		
Repeatability	± 0,2% F.S.		
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)		
General Protection	IP65 or IP40, CE Rating, EMC-EN55011 Class B, EN 50082-2		
Current Consumption	< 70 mA		
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.		
Shock Resistance	10 G, XYZ		
Material	Housing: Polycarbonate, Pressure Port: Zinc Die-cast		
Mass	48 g		

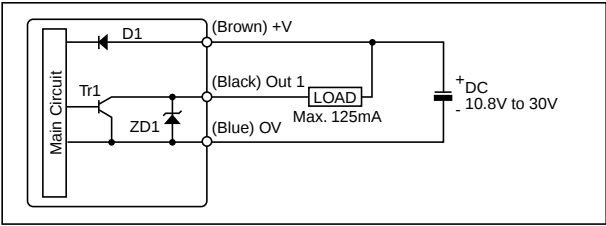
Open Collector Wiring

- Pin #
- 1 Brown: 24 VDC
 - 2 Black: NPN/PNP Output 1
 - 3 Blue: 0 VDC

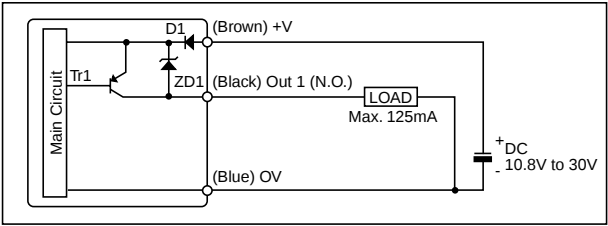
Sensor Male Pin Out



Internal Circuit



NPN



PNP

⚠ Cautions

The MPS-31 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents. The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

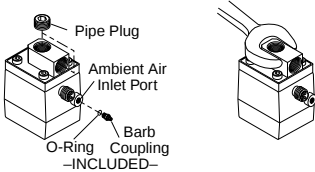
- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install as shown using the metal mounting bracket.
- To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2 mm I. D. tube.

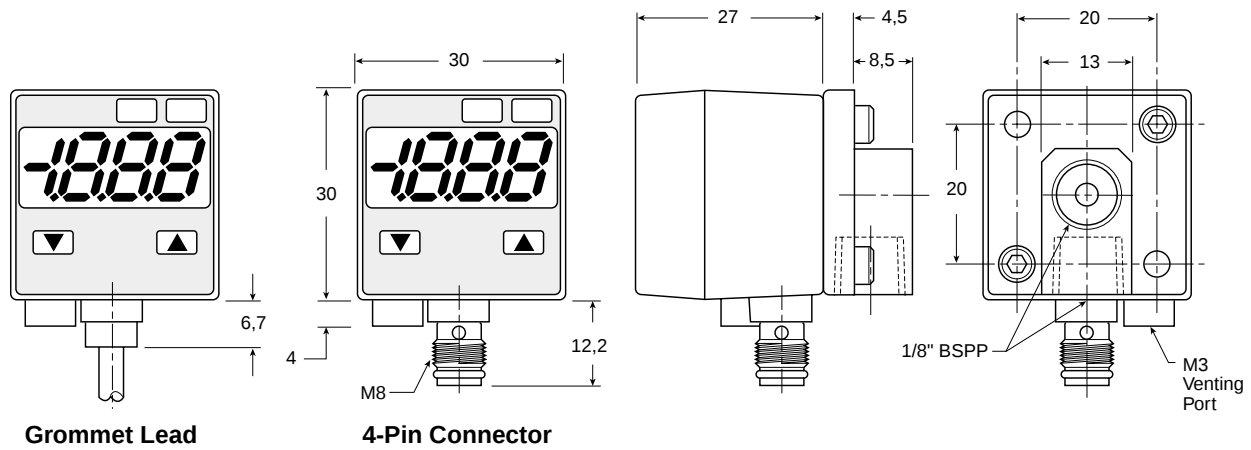


Error Messages

Display	Description	Solutions
Err	Zero Reset Error 3% of F.S.	Reset Zero Below
Er1	System Error (Internal)	Contact Factory
CE1	Over current of Output 1	Load current exceeds
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

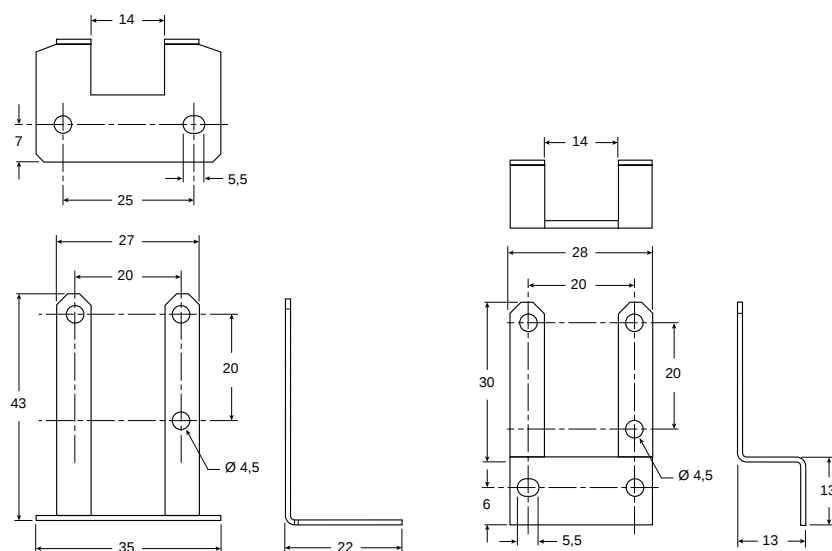
Dimensions

G
1/8" Female



MPS-ACCK1

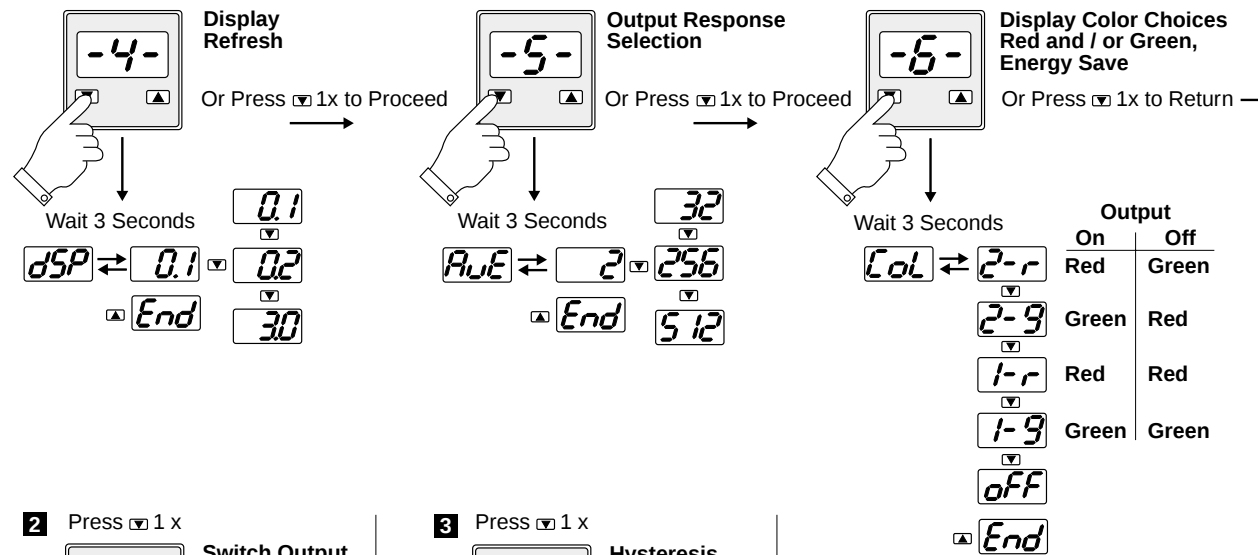
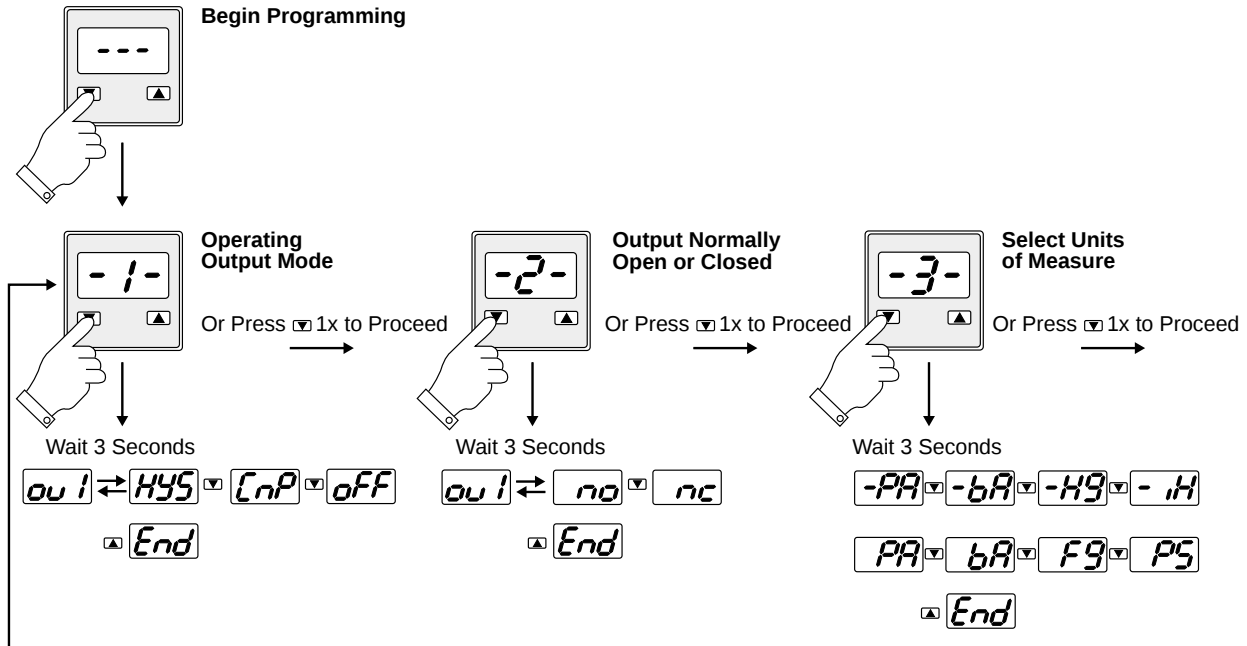
**Mounting
Brackets
(Included)**



See page 181 for Symbol Explanation

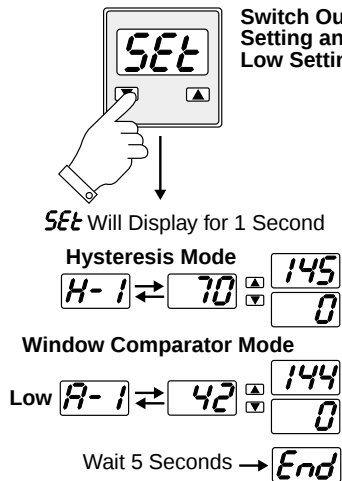
1 Press for 3 Seconds

Begin Programming



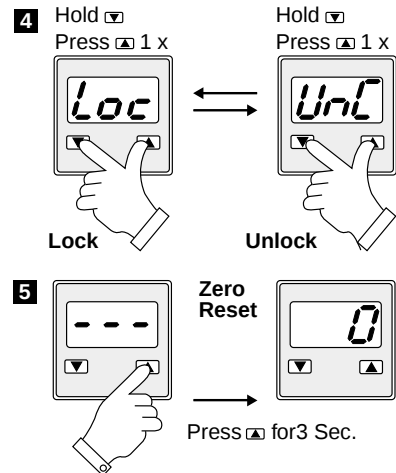
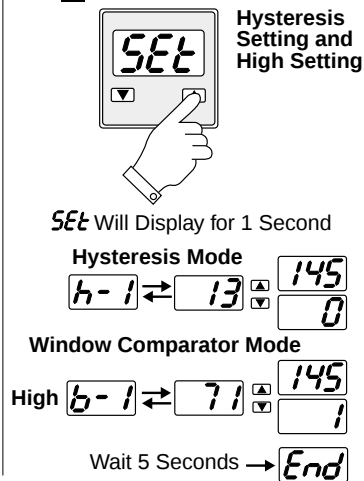
2 Press 1 x

Switch Output Setting and Low Setting



3 Press 1 x

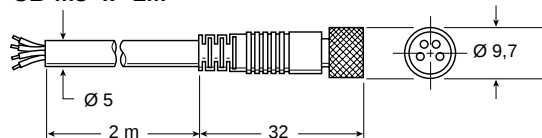
Hysteresis Setting and High Setting



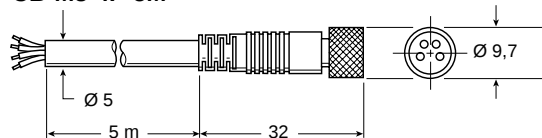
Accessories

Cables

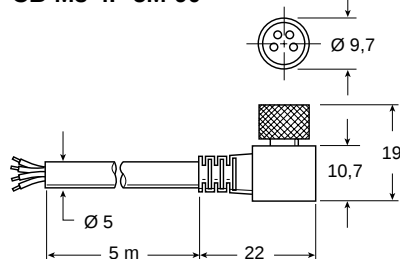
CB-M8-4P-2M



CB-M8-4P-5M

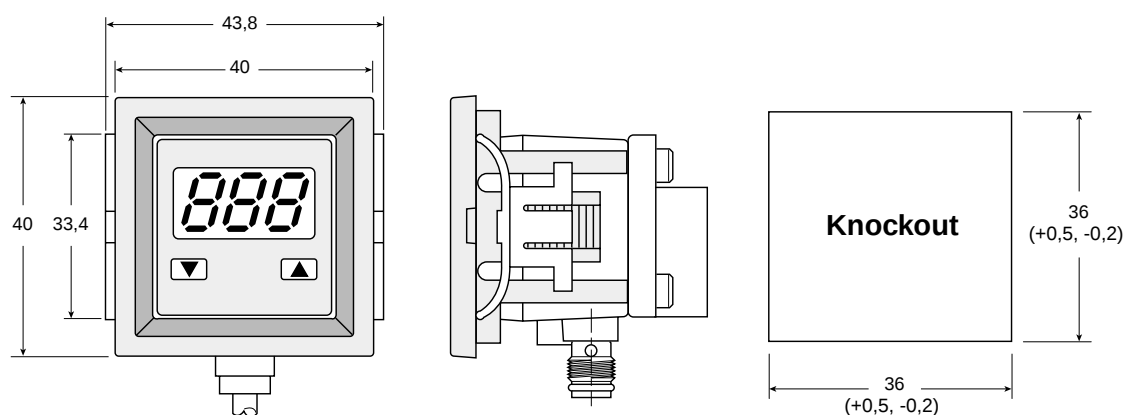


CB-M8-4P-5M-90

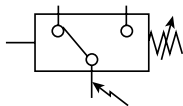


MPS-ACCH7

Panel Mounting Bracket



MPS-6



Features

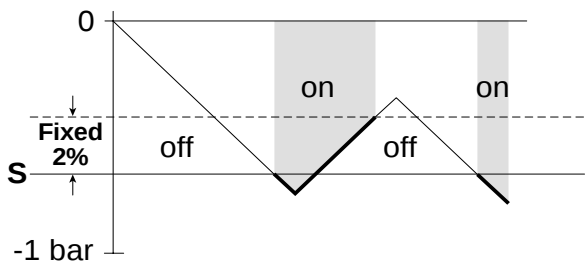
- **Pressure Ranges:**
Vacuum 0 to -1 bar
Positive Pressure 0 to 10 bar
- **Sensor Outputs:**
1 Open and 1 Closed NPN or PNP Open Collector Transistor Output
30 VDC, 125 mA
1 Analog Output 1 to 5 VDC
- **Switch Point 2/3 Trimmer**
- **Fixed Hysteresis 2%**
- **Output Response Time Less Than 1 Millisecond**
- **Analog Output Type Compatible with MPS-7 Display**
- **IP40 Rated and CE Marked**
- **Air and Non-Corrosive Gases**

Model Number	Output	Pressure Range
MPS-V6G-PC	PNP	0 to -1 bar
MPS-V6G-AG	Analog	0 to -1 bar
MPS-V6G-AGE	Analog	0 to -1 bar
MPS-P6G-PC	PNP	0 to 10 bar
MPS-P6G-AG	Analog	0 to 10 bar
MPS-P6G-AGE	Analog	0 to 10 bar

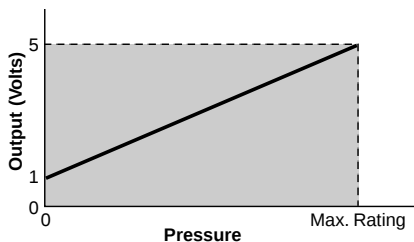
Output Modes

The MPS-6 Series Sensor is compact and lightweight with NPN or PNP open connector switch output or analog output capabilities. The sensor can be used as a stand alone unit or in combination with the MPS-7 series display. The MPS-6 Switch Output unit provides one open and closed output for the same switch point. The MPS-6 Analog Output unit provides analog output 1 to 5 VDC. Analog output is required for use with the MPS-7 display.

