

PFG SERIES VACUUM CUPS

Our silicone-free PFG vacuum cups offer maximum flexibility in adapting to shaped components.



DESIGNED FOR HIGH SPEED APPLICATIONS

Our silicone-free PFG vacuum cups, designed in geometries for high speed applications, offer maximum flexibility in adapting to shaped components due to a very soft lip and rigid core. They feature an oil displacement lip on the outer edge, and the arrangement of the brake ribs ensures that oil and dirt are properly extracted. With a one-part body design they are easy to exchange. Additionally, this feature means less damage to metal sheets compared to other designs. With more wear-resistance and longer service life than an NBR cup, after 4,000,000 strokes the cup shows hardly any signs of wear.

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- ① **MATERIAL**
TPU Thermoplastic elastomer
- ① **MAX. ALLOWABLE TEMPERATURE**
100° C for long-term use or 125° C for short term use
- ① **HARDNESS**
80 shore
- ① **STABILITY**
Ozone, draw and absorption oil, UV-light, gas, ethanol
- ① **ATTRIBUTES**
Silicon free. Specifically designed for the sheet-metal working industry and automotive stamping applications.

ADVANTAGES

- ① Higher lateral forces than competitors
- ① Interchangeable with non-Bilsing tooling
- ① Thin, hard shape for high stability
- ① Higher parallel grip than competitors
- ① Wear resistant
- ① Longer service life
- ① Easily exchangeable
- ① No deformation of sheets
- ① Recyclable

- Suitable for aluminum applications
- Suitable for convex surfaces
- Suitable where sharp edges are common
- Cup leaves no imprint in thin materials
- Suitable for shear application
- Oil proof, suitable for oily applications
- Suitable for destacking applications

- Suitable for steel applications
- Suitable for high SPM applications
- Suitable for thick materials
- Suitable for thin materials
- Suitable for wavy part surfaces
- Suitable for recycling



METALS APPLICATIONS

Servo-press machines and the newest automation technologies have accelerated production processes in press shops.

Higher manipulation speed as a result of this upgrade demands vacuum cups with higher adhesion and friction forces as well as more flexibility.



PLASTICS APPLICATIONS

PFG cups are complementary for plastic applications, such as demolding bumpers in the plastics industries as they are PWIS free.

PWIS stands for Paint Wetting Impairment Substances. The terms covers all problems encountered in the coating of surfaces. On almost all products, whether recently manufactured or from storage, there are – usually invisible – deposits which prevent coats from adhering: greases, oils, silicones, moisture, oxidation layers. By means of plasma cleaning, these deposits can be removed to make surfaces PWIS-free. To check the surfaces after cleaning and before painting.

LEARN MORE ABOUT PFG CUPS

The PFG cups are designed specifically for high-speed applications and can adapt to various part geometries, handling steel, aluminum and plastic materials. These cups are suited for continuous use at temperatures up to 100°C and for short-term use up to 125°C. There work with connection adapters in various designs made of aluminum and steel, in either pin or ball connections.

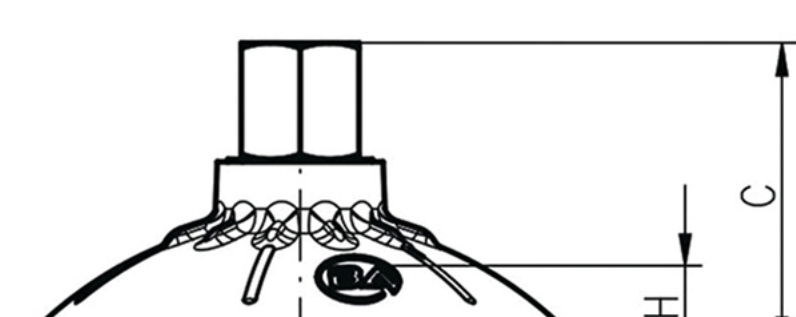
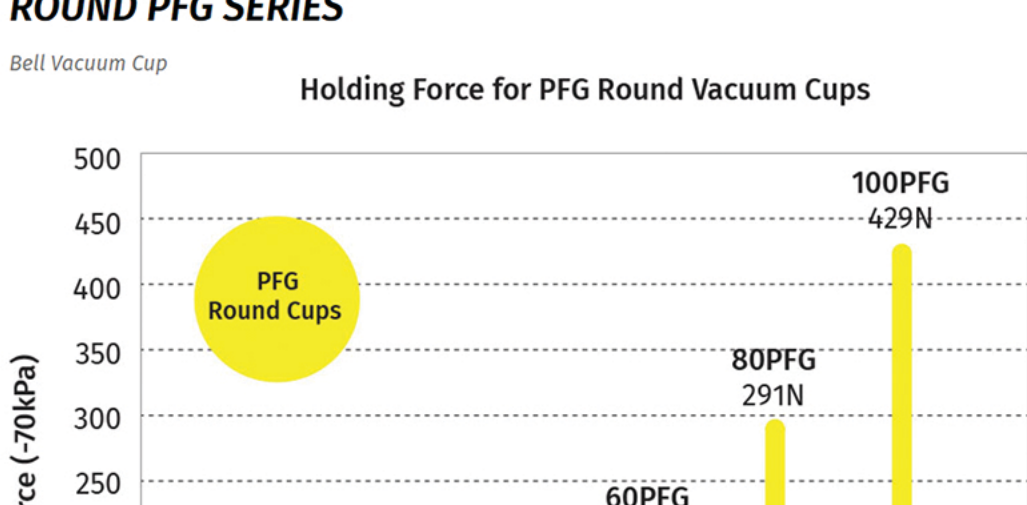
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ROUND PFG SERIES

Bell Vacuum Cup

Holding Force for PFG Round Vacuum Cups



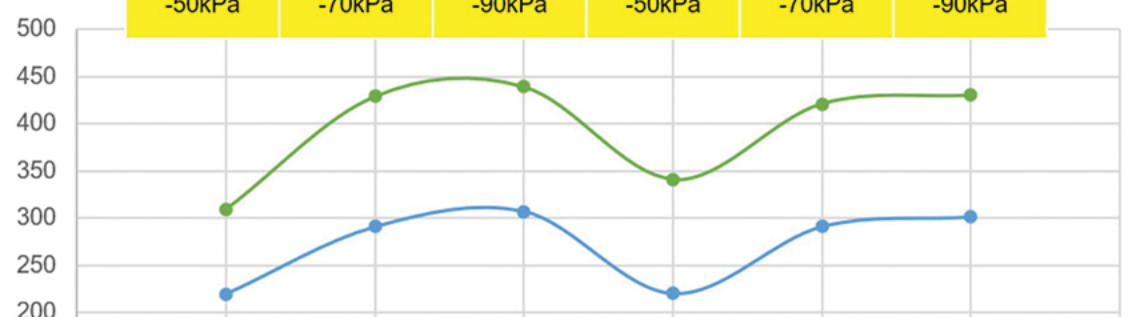
Part No.	φA	φA max.	C	H	Vol. cm ³	convex	Cup Weight (Kg)
30PFG	33