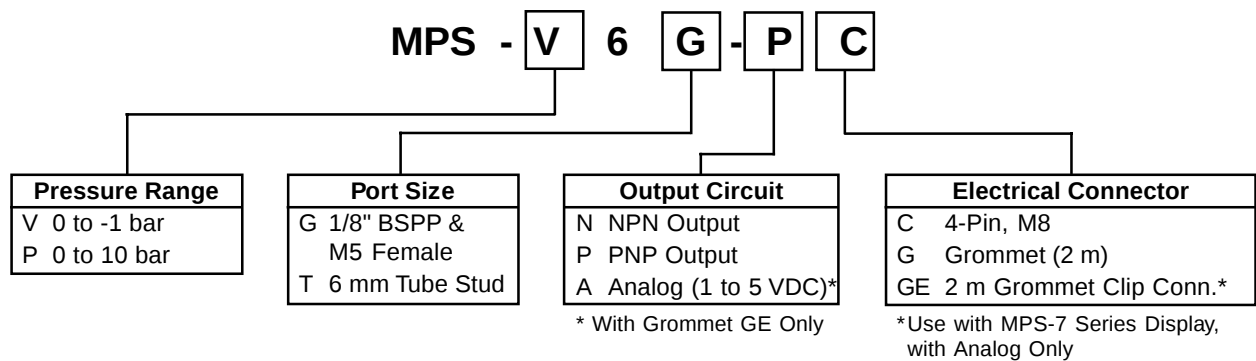
Switch Output



Analog Output



Model Number Index



MPS-P6G-PC



MPS-P6G-AG



MPS-V6T-PG



MPS-P6G-AGE

Specifications

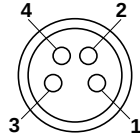
Media	Air and Non-Corrosives Gases
Pressure Port	G: 1/8" BSPP Male, T: 6 mm Tube Stud
Proof Pressure	V: 5 bar, P: 15 bar
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 60 °C
Humidity	35 to 85% RH
Electrical Connection	C: 4-Pin, M8 Connector G: Grommet Lead GE: Clip Type for use with MPS-7 Display
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% max., Reverse Voltage Protection
Switch Output	1 Output Signal Open and Closed, NPN or PNP, 30 VDC, 125 mA
Linear Output	Analog Output 1 to 5 VDC
Switch Point Setting	2/3 Turn Trimmer
Hysteresis Setting	≤ 2% of F.S.
Output Response Time	<1 ms
Repeatability	≤0,2% F.S.
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)
General Protection	IP40, CE Rating EN55011 Class B, EN50082-2
Current Consumption	< 20 mA
Spike Protection	400 VP, 1 µs, Surge Protection
Dielectric Strength	1000 VAC, 1 min.
Insulation Resistance	> 100 Mohm at 500 VDC
Vibration Resistance	10 to 55 Hz, 0,75 mm Amplitude, XYZ, 2 hrs.
Shock Resistance	100 G, XYZ
Material	Housing: Polycarbonate, Pressure Port: Zinc Die-cast
Mass	T Port: 7 g, N, R, G Port: 25 g

Open Collector Wiring

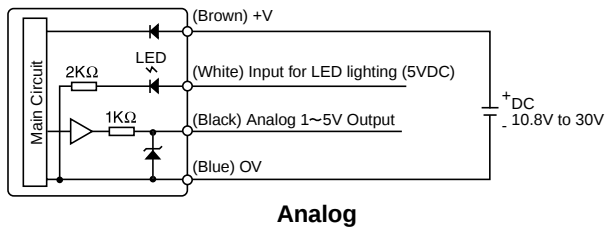
Pin #

- 1 Brown: 24 VDC
- 2 White: NPN / PNP Open Collector Output N. C.
- 3 Blue: 0 VDC
- 4 Black: NPN / PNP Open Collector Output N. O.

Sensor Male Pin Out



Internal Circuit

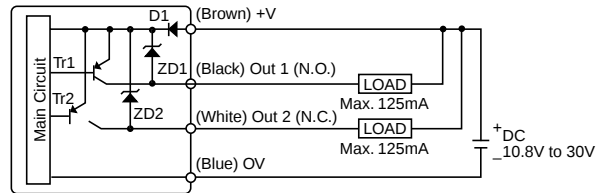


Analog

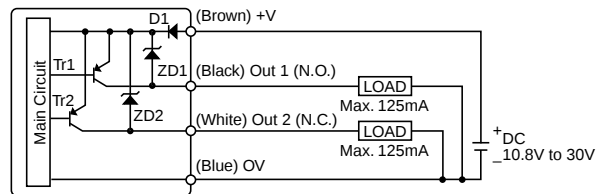
Analog Wiring

Pin #

- 1 Brown: 24 VDC
- 2 White: LED In 5 VDC
- 3 Blue: 0 VDC
- 4 Black: Analog 1 to 5 VDC



NPN Open Collector



PNP Open Collector

⚠ Cautions

The MPS-6 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

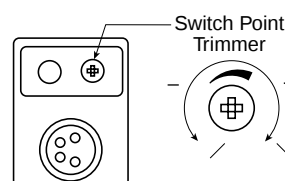
- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using the metal mounting bracket.

Trimmer Adjustment

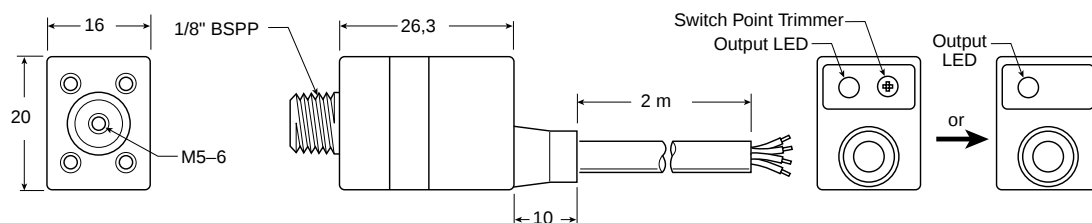
Rotate the potentiometer trimmer to increase or decrease pressure switch point output. Excessive force or exceeding the limits of the trimmers may cause damage.



Dimensions

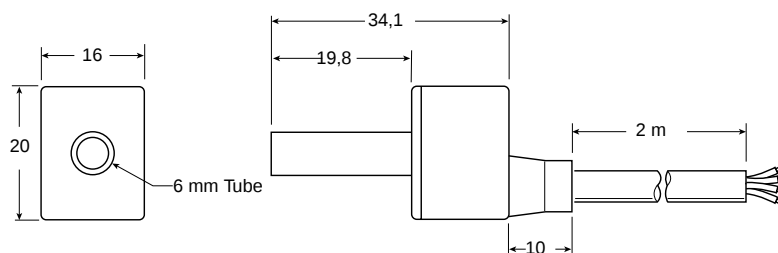
G

**1/8" Male,
M5 Female,
Grommet**



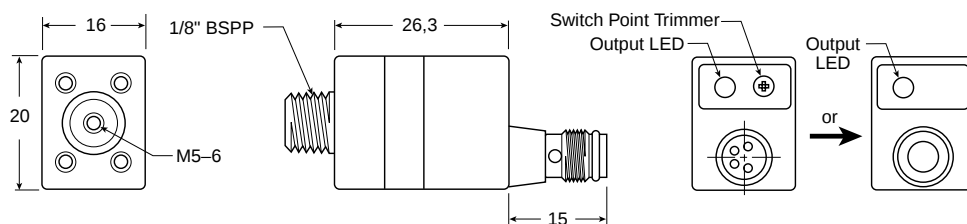
T6

**Tube Stud,
Grommet**



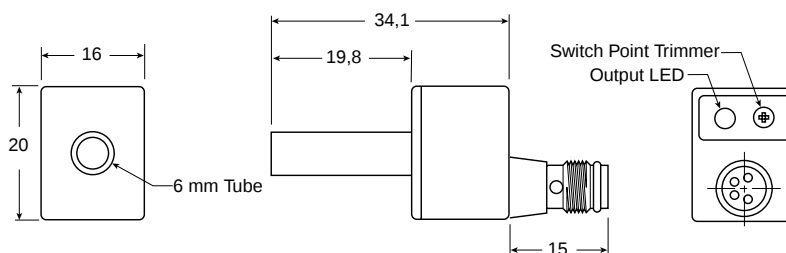
G

**1/8" Male,
M5 Female,
M8, 4-Pin**



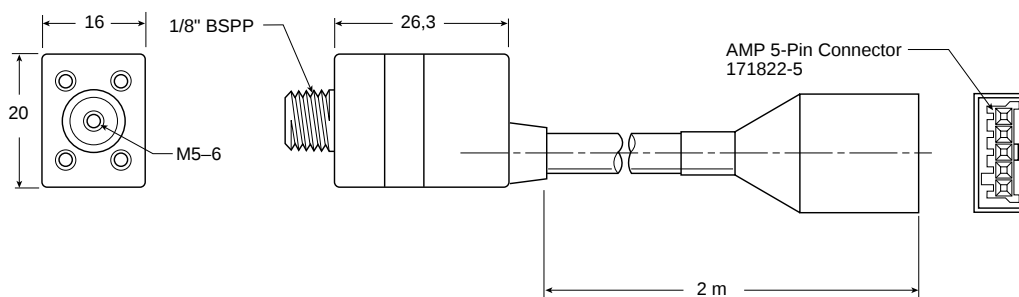
T6

**Tube Stud,
M8, 4-Pin**



G or T6

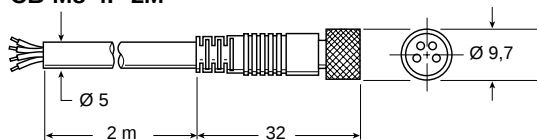
**Grommet
Clip Connector**



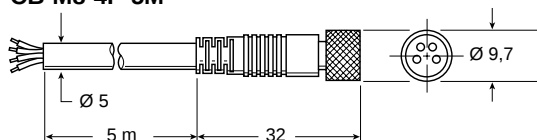
Accessories

Cables

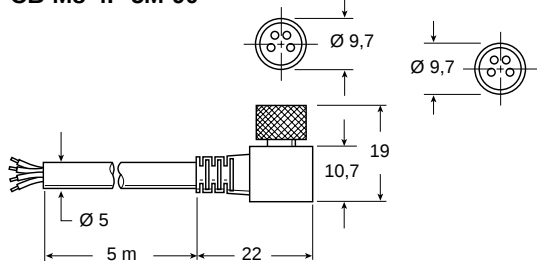
CB-M8-4P-2M



CB-M8-4P-5M



CB-M8-4P-5M-90



MPS-7



Features

- One Display with Output Programming Capability for MPS-5, 6, or 8 Analog Sensors
- Displays Pressure and Converts Analog Signal from Remote Sensor to NPN or PNP Open Collector Transistor Output, 30 VDC, 125 mA
- Compatible with 1 to 4 Remote Sensors
- MPS-71 Response Time Less Than 2,0 Milliseconds
- MPS-74 Response Time Less Than 5 Milliseconds
- IP40 Rated and CE Marked

Model Number	Output
MPS-71E-NC	NPN
MPS-71E-PC	PNP
MPS-71E-NG	NPN
MPS-71E-PG	PNP
MPS-74E-NG	NPN
MPS-74E-PG	PNP



MPS-71E-PG Control with Remote MPS-P6G-AGE Shown

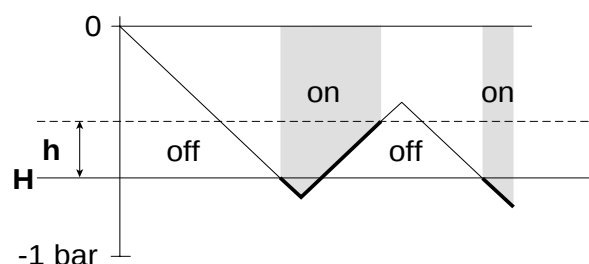
Output Modes

The MPS-7 is a central display and control for remote MPS-5, 6, 8 analog sensors. Each remote sensor supplies an analog signal to a specific channel on the MPS-7 which is converted to an open collector output "NPN / PNP".

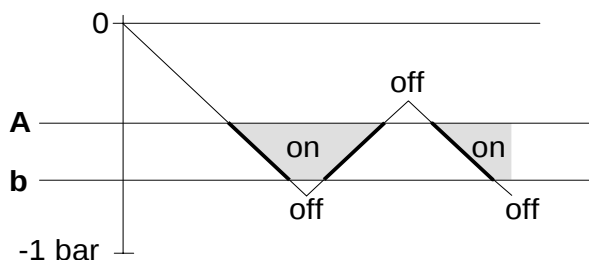
The Switch Output Mode has a switch point programmed by the user at a specified pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

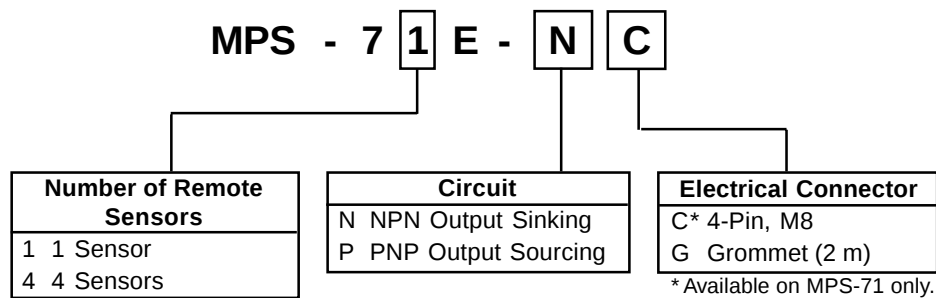
Switch Output



Window Comparator Output



Model Number Index



MPS-71E-PG

Mounting Bracket Included with Sensors.



MPS-74E-NG

Specifications

Remote Pressure Range	Vacuum (V)	Positive (P)
Units of Measure Display Resolution	kPa: 0,1	MPa: 0,001
Proof Pressure	See Remote Sensor Specifications	
Operating Temperature	0 to 50 °C	
Storage Temperature	-10 to 60 °C	
Humidity	35 to 85% RH	
Electrical Connection	G: Grommet Open Lead, C: M8 Connector	
Power Supply	10,8 to 30 VDC, Ripple (P-P) 10% Max., Reverse Voltage Protection	
Display	MPS-71: 3-Digit, 7-Segment LED, MPS-74: 4-Digit, 7-Segment LED	
Display Refresh	MPS-71: 0,1 to 3,0 sec. (Factory set at 0,1), MPS-74: 0,2 Fixed	
Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor, 30 VDC, 125 mA	
74 - 1 Switch Output 71 - 2 Switch Outputs	Output Signals, NPN or PNP, LED Indicator	
Linear Output Mode (71 Series)	Optional Output - Analog 1-5VDC, $\pm 0,2\%$ Linear Accuracy, 0,5% F.S	
Response Time	MPS-71 <2 ms, MPS-74 <5 ms	
Repeatability	$\pm 0,2\%$ F.S.	
Thermal Error	1% over ± 25 °C (77 °C) Temperature Change (Range 0 to 50 °C)	
General Protection	IP40	
Current Consumption	MPS-71 <45 mA, MPS-74 <75 mA	
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.	
Shock Resistance	10 G, XYZ	
Material	Body: Polycarbonate	
Mass	MPS-71: .25 g, MPS-74: 28 g	

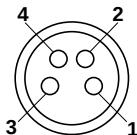
MPS-71 Open Collector Wiring

- Pin #
- 1 Brown: 24 VDC
 - 2 Black: NPN / PNP Open Collector
 - 3 Blue: 0 VDC
 - 4 White: NPN / PNP Open Collector

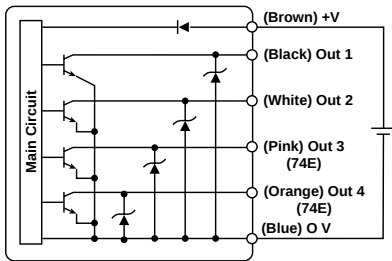
MPS-74 Open Collector Wiring

- Grommet Lead Only
- Brown: 24 VDC
 - Black: NPN / PNP Open Collector
 - Blue: 0 VDC
 - White: NPN / PNP Open Collector
 - Pink: NPN / PNP Open Collector
 - Orange: NPN / PNP Open Collector

Sensor Male Pin Out



Internal Circuit



MPS-71 & MPS-74 NPN / PNP Open Collector

 Cautions

The MPS-7 Central Display is designed to monitor pressure and is not a safety measure to prevent accidents. The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the MPS-7 Series and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.

Installation

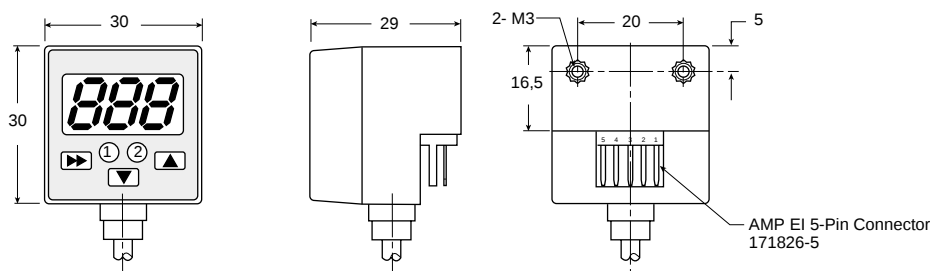
- Avoid short-circuiting the MPS-7 Series. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using Panel Mount Bracket or Back Mount Brackets.

Error Messages

Display	Description	Solutions
Err	Zero Reset Error	Reset Zero
PErr	Peak Value Error Source	Check Vacuum
Er1	System Error (Internal)	Contact Factory
CE1	Over current of Output 1	Load current exceeds maximum 125 mA.
CE2	Over current of Output 2	
CE3	Over current of Output 3 (MPS-74)	
CE4	Over current of Output 4 (MPS-74)	Apply pressures with the rating of the sensor
FFF -FF	Applied pressure exceeds pressure range	

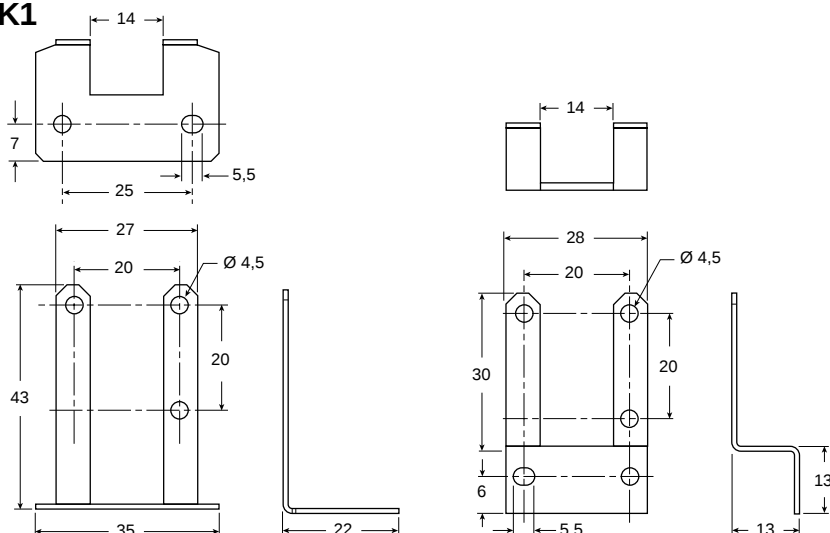
Dimensions

MPS-71

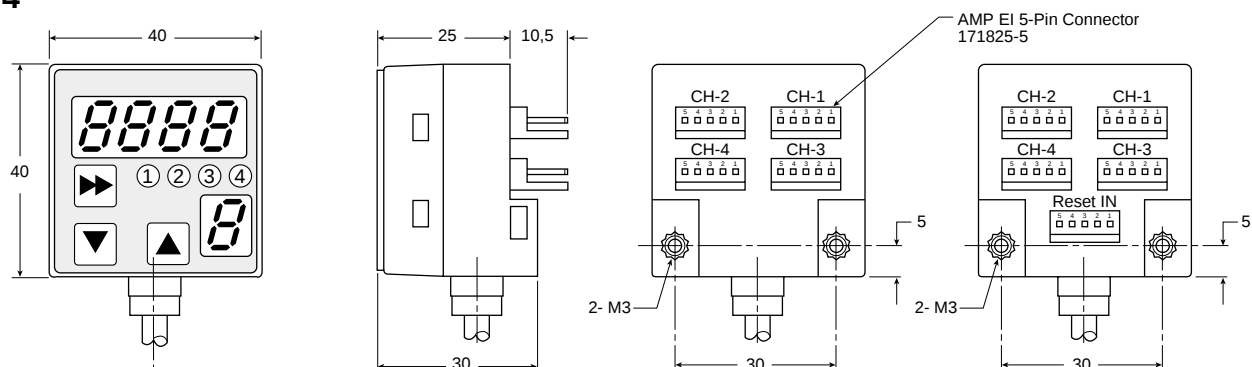


MPS-ACCK1

Mounting Bracket (Included)

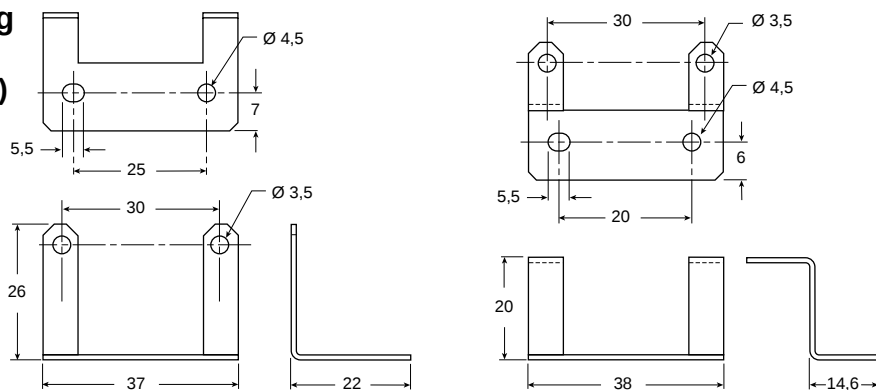


MPS-74



MPS-ACCK3

Mounting Bracket (Included)



See page 181 for Symbol Explanation

1 Hold Press 1x

Output Set Open or Closed
Easy Mode
Activation

ou1 no nc

ou2 no nc

-PR -bA -H9 -iH

PR bA F9 PS

ESY OFF on

2 Press 2x

Output Mode 1
Hysteresis or
Window
Comparator

ou1 HYS CnD OFF

End

3 Press 4x

Output Mode 2
Hysteresis or
Window
Comparator

ou2 HYS CnD OFF

End

4 Press 1x

Output 1
Switch Point
Setting

Hysteresis
Mode

H-1 70 145

h-1 13 145

Window Comparator Mode

Low

A-1 42 144

High

b-1 71 145

End

5 Press 3x

Output 2
Switch Point
Setting

Hysteresis
Mode

H-2 97 145

h-2 13 145

Window Comparator Mode

Low

A-2 85 144

High

b-2 113 145

End

6 Press 5x

Automatic Teach Mode
& Auto Surveillance

RL on OFF

RLn 1 100

End

Vacuum Cycle 803

Release Cycle 0

7 Press 6x

Display Refresh
Settings / Output
Response Time
Interval

dSP 0.1 30

RL 1 16 64

End

512

8 Press 7x

Display Peak Value
Bottom Value or
Their Difference

Pb OFF on

Pbt 10 99

Pbd PE bo du

End

9 Press 8x

Special Display
Features

dSF OFF on

Fnc 1b 1d 2b 2d

End

OFF

RL

10 Press 9x

Select Units of
Measure

Select Pressure

P1 P2 P3 P4

Vacuum Low Positive Compound
Pressure Pressure Pressure Pressure

End

11 Hold Press 1x

Lock

Hold Press 1x

Unlock

12 Press 1x

Peak Value

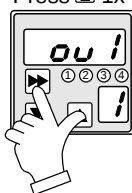
Press 1x

Bottom Value

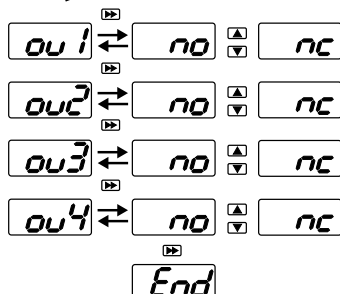
13 Press 3 Sec

Zero Reset

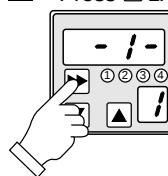
1 Hold Press 1x



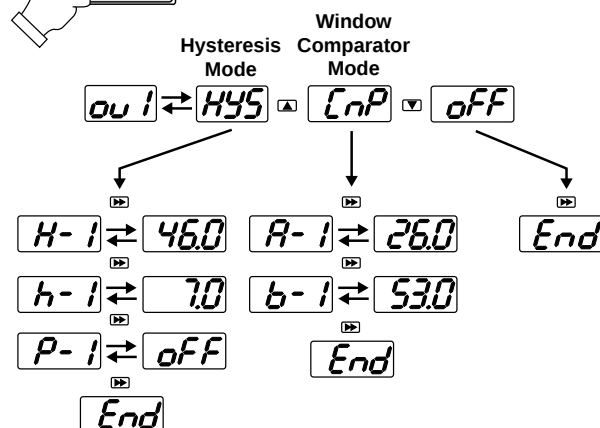
Output Selection
Normally Open / Normally Closed



2 Press 1x



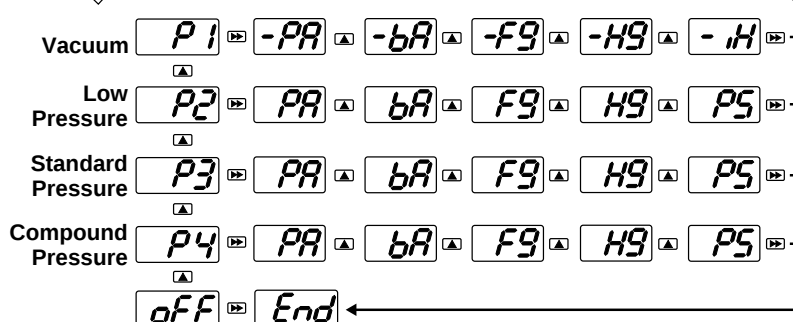
Select Output Mode
Hysteresis or Window Comparator
Output Setting
Peak Surveillance
(Repeat Procedure for Each Channel)



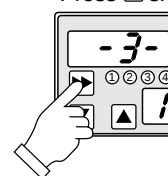
3 Press 2x



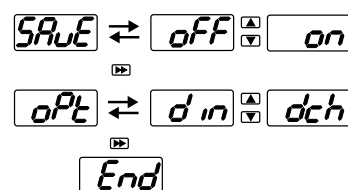
Select Remote Pressure
Select Unit of Measure



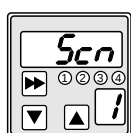
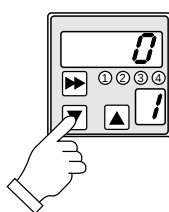
4 Press 3x



Save Energy Mode
Digital IN Mode



5 Press and Hold 3 Seconds
Scan Mode



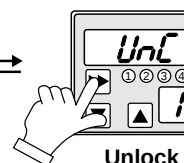
2
3 Second
Intervals
3
4

6 Hold Press 1x



Lock

Hold Press 1x

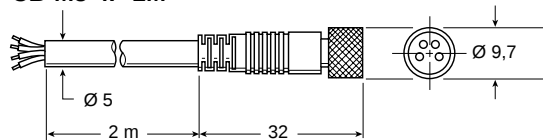


Unlock

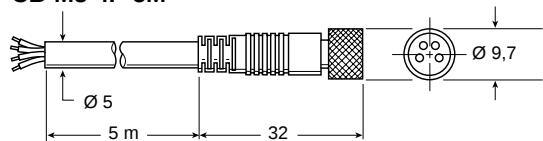
Accessories

Cables (Applicable to MPS-71E Display Units Only)

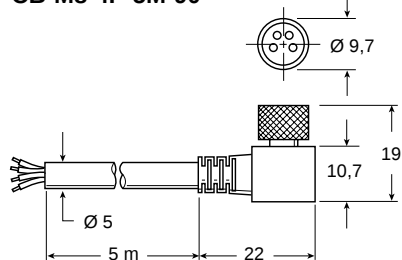
CB-M8-4P-2M



CB-M8-4P-5M



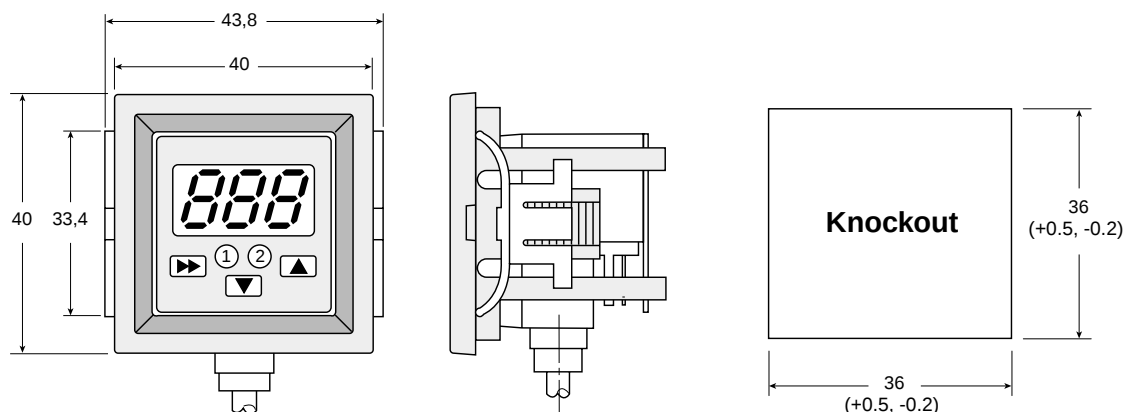
CB-M8-4P-5M-90



Accessories

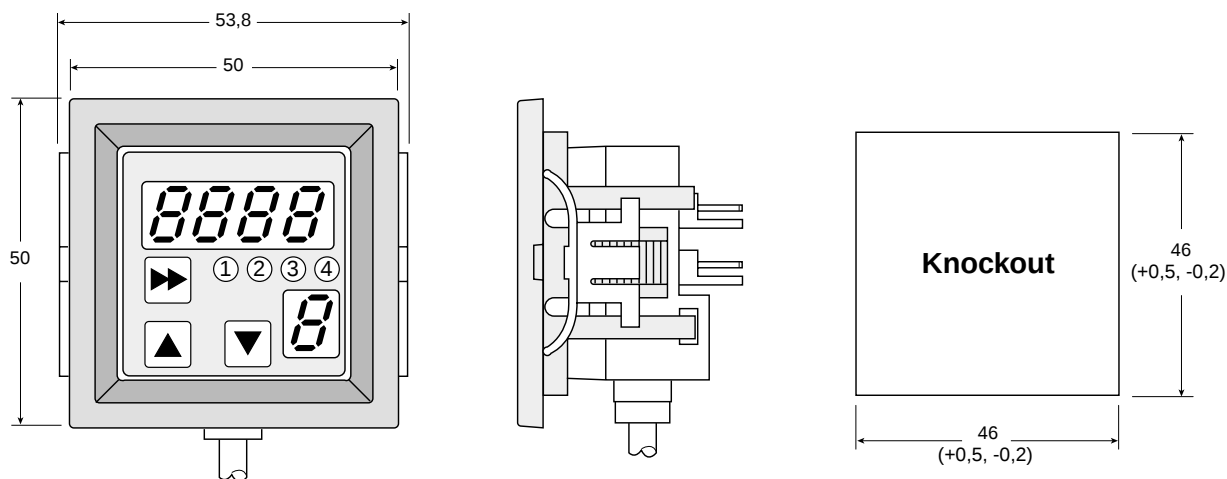
MPS-ACCH4

Panel Mounting Bracket for MPS-71

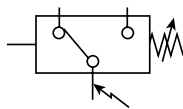


MPS-ACCH5

Panel Mounting Bracket for MPS-74



MPS-8



Features

- **Pressure Ranges:**
Vacuum 0 to -1 bar
- **Sensor Outputs:**
1 NPN / PNP Open Collector Transistor
Output 30 VDC, 125 mA
1 Analog Output 1 to 5 VDC
- **Switch Point 2/3 Trimmer Adjustment**
- **Fixed Hysteresis 2%**
- **10 mm Wide**
- **Compatible with MPS-7 Display**
- **IP40 and CE Marked**
- **Air and Non-Corrosive Gases**

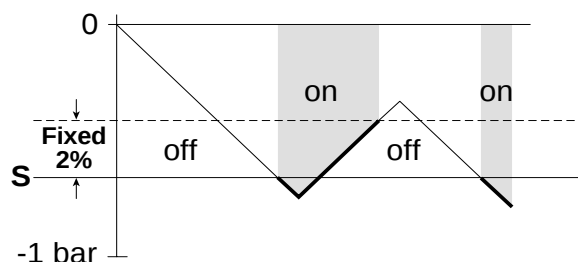


Model Number	Output	Pressure Range
MPS-V8A-PG	PNP	0 to -1 bar
MPS-V8U-AG	Analog	0 to -1 bar
MPS-V8U-AGE	Analog	0 to -1 bar

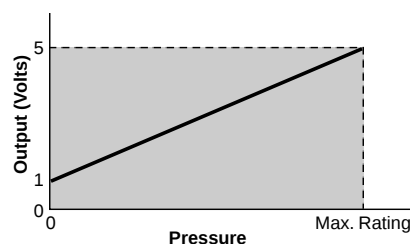
Output Mode

The MPS-8 Sensor is 10 mm wide with an NPN / PNP open collector switch output or an analog output. The MPS-8 can be used in combination with the MPS-7 series display or as a stand alone unit. Analog output is required for use with the MPS-7 display.

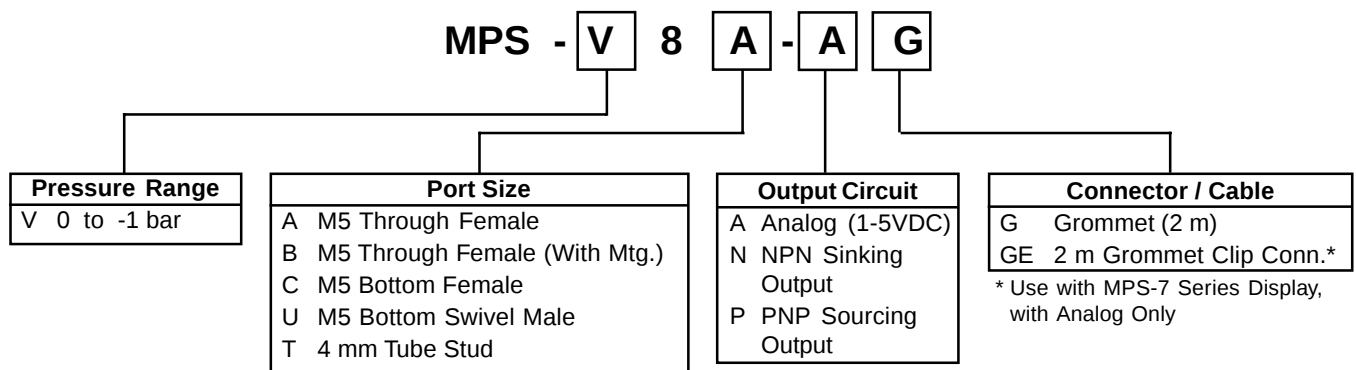
Switch Output



Analog Output



Model Number Index



Specifications

Media	Air and Non-Corrosive Gases
Pressure Port	M5 Female, M5 Male Swivel, 4 mm Tube Stud
Proof Pressure	V: 5 bar
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 60 °C
Humidity	35 to 85% RH
Electrical Connection	G: Grommet Open Lead; GE: Clip Type for use with MPS-7 Series
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection
Switch Output	1 Output, Normally Open, NPN or PNP Open Collector Transistor, 30 VDC, 125 mA
Linear Output	Analog Output 1 to 5 VDC
Switch Point Setting	2/3 Trimmer
Hysteresis	≤ 2% of F.S. Fixed
Response Time	≤1 ms
Repeatability	≤ 0,2% F.S.
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)
General Protection	IP40, EMC rating : EN55011 Class B, EN50082-2
Current Consumption	< 20 mA
Spike Protection	Vp-p 400 v, 0,5 ms Surge Protection
Dielectric Strength	1000 VAC, 1 min.
Insulation Resistance	> 100 Mohms at 500 VDC
Vibration Resistance	10 to 55 Hz, 1,5 mm amplitude, XYZ, 2 hrs.
Shock Resistance	100 G, XYZ
Material	Body: Polycarbonate; Pressure Port: Anodized Aluminum
Mass	4 g

Open Collector Wiring

Grommet Lead Only

Brown: 24 VDC

Blue: 0 VDC

Black: NPN / PNP Open Collector

Analog Wiring

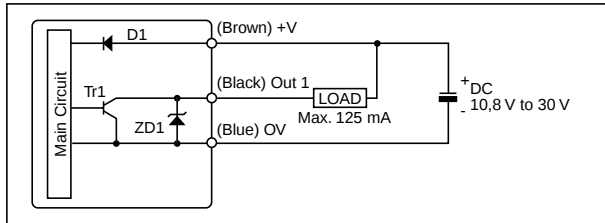
Grommet Lead Only

Brown: 24 VDC

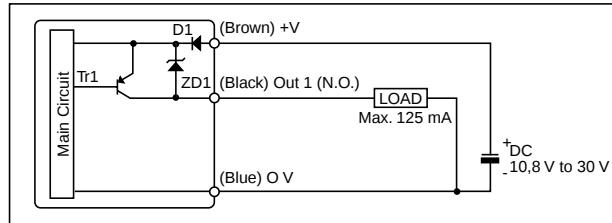
Blue: 0 VDC

Black: Analog 1 to 5 VDC

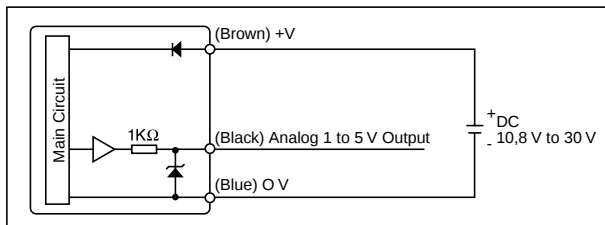
Internal Circuit



NPN Open Collector



PNP Open Collector



Analog

⚠ Cautions

The MPS-8 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

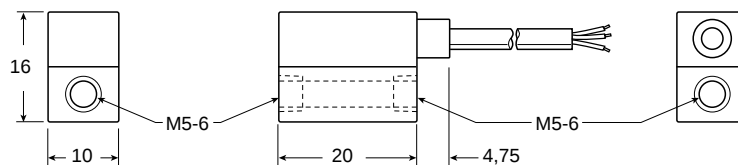
- Dedicate a power supply of 10.8 to 30VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

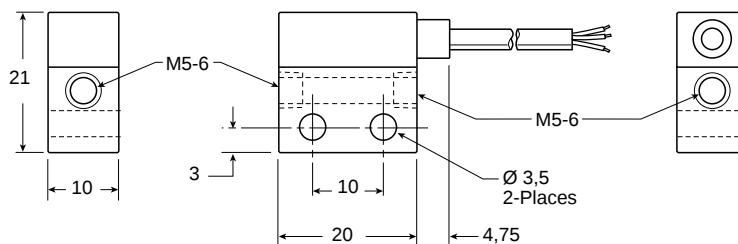
- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using the metal mounting base.

Dimensions

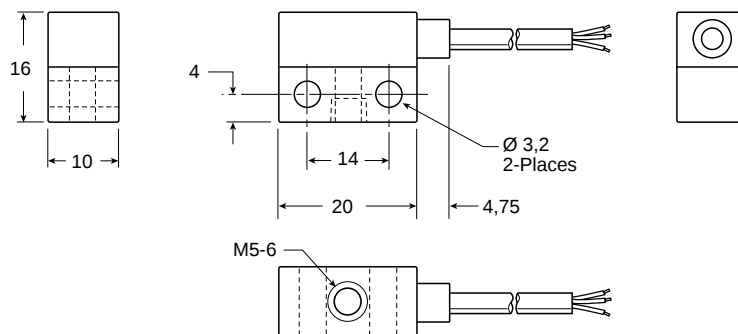
MPS-8A
M5 Female,
Grommet



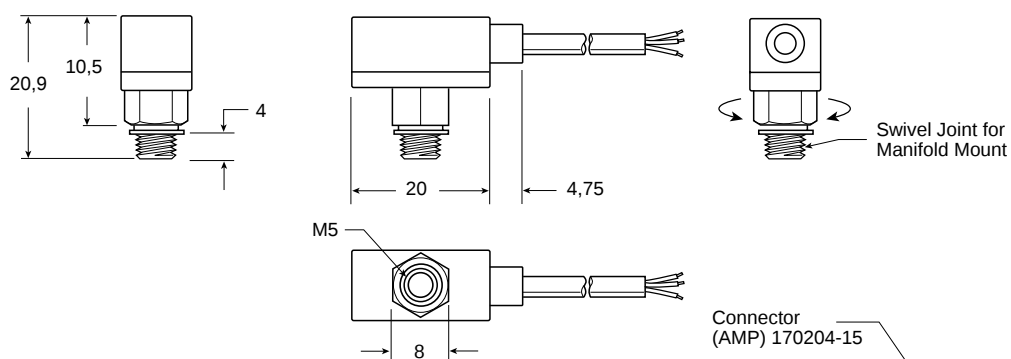
MPS-8B
M5 Female,
Grommet



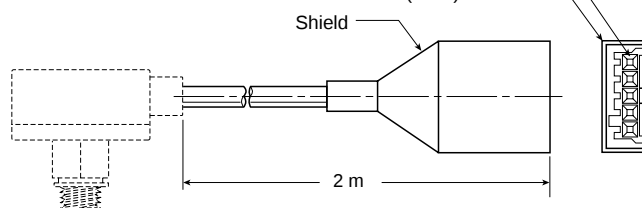
MPS-8C
M5 Female,
Grommet



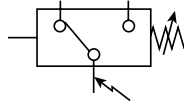
MPS-8U
M5 Male Swivel,
Grommet



Grommet Clip Connector
(Available for All Models)



MVS-201



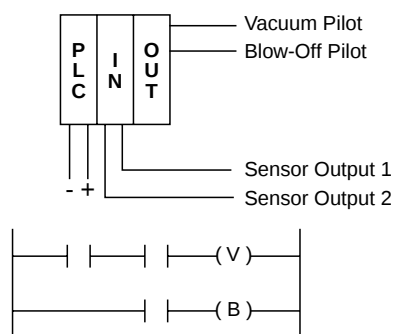
The MVS-201 is a winning combination with the MC2, CVR-2, and CVK vacuum generators. The MVS-201 automatically provides an output signal for the blow-off function without the need of an additional output from the PLC. Begin the vacuum cycle with an input signal from the PLC to the "201" sensor. The "201" sensor has one output NPN or PNP for vacuum confirmation and a control output that interfaces directly with the blow-off release pilot valve. With programmable time control features and a special chip driver, the sensor automatically activates the blow-off release when the

Features

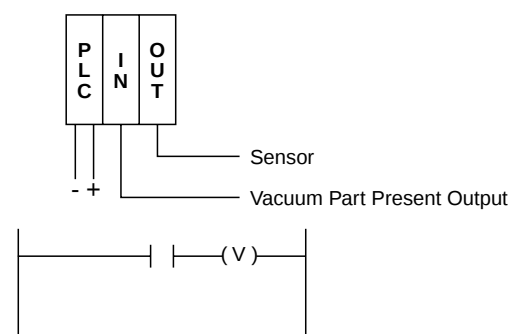
- **Pressure Range:**
Compound Pressure -1 to 5 bar
- **Time Controlled Sensor**
- **Intelligent Simple 4-wire System**
- **Eliminate I/O for Release Valve**
- **2 Functions with One Rung of Code**
- **Automatic Timer (0-9,9 sec.) Function by Sensor Control Driver for Vacuum Generating and Release Valves**
- **Peak Value Preventative Maintenance Confirmation**
- **Response Time Less Than 2 Milliseconds**
- **CE Rated**

vacuum signal from the PLC is discontinued. This eliminates, THE PREVIOUSLY REQUIRED, PLC output to activate the blow-off release. This new technology eliminates PLC output requirements by 50% and reduces installation to a simple 4 wire system by wiring the sensor only. There are 3 modes of operation for various applications. The output response time of the sensor is less than 2,5 msec. Peak limit prevention maintenance feature is automatically recorded internally.

Basic PLC System



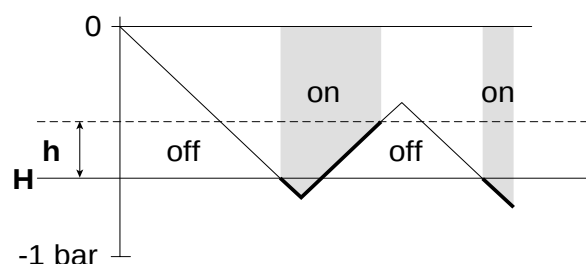
PLC System with 201 Sensor



Output Modes

The MVS-201 Series Sensor has one independent NPN or PNP open collector output signal. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

Switch Output



Model Number

MVS - 201 - PCP

Specifications

Pressure Range	Compound (R)
Units of Measure Display Resolution	kPa: 1
Media	Non-Lubricated Air and Non-Corrosive Gases
Proof Pressure	6 bar
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 60 °C
Humidity	35 to 85% RH
Electrical Connection	C: 4-Pin, M8 Connector
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection
Display	3-Digit, 7-Segment LED
Resolution & Units of Measure	kPa: 1, bar: 0,01, kgf/cm ² : 0,01, PSI: 0,1
Display Frequency	5 Hz
Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor
Digital Output	Individually Selectable N.O. or N.C., max 125 mA, 30 V, with Overcurrent Protection
Mode	OP1, OP2, OP3 Hysteresis: 0 to 100% of Switch Point
Response Time	< 2 ms
Repeatability	± 0,3% F.S.
Thermal Error	± 0,2% F.S. in Temperature Range 0 to 50 °C
General Protection	IP40, CE Rating EMC-EN55011 Class B, EN50082-1
Current Consumption	< 45 mA, < 25 mA When Utilizing Screen Saver Option
Spike Protection	350 Vp, 1, µs
Dielectric Strength	1000 VAC 1 min.
Insulation Resistance	> 100 Mohms at 500 VDC
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.
Shock Resistance	10 G, XYZ
Material	Body: Polycarbonate
Mass	48 g

Wiring Diagram

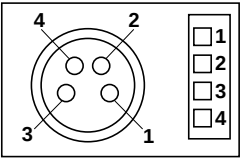
M8 Pin #

- 1 Brown: 24 VDC
- 2 White: Input; PNP (24 VDC)
- 3 Blue: 0 VDC
- 4 Black: PNP Open Collector Output

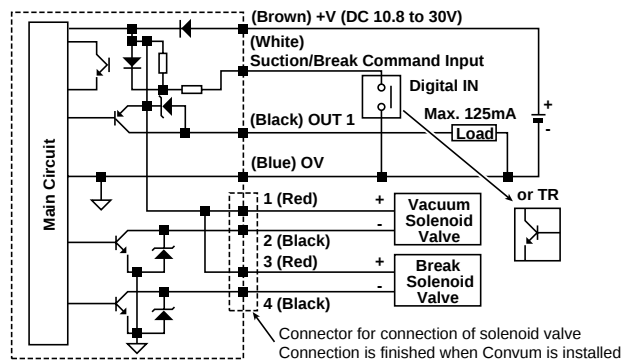
201 Pin #

- 1 Red: Vacuum Solenoid Valve + V
- 2 Black: Gnd
- 3 Red: Break Solenoid Valve + V
- 4 Black: Gnd

Sensor Male
Pin Out



Internal Circuit



PNP Sourcing

 Cautions

The MVS-201 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.
The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

Installation

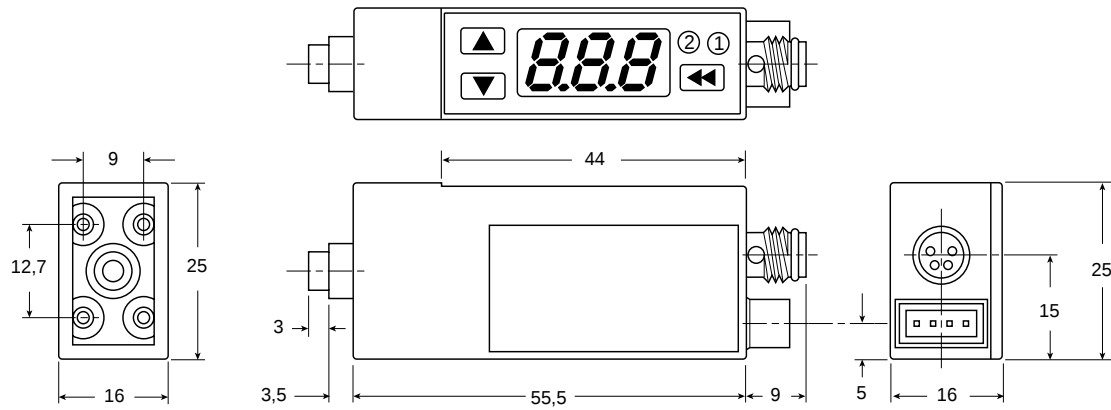
- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.

Error Messages

Display	Description	Solutions
Err	Zero Reset Error 3% of F.S.	Reset Zero Below
Er1	System Error (Internal)	Contact Factory
CE1	Over current of Output 1	Load current exceeds
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

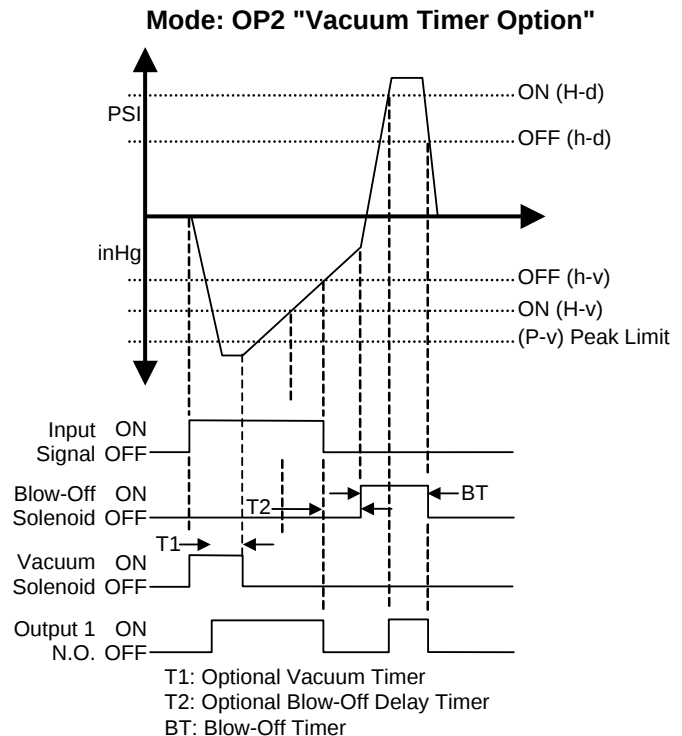
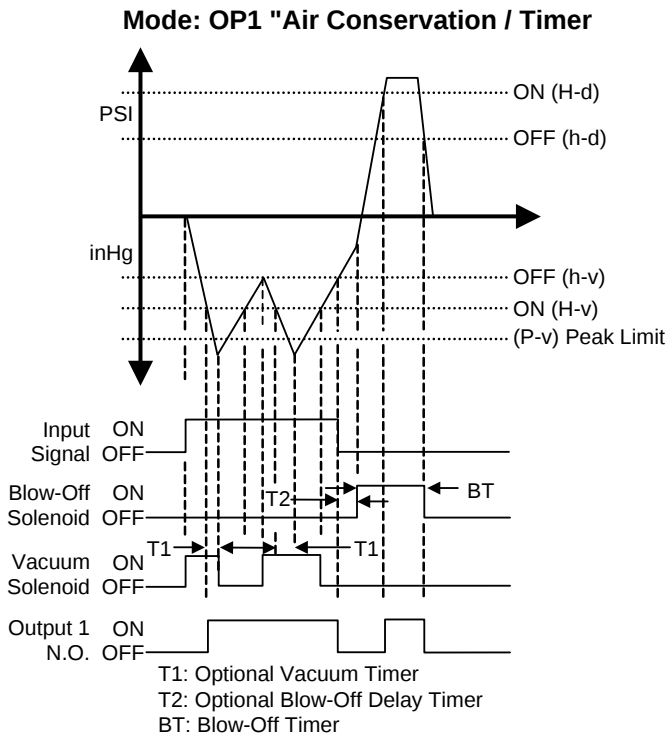
Dimensions

M8, 4-Pin



Operating Modes

Description of operation modes and terms on page 180.



Timer Mode OP1

"Air Conservation / Vacuum Valve Timer"

This Vacuum valve control with the use of timing features conserves air consumption via the vacuum generator non-return check valve and sensor hysteresis function. Vacuum time (**t1**) can be used to control the vacuum valve for a specific length of time (0,0-9,9 sec.) after output 1 vacuum level is reached. The vacuum timing function (**t1**) will remove the signal from the sensor to the vacuum valve allowing the generator check valve system to conserve air consumption and vacuum. The vacuum valve will re-open for the same length of time (**t1**) when the pressure level drops to the hysteresis setting (**h-v**). The operation will continue until the input signal is stopped. Optional delay timer between vacuum / blow-off (**t2**) and blow-off (**bt**) timer is available. After selecting **OP1**, set **bt**, **t1**, and **t2** values by using arrow "UP" and "DOWN" keys. To bypass any of these timing function operations, simply enter 0,00 seconds and the sensor will automatically proceed to the next function.

Timer Mode OP2

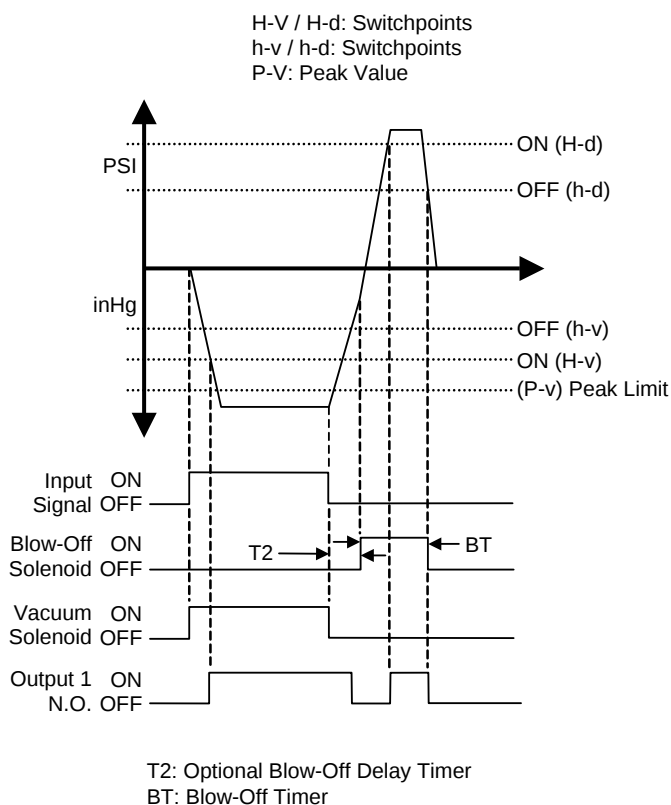
"Vacuum Valve Timer"

This mode is ideal for use with CONVUM generators without check valves. Vacuum timer (**t1**) can be used to control the vacuum for a specific length of time (0,00 – 9,9 sec.) after output 1 is reached. Optional delay timer between vacuum / blow-off (**t2**) and blow-off (**bt**) timer is available. After selecting **OP2**, set **bt**, **t1**, and **t2** values by using arrow "UP" and "DOWN" keys. To bypass any of these timing function operations, simply enter 0,00 seconds and the sensor will automatically proceed to the next function.

Operating Modes

Description of operation modes and terms on page 180.

Mode: OP3 "Signal Controlled Vacuum"



Timer Mode OP3

"Signal Controlled Vacuum"

The vacuum timer option (**t1**) is omitted and the PLC controls the input signal time for the vacuum operation. The delay timer between vacuum / blow-off (**t2**) and the blow-off (**bt**) timers are still available. After selecting **OP3**, set **bt** and **t2** values by using arrow "**UP**" and "**DOWN**" keys. To bypass any of these timing function operations, simply enter 0,00 seconds and the sensor will automatically proceed to the next function.

Additional Sensor Features

(Available in All Operating Modes)

Screen Saver Function

(**SaV**) appears on display. This reduces current consumption by 20 mA and will activate after 10 seconds.

Peak Value Level

(**p-u**) appears on display. The sensor records this value for preventative maintenance issues. If this value is not reached the sensor will display an error message (**ALP**) indicating leaks or wear in the system.

Vacuum Level Response Time

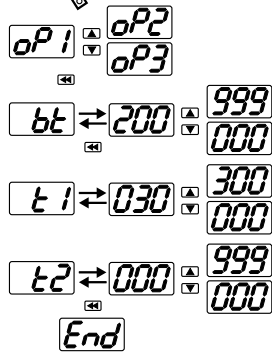
(**ut**) appears on the display. The sensor records the time (sec) to reach Output 1 and will display an error message (**ALV**) indicating Output 1 has not been reached within the acceptable time (sec) set by the user.

Blow-off Time

(**dt**) appears on the display. The sensor records the time (sec) to complete blow-off cycle and will display an error message (**ALD**) indicating (**dt**) has not reacting within the acceptable time (sec) set by the user.

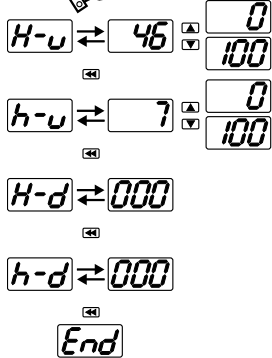
1 Press 1x

Operating Mode 1

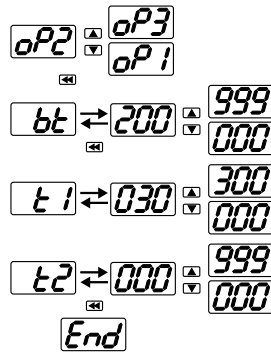


2

Switch Output

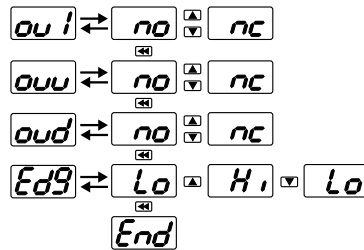


Operating Mode 2

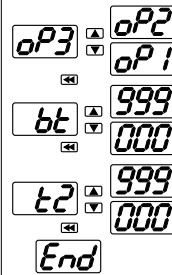


3

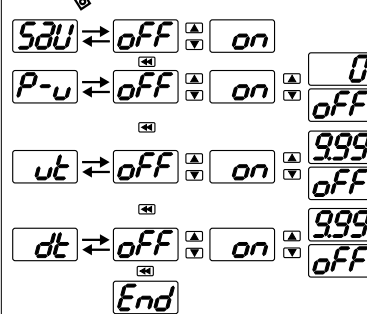
Outmode Open or Closed



Operating Mode 3



4



Programming Symbols Legend

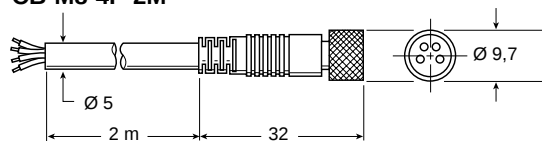
OP1	Operation 1: Air Conservation / Timer
OP2	Operation 2: Vacuum Timer Option
OP3	Operation 3: Signal Controlled Vacuum
bt	Blow-Off Timer
t1	Controlled Vacuum Signal with Timer
t2	Blow-Off Activation Timer
Hu	Switch Output Value
hu	Switch Output Hysteresis Value
Hd	Blow-off Output Value
hd	Blow-off Output Hysteresis Value
ALP	Error Message - Peak Vacuum Level
ALu	Error Message - Vacuum Response Time

ALd	Error Message - Blow-off Time
ou1	Output 1
ouu	Vacuum Valve (Leave NO)
oud	Blow-off Release Valve (Leave NO)
Sdu	Screen Saver Function
P-u	Peak Vacuum Level Recorder
u.t	Vacuum Response Time Recorder
dt	Blow-Off Time Recorder
no	Normally Open
nc	Normally Closed
Ed9	Low or High Signal to Vacuum Valve

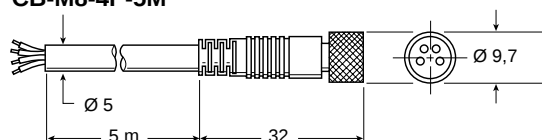
Accessories

M8 Cables for Sensor

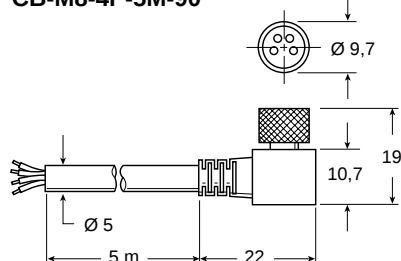
CB-M8-4P-2M



CB-M8-4P-5M



CB-M8-4P-5M-90

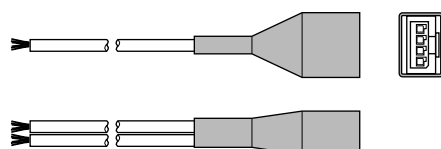


MVS-201

(Connects Sensor to Vacuum & Blow-off Release Pilot Valves)

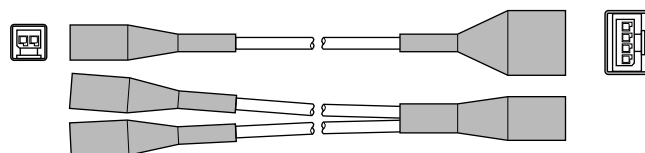
For CVK

CVK-D201G

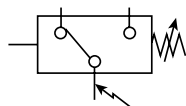


For MC2

MC2-C201G



MPS-3 Stainless



Model Number	Output	Pressure Range
MPS-V3F5-PC	2 PNP	0 to -1 bar
MPS-P3S5-PC	2 PNP	0 to 10 bar

Features

- **Fluids Non-Corrosive to Stainless Steel SUS 316L or SUS 630**
 - Air
 - Ammonia
 - Brake Fluids
 - Helium
 - Hydraulic Fluids
 - Freons
 - Lubricating Oils
 - Nitrogen
 - Water
- **Pressure Ranges:**
 - Vacuum 0 to -1 bar
 - Positive Pressure 0 to 10 bar
- **Sensor Outputs:**
 - 2 NPN or PNP Open Collector
 - Transistor Outputs, 30 VDC, 125 mA
- **Switch Point and High-low Programming**
- **4 Selectable Units of Measure**
 - (mmHg, -bar, -kPa, inHg)
 - (kgf/cm², PSI, bar, kPa)
- **Output Response Time Less Than 2,0 Milliseconds**
- **IP65 Rated and CE Marked**
- **Error Message**

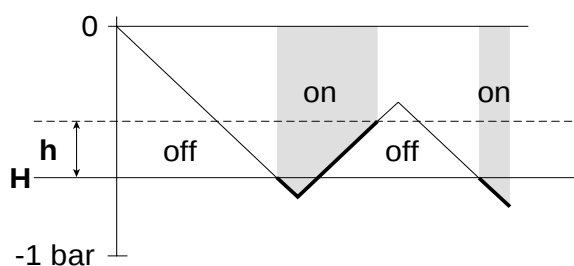
Output Modes

The MPS-3 Stainless Steel Series Sensor has two independent NPN or PNP open collector output signals. An analog output is optional. The Switch Output Mode has a switch point programmed by the user at a specific pressure. The Hysteresis Range (**h**) adjustment controls the output signal 0 to 100% below the Switch Point (**H**).

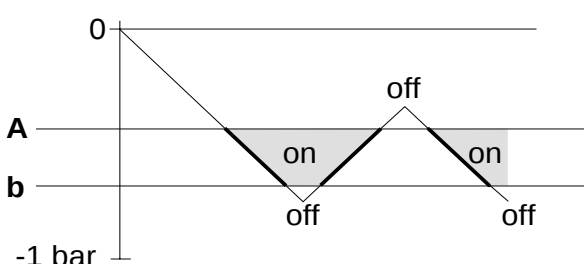
The Window Comparator Mode provides two Switchpoint Settings (**A**) and (**b**) that control the output signals (NPN / PNP) between two pressures. This is referred to as the "High / Low" setting.

The optional Analog Output Signal is calibrated to the pressure scale of the sensor.

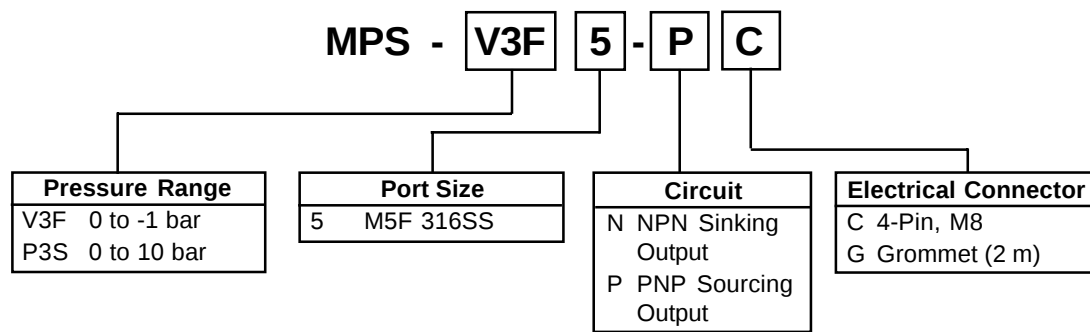
Switch Output



Window Comparator Output



Model Number Index



MPS-P3S5-PC



MPS-P3S5-PG

Specifications

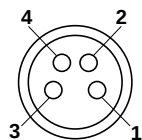
Pressure Range	Vacuum (V3F)	Positive (P3S)
Units of Measure Display Resolution	kPa: 0,1	MPa: 0,001
Media	Fluids, Non-Corrosive to 316L or 630 SUS	
Pressure Port	S: MSF 31655	
Proof Pressure	V3F: 10 bar, P3S: 20 bar	
Operating Temperature	0 to 50 °C	
Storage Temperature	-10 to 60 °C	
Humidity	35 to 85% RH	
Electrical Connection	C: 4-Pin, M8 Connector, G: Grommet Open Lead	
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection	
Display	3-Digit, 7-Segment LED	
Display Refresh	0,1 to 3,0 sec. (Factory set at 0,1)	
Output Circuit	NPN (Sinking), PNP (Sourcing) Open Collector Transistor; 30 VDC, 125 mA	
Switch Outputs	2 Output Signals, NPN or PNP, Normally Open or Closed, LED Indicator	
Output Modes	Hysteresis or Window Comparator	
Output Response Time	< 2 ms with Programmable Increment 32, 128, 1024 ms	
Repeatability	± 0,2% F.S.	
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)	
General Protection	IP 65 or IP 40, CE Rating, EMC-EN55011 Class B, EN 50082-2	
Current Consumption	< 55 mA	
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.	
Shock Resistance	10 G, XYZ	
Material	Housing: Polycarbonate, Wetted Parts: P: 316L or V,R: 630 SUS (Diaphragm)	
Mass	125 g	

Open Collector Wiring

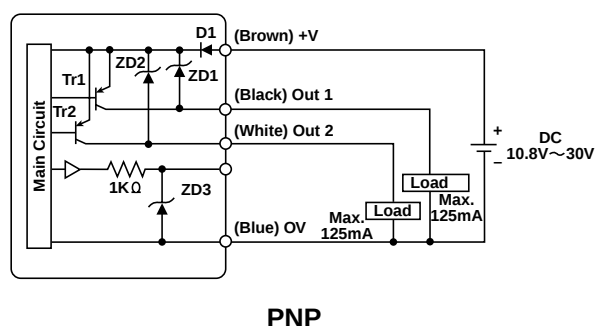
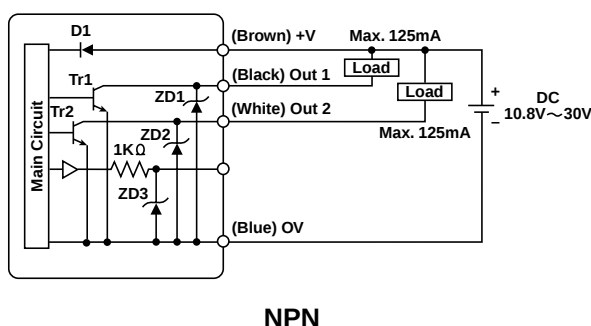
Pin #

- 1 Brown: 24 VDC
- 2 White: NPN / PNP Open Collector Output
- 3 Blue: 0 VDC
- 4 Black: NPN / PNP Open Collector Output

Sensor Male Pin Out



Internal Circuit for Open Collector and Analog Output Wiring



⚠ Cautions

The MPS-3 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.
- Installation of air dryer system is recommended to remove moisture.

- Depending on the system fluid and design, it may be necessary to protect the diaphragm against pressure spikes by installing a flow restriction upstream from the sensor.

Installation

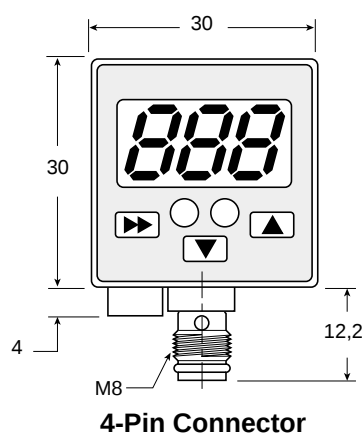
- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using the metal mounting base.
- To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2 mm I. D. tube.

Error Messages

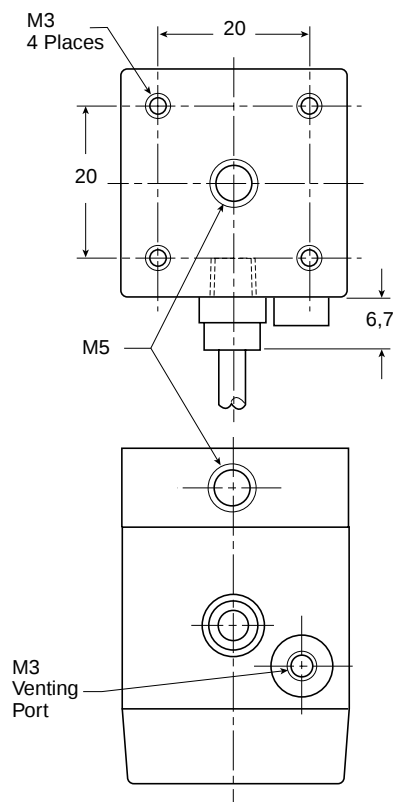
Display	Description	Solutions
Err	Zero Reset Error 3% of F.S.	Reset Zero Below
Er1	System Error (Internal)	Contact Factory
Er2	Auto Teach Mode Error	Restart Function
CE1	Over current of Output 1	Load current exceeds maximum 125 mA.
CE2	Over current of Output 2	
FFF -FF	Applied pressure exceeds pressure range	Apply pressures with the rating of the sensor

Dimensions

5 M5 Female

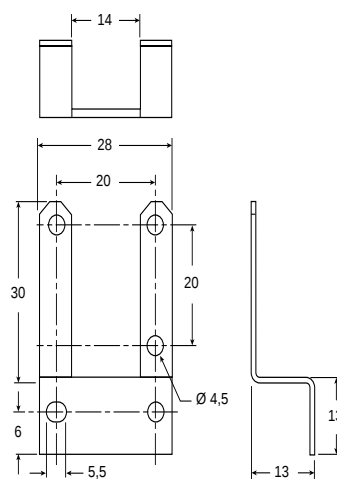
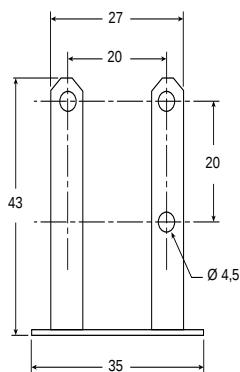
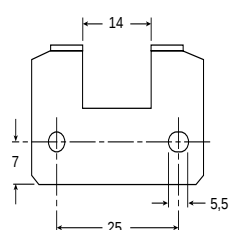


5 M5 Female Grommet or M8, 4-Pin



MPS-ACCK1

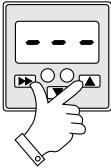
Mounting Brackets (Included)



1 Hold  Press  1x

Output Set Open or Closed Selecting Units of Measure

Easy Mode Activation



The diagram shows a hand pressing the left arrow button on the control panel. The panel has three buttons: a left arrow, a center button with a circle, and a right arrow. Above the buttons are three dashes. To the right of the panel, the text 'Output Set Open or Closed Selecting Units of Measure' and 'Easy Mode Activation' is displayed.

4 Press **DS** 1x

Output 1 Switch Point Setting

Hysteresis Mode

The diagram illustrates the Hysteresis Mode setting for Output 1. A hand is shown pressing the left arrow button on the LCD. The LCD displays '-1-'. Below the LCD, two rows show the setting process:

- Row 1: **H-1** is set to **70** with a hysteresis of **145**.
- Row 2: **h-1** is set to **13** with a hysteresis of **145**.

Window Comparator Mode

Low

A-1 ⇔ 42 144
0

High

b-1 ⇔ 71 145
1

End

7 Press **DISP** 6x

Display Refresh
Settings / Output
Response Time
Interval

The diagram illustrates the sequence of button presses to access the Display Refresh Settings menu. It starts with a hand pressing the left arrow on a display showing '-6-'. The next screen shows 'dSP' and '0.1'. Pressing the right arrow leads to a screen with '30' and '0.1'. Pressing the right arrow again leads to a screen with 'RUE' and '1'. Pressing the right arrow leads to a screen with '16'. Pressing the right arrow leads to a screen with 'End' and '5'.

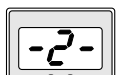
10 Hold 
Press  1x



Lock **Unlock**

2 Press **2x**

Output Mode 1
Hysteresis or
Window
Comparator



ou 1 **↔** **HYS** **▲** **[nP** **▲** **OFF**

End

5 Press **ON** 3x

Output 2 Switch Point Setting

Hysteresis Mode



Hysteresis Mode

Window Comparator Mode

Low

High

End

8 Press 7x

Display Peak Value
Bottom Value or
Their Difference

11 Press 1x

Press 1x

Peak Value

Bottom Value

3 Press  4x

Output Mode 2
Hysteresis or
Window
Comparator



6 Press **[F5]** 5x

Automatic Teach Mode & Auto Surveillance

RLt

Vacuum Cycle

RL

RLn

End

on

off

100

0

!

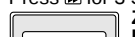
!

9 Press **DP** 8x

Special Display Features

```
graph TD
    A[d5F] --> B[OFF]
    B --> C[on]
    C --> D[Fnc]
    D --> E[1b]
    E --> F[1d]
    F --> G[2b]
    G --> H[2d]
    H --> I[OFF]
    I --> J[RL]
    A --> D
    B --> J
```

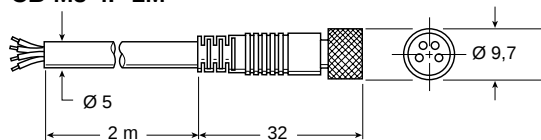
12 Press  for 3 Seconds
Zero Reset



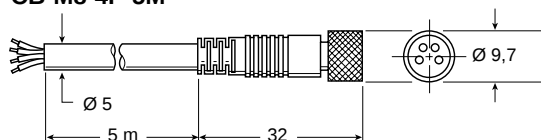
Accessories

Cables

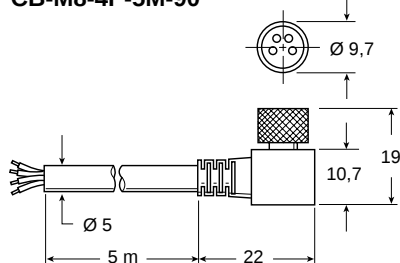
CB-M8-4P-2M



CB-M8-4P-5M

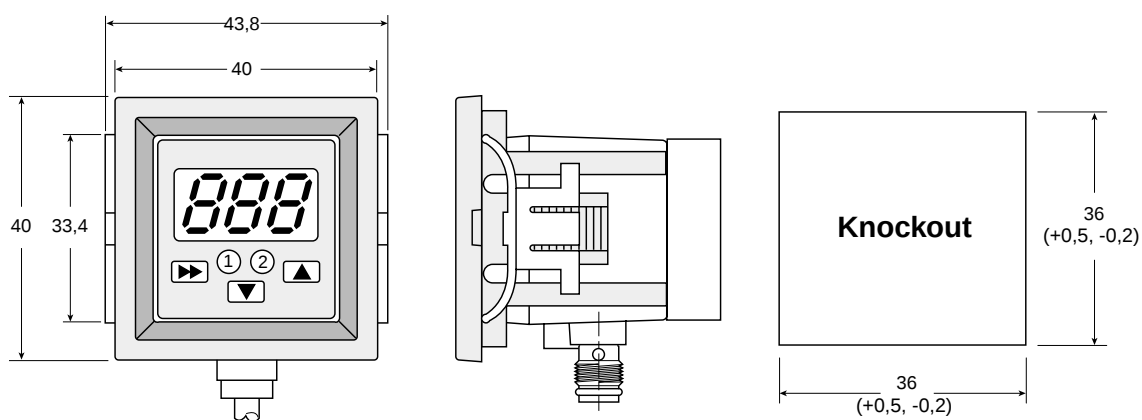


CB-M8-4P-5M-90



MPS-ACCH1

Panel Mounting Bracket



MPS-5

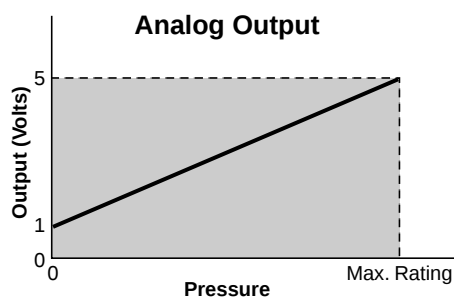
Stainless



Model Number	Output	Pressure Range
MPS-V5FG-AG	Analog	0 to -1 bar
MPS-V5FG-AGE	Analog	0 to -1 bar
MPS-P5G-AG	Analog	0 to 10 bar
MPS-P5G-AGE	Analog	0 to 10 bar

Features

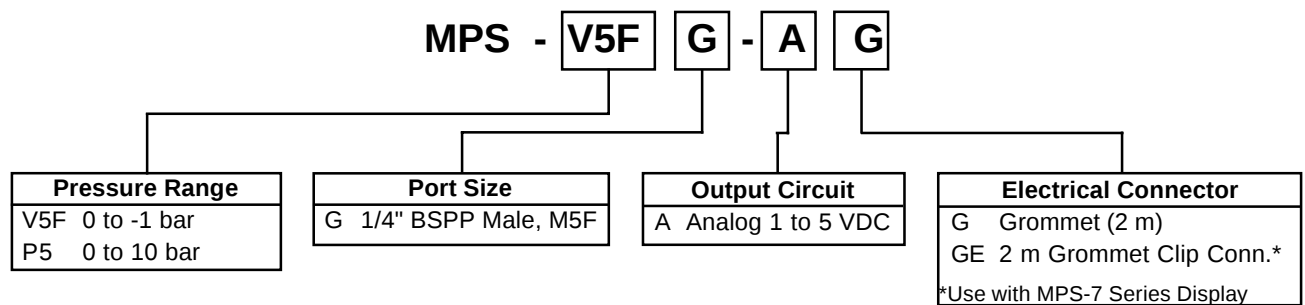
- **Pressure Ranges:**
 Vacuum 0 to -1 bar
 Positive Pressure 0 to 10 bar
- **Sensor Output:**
 1 to 5 VDC



- **316L SUS Diaphragm (Positive)**
- **630 SUS Diaphragm (Vacuum)**
- **Compatible with MPS-7 Display for Remote Sensing**
- **IP65 Rated and CE Marked**

The MPS-5 Series Transducer is constructed of 316L or 630 SUS with Analog output capabilities. The sensor can be used as a standalone unit or in combination with the MPS-7 Sensor Display. The analog output is 1 to 5 VDC ($\pm 0,04$) with accuracy linear 0,5% F.S.

Model Number Index



MPS-V5FG-AG



MPS-V5FG-AGE

Specifications

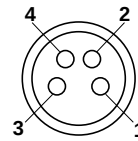
Media	Liquids and Gases Non-Corrosive to 316SS
Pressure Port	G: 1/4" Male BSPP with M5 Female
Proof Pressure	V: 10 bar, P: 20 bar
Operating Temperature	0 to 50 °C
Storage Temperature	-10 to 60 °C
Humidity	35 to 85% RH
Electrical Connection	G: Grommet Open Lead, GE: Clip Type for use with MPS-7
Power Supply	10,8 to 30 VDC, Ripple Vp-p 10% Max., Reverse Voltage Protection
Linear Output	Analog Output 1 to 5 VDC
Thermal Error	1% over ±25 °C (77 °C) Temperature Change (Range 0 to 50 °C)
General Protection	IP65 or IP40, EMC Rating : EN55011 Class B, EN50082-2
Current Consumption	< 20 mA
Spike Protection	400 VP, 1 µs
Dielectric Strength	1000 VAC, 1min.
Insulation Resistance	> 100 Mohms at 500 VDC
Vibration Resistance	10 to 55 Hz, 1,5 mm, XYZ, 2 hrs.
Shock Resistance	10 G, XYZ
Material	Housing: 303 SUS, Wetted Parts: P: 316L SUS, V: 630 SUS (Diaphragm)
Mass	110 g

Analog Wiring

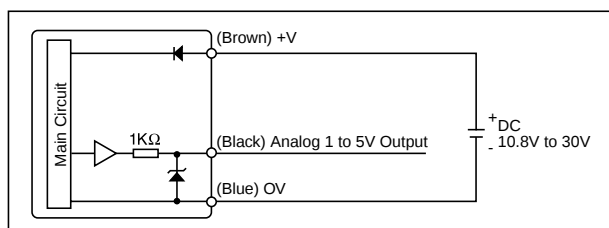
Pin #

- 1 Brown: 24 VDC
- 2 Black: Analog 1-5 VDC
- 3 Blue: 0 VDC
- 4 Not Used

Sensor Male Pin Out



Internal Circuit



Analog

⚠ Cautions

The MPS-5 Pressure Sensor is designed to monitor pressure and is not a safety measure to prevent accidents.

The compatibility of the sensor is the responsibility of the designer of the system and specifications.

Operating Environment

- Parker / Convum Sensors have not been investigated for explosion-proof construction in hazardous environments.
- Do not use with flammable gases, liquids, or in hazardous environments.
- Avoid installing the sensor in locations where excessive voltage surges could damage or affect the performance of the sensor.

Operations

- Dedicate a power supply of 10,8 to 30 VDC to the sensor and set the ripple to Vp-p10% or less. Avoid excessive voltage. Avoid voltage surges.
- A small amount of internal voltage drop is possible. Ensure the power supply minus any internal voltage drop exceeds the operating load.
- Verify the operating media is compatible with the specified sensor. Check the chemical make-up, operating temperatures, and maximum pressure ranges of the system before installing.

- Depending on the system fluid and design, it may be necessary to protect the diaphragm against pressure spikes by installing a flow restriction upstream from the sensor.

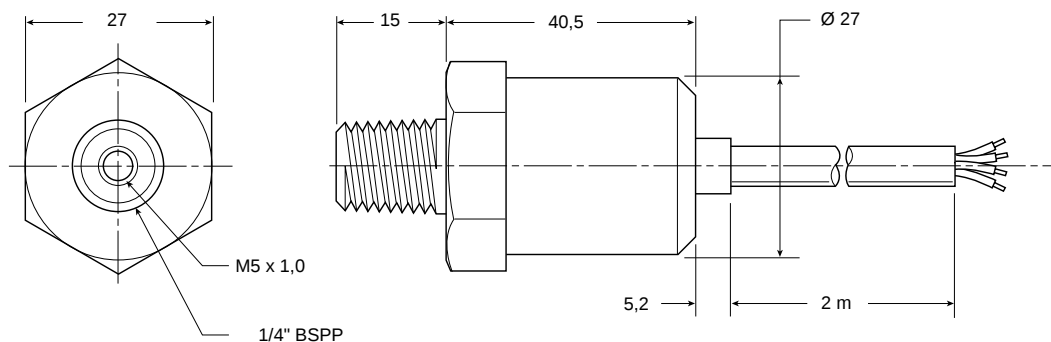
Installation

- Never insert an object into the pressure port other than an appropriate fluid connector.
- Avoid short-circuiting the sensor. Connect the brown lead to V+ and blue lead to 0 V.
- Do not connect the output lead wires (black / white) to the power supply.
- Outputs not being used should be trimmed and insulated.
- Install using the metal mounting base.
- To achieve IP65 rating, connect the o-ring and barb to a normal environment with a 2 mm I. D. tube.

Dimensions

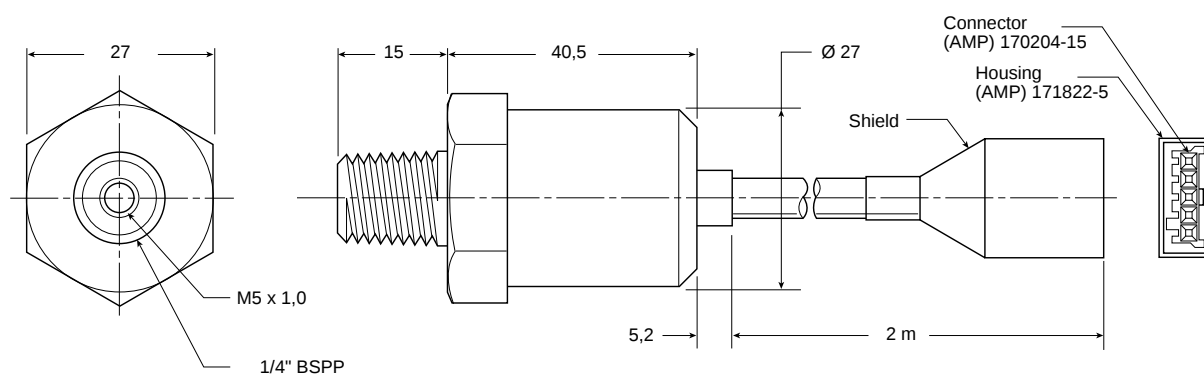
G

1/4" Male Grommet



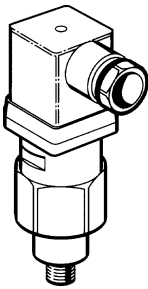
G

1/4" Male Grommet Clip Connector



The P5V-SV is an improved adjustable vacuum switch of membrane type, having changeover contact function. Cables are connected using a DIN 43650A cable set. The switch is capable of withstanding positive pressures up to 35 bar. It is easy to adjust, has low weight and it is attractively designed.

As delivered, the switch is preset for 75% vacuum.



Specification

Material

Body	Black anodised aluminium
Cap	Thermoplastic

Technical data

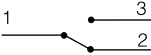
Working pressure	15% to 90% vacuum (-0,15 to -0,9 bar)
Working temperature [°C]	-40 to +80
Maximum over pressure	Up to 35 bar

Options and additional information

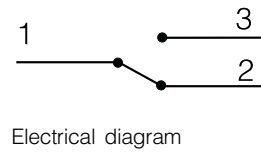
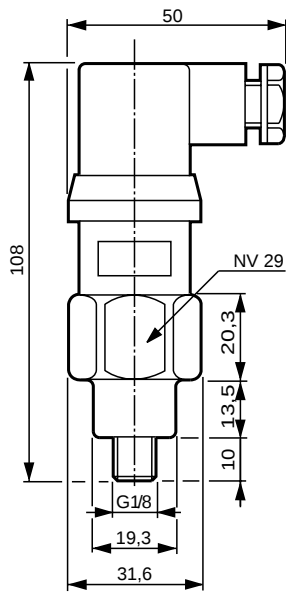
Repeatability	±2%
Hysteresis	20% of the preset value (0,15 bar at 75% vacuum)
Enclosure	IP 65
Contact loading	250 VAC/24 VDC 5 A inductive 7 A resistive

Preset value: 75% vacuum

Main data for Vacuum Switch

Symbol	Connection (vacuum)	Weight kg	Order code
	Male G1/8	0,090	P5V-SVVA16K

Vacuum Switch, P5V-SVVA16K



C

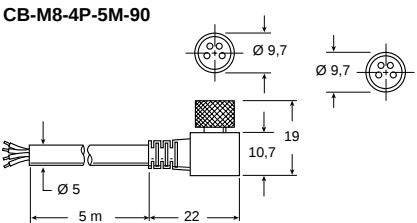
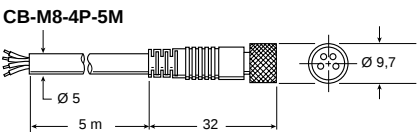
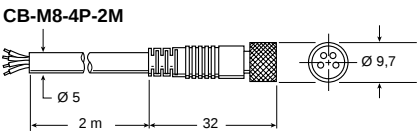
Features

- M8, Female
- Length: 2 m or 5 m
- Cover: PVC or PUR
- Connection Type: Swivel Straight or Angled
- IP 67 Swivel Connector



Common Part Numbers

Item	Connector	Contacts	Length	Cover
CB-M8-4P-2M	M8 Female	4	2 m	PVC
CB-M8-4P-5M	M8 Female	4	5 m	PUR
CB-M8-4P-5M-90	M8 Angled Female	4	5 m	PUR

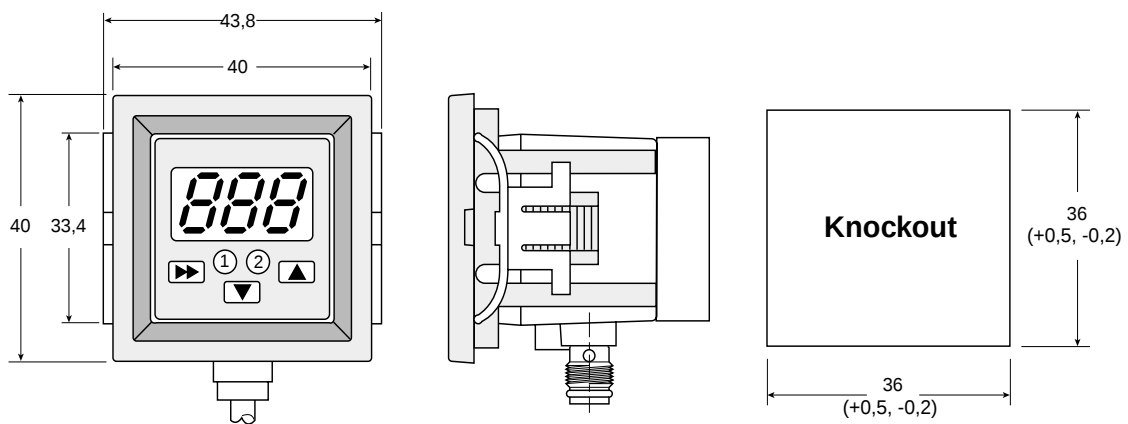


Panel Knockout Dimensions

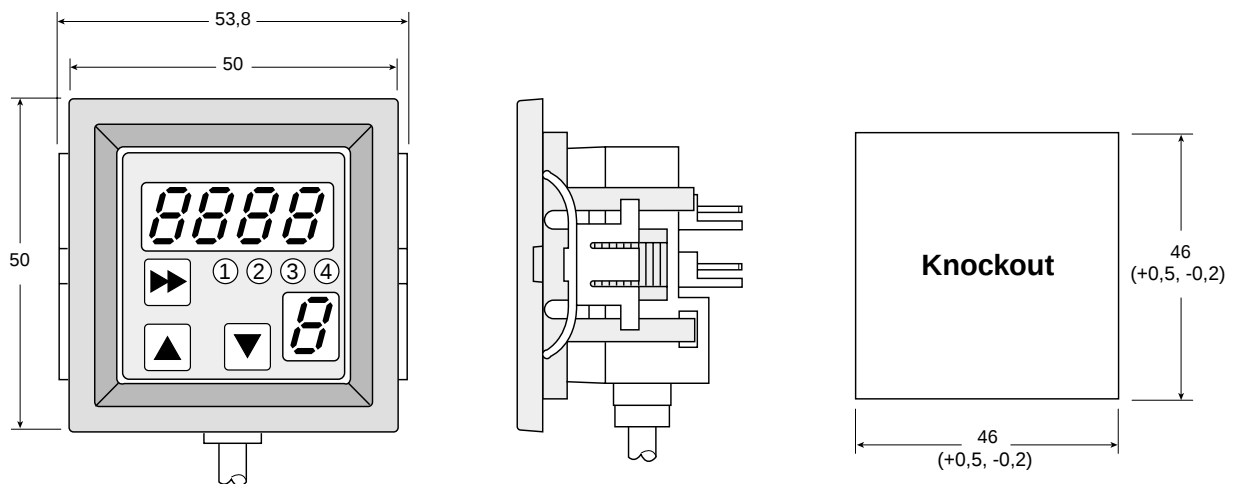
Description	For Use With
MPS-ACCH1	MPS-3S MPS-4
MPS-ACCH7	MPS-3 MPS-31
MPS-ACCH4	MPS-71
MPS-ACCH5	MPS-74



MPS-ACCH1, MPS-ACCH7, MPS-ACCH4



MPS-ACCH5



Section D



Convum

Vacuum Filters

248 - 249



Silencers MS Series

250



Silencers P6M Series (CSA/CBA)

251



Vacuum Flow Control Valves (P5V-BKS)

251



Vacuum Gauges (P6G-DRA/FRA)

252



Grid Filters (P5V-FLN)

252





Always filtrate the vacuum system to protect the components from damaging particles absorbed from the environment. Elements should be replaced periodically to prevent slower response and overall performance of the system.

Part Numbers

Item	Application	Male Connection
VF-2G	CV-05, CV-10, MCA-05	G1/8"
VF-3G	CV-05, CV-10, MCA-05	G1/8"
VF-5G	CV-15, MCA-10/13	G1/4"
VF-6G	CV-20/25/30	G3/8"
VFL-44	General Use	4 mm - Tube
VFL-66	General Use	6 mm - Tube
VFL-88	General Use	8 mm - Tube

Spare Parts - Filter Elements

Item	For Filter
VF-2E	VF-2G
VF-3E	VF-3G
VF-5E	VF-5G
VF-6E	VF-6G
VF-3K	Cover, O-ring For VF-3G, VF-5G, VF-6G
VFL-44E	VFL-44, 66
VFL-88E	VFL-88
VFL-44K	VFL-44, 66
VFL-88K	VFL-88
VFL-46H	VFL-44, 66
VFL-81H	VFL-88

Specifications

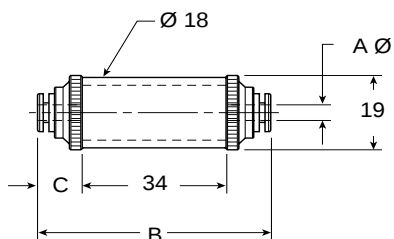
Media	Non-Corrosive Air
Operating Vacuum	0 to -0,95 bar
Maximum Pressure	5 bar
Operating Temperature	0 to 60 °C
Filtration	120 µm (VF-2G); 130 µm (VF-3G, VF-5G, VF-6G)

Materials

Item	Material Housing	Material Element	Weight (g)
VF-2G	Aluminium	Acrylic, Stainless Steel	44
VF-3G	Aluminium	PC, Polyvinyl	88
VF-5G	Aluminium	PC, Polyvinyl	146
VF-6G	Aluminium	PC, Polyvinyl	234
VFL-44	Poly-Carbonate	PC, Polyvinyl	19
VFL-66	Poly-Carbonate	PC, Polyvinyl	21
VFL-88	Poly-Carbonate	PC, Polyvinyl	23

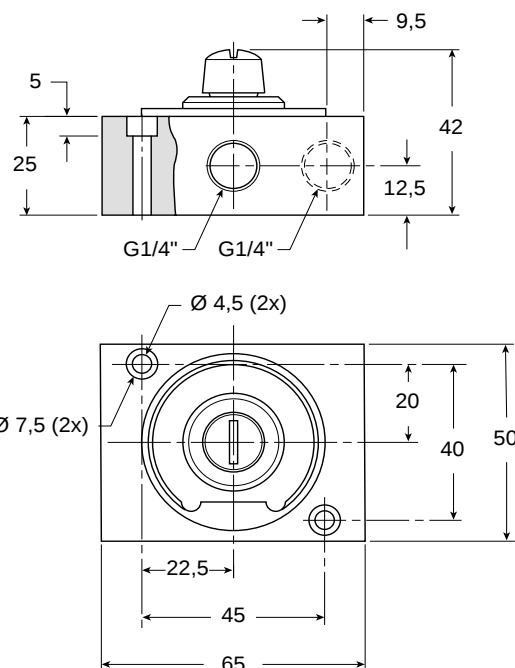
Dimensions

VFL Series

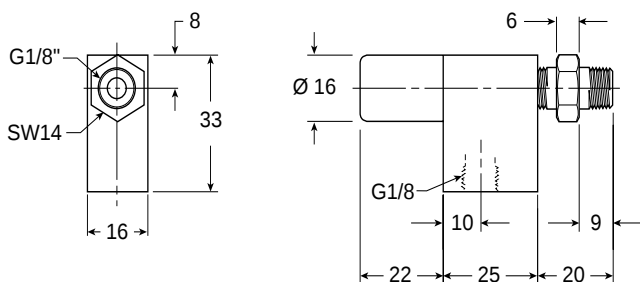


Item	A	B	C
VFL-44	4	55	10,5
VFL-66	6	58	12
VFL-88	8	62	14

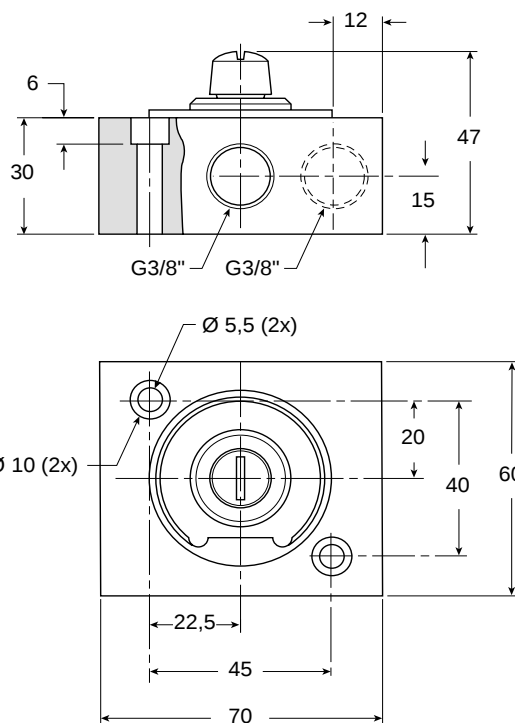
VF-5G



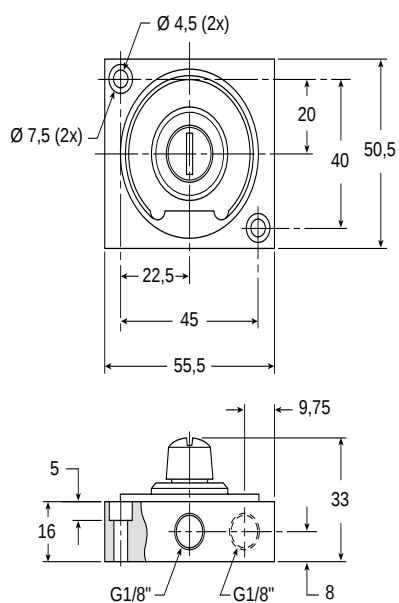
VF-2G



VF-6G



VF-3G



Millimeter



Protect the environment against harmful noise levels with quality silencers.

Part Numbers

Item	For Ejector	Male Connection
MSS-01	CV-05, CV-10, MCA-05	G1/8"
MSM-01	CV-15, MCA-10/13	G1/4"
MSL-02	CV-20	G1/2"
MS6-01	CV-25, CV-30	G3/4"

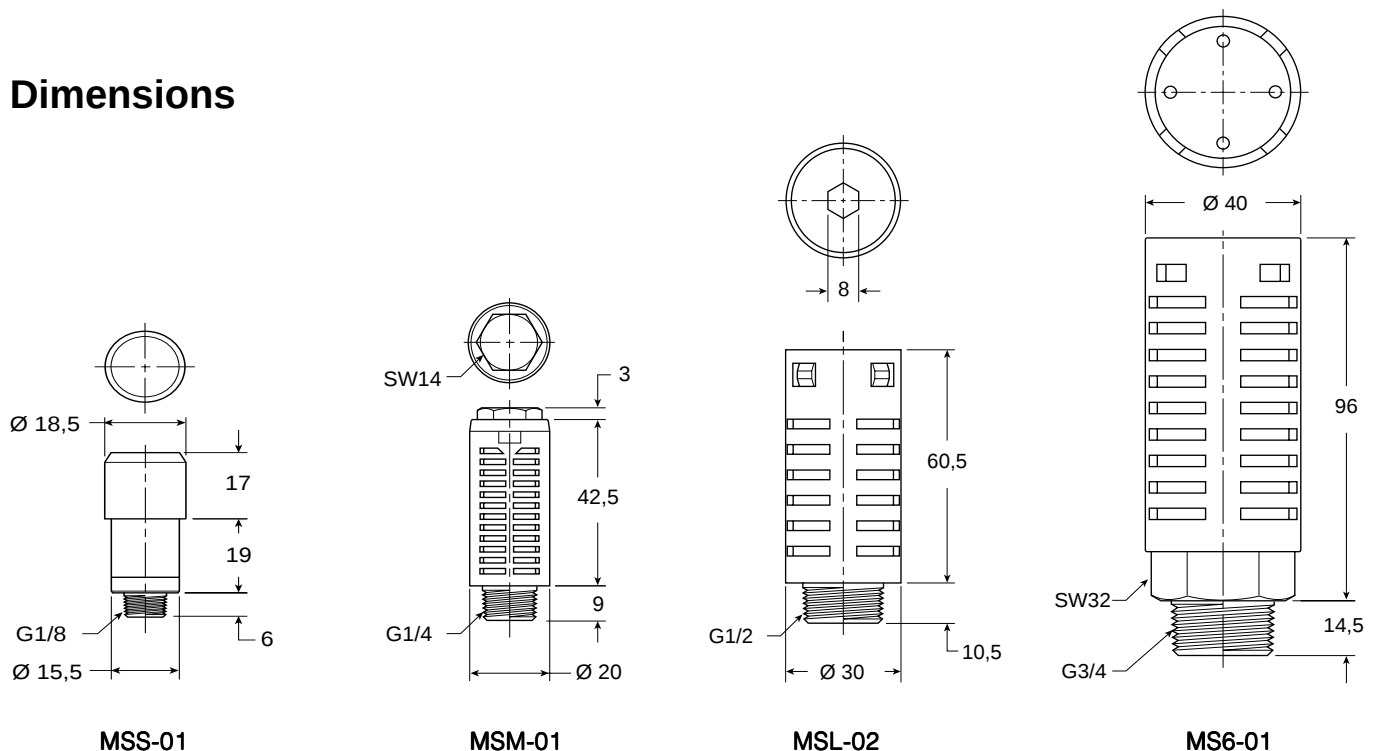
Specifications

Media	Non-Corrosive Air
Maximum Pressure	9 bar
Operating Temperature	0 to 60 °C
Silencing Effect	20 dB

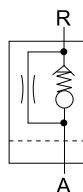
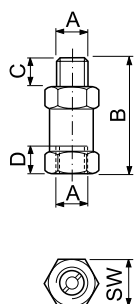
Materials

Item	Material Housing	Material Element	Media	Weight (g)
MSS-01	Polyacetal	Felt, Urethane	Air	5
MSM-01	Polyurethane	Felt	Air	7
MSL-02	Nylon	Vinyl	Air	25
MS6-01	Nylon	Polyvinyl Forma	Air	57

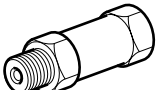
Dimensions



Flow Control Valves



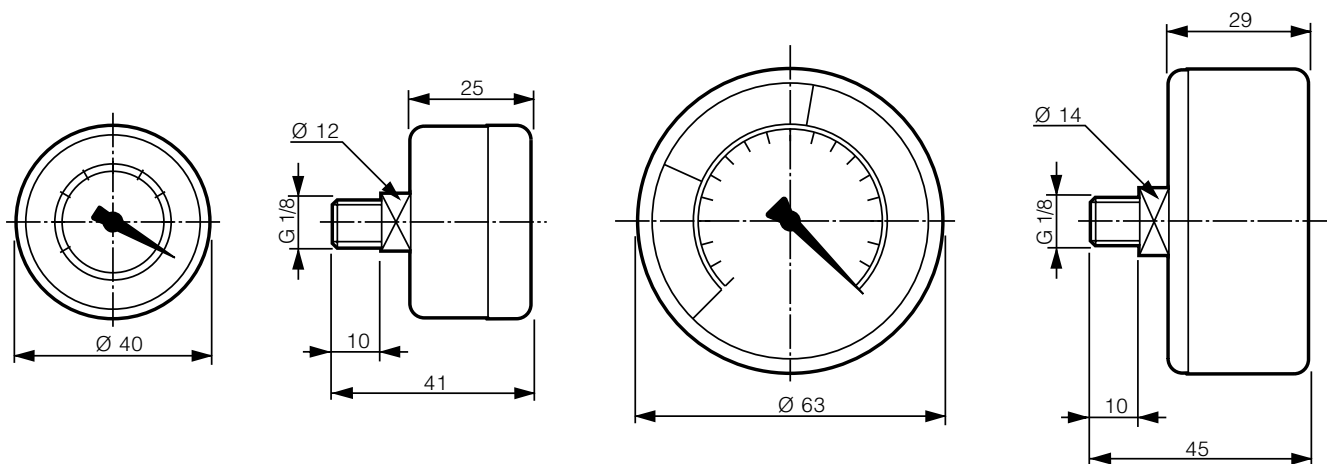
Order code	A	B	C	D	SW	Minimum operational flow NI/min at Vacuum:	
						30%	60%
P5V-BKS35	M5	20	4,5	4,5	8	2,0	3,7
P5V-BKS11	G1/8	34	8,0	8,5	14	3,7	7,2
P5V-BKS12	G1/4	36	10,0	11,0	17	4,0	7,8
P5V-BKS13	G3/8	39	10,0	12,0	22	11,7	23,3
P5V-BKS14	G1/2	41	12,0	14,0	27	11,7	23,3

	Material	Description	Connection	Weight kg	Order code
Vacuum cut-off valve 	Anodised aluminium	Female/Male	M5	0,0022	P5V-BKS35
		Female/Male	G1/8	0,0112	P5V-BKS11
		Female/Male	G1/4	0,0175	P5V-BKS12
		Female/Male	G3/8	0,0303	P5V-BKS13
		Female/Male	G1/2	0,0474	P5V-BKS14
		For use when there is a risk of one or more suction cups not in contact with the part to be lifted.			

Vacuum Gauge

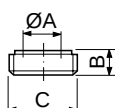
P6G-DRA1V10

P6G-FRA1V10



	Material	Description	Connection	Weight kg	Order code
	Black jointed steel	Vacuum gauge Ø 40 *	Male G1/8	0,070	P6G-DRA1V10
		Vacuum gauge Ø 63 **	Male G1/8	0,151	P6G-FRA1V10
		* 0 to -100 kPa and 0 to -1,0 bar dial. Accuracy±1,6%. Max +60 °C ** 0 to -1,0 bar dial with Coloured areas for visual reading Accuracy ±1,6 %. Max +60 °C			

Grid filter



Order code	A	B	C
P5V-FLNA1	3,75	3,5	G1/8
P5V-FLNA2	6,40	4,0	G1/4
P5V-FLNA4	10,00	4,5	G1/2

	Material	Connection	Weight kg	Order code
	Brass	Male G1/8	0,001	P5V-FLNA1
		Male G1/4	0,003	P5V-FLNA2
		Male G1/2	0,007	P5V-FLNA4



Parker Hannifin Corporation

About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving nearly 400,000 customers worldwide.

Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

The Aerospace Group

is a leader in the development, design, manufacture and servicing of control systems and components for aerospace and related high-technology markets, while achieving growth through premier customer service.



The Climate & Industrial Controls Group

designs, manufactures and markets system-control and fluid-handling components and systems to refrigeration, air-conditioning and industrial customers worldwide.



The Fluid Connectors Group

designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.



The Seal Group

designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.



The Hydraulics Group

designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.



The Filtration Group

designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.



The Automation Group

is a leading supplier of pneumatic and electro-mechanical components and systems to automation customers worldwide.



The Instrumentation Group

is a global leader in the design, manufacture and distribution of high-quality critical flow components for worldwide process instrumentation, ultra-high-purity, medical and analytical applications.



www.parker.com

Pneumatic Division Sales Offices

Austria - Wr.Neustadt
Tel: +43 2622 23501
Fax: +43 2622 66212

Belgium - Nivelles
Tel: +32 67 280 900
Fax: +32 67 280 999

Czech & Slovak
Republics - Prague
Tel: +420 283 085 224
Fax: +420 283 085 360

Denmark - Ballerup
Tel: +45 43 560400
Fax: +45 43 733107

Finland - Vantaa
Tel: +358 9 4767 31
Fax: +358 9 4767 3200

France - Evreux
Tel: +33 820 825 239
Fax: +33 820 029 870

Germany - Mettmann
Tel: +49 2104 137-0
Fax: +49 2104 137-500

Greece - Athens
Tel: +30 10 933 6450
Fax: +30 10 933 6451

Hungary - Budapest
Tel: +36 1 220 4155
Fax: +36 1 422 1525

Italy - Corsico, Milan
Tel: +39 02 4519 21
Fax: +39 02 4479 340

Netherlands - Oldenzaal
Tel: +31 541 585000
Fax: +31 541 585459

Norway - Langhus
Tel: +47 6491 1000
Fax: +47 6491 1090

Poland - Warsaw
Tel: +48 22 863 49 42
Fax: +48 22 863 49 44

Portugal - Leça da
Palmeira
Tel: +351 22 999 7360
Fax: +351 22 996 1527

Romania - Bucharest
Tel: +40 21 252 3382
Fax: +40 21 252 3381

Russia - Moscow
Tel: +7 095 234 0054
Fax: +7 095 234 0528

Slovenia - Novo mesto
Tel: +386 7337 6650
Fax: +386 7337 6651

Spain - Madrid
Tel: +34 91 675 7300
Fax: +34 91 675 7711

Sweden - Spånga
Tel: +46 (0) 8 5979 5000
Fax: +46 (0) 8 5979 5110

Switzerland - Biel
Tel: +41 32 3653711
Fax: +41 32 3653730

UK - Cannock
Tel: +44 1543 456000
Fax: +44 1543 456001

Ukraine - Kiev
Tel: + 380 44 220 7432
Fax: + 380 44 220 6534



Parker Hannifin plc
Pneumatic Division
Walkmill Lane, Bridgtown,
Cannock, Staffs. WS11 3LR
United Kingdom

We reserve the right to make
alterations without prior notification.
Edition 04.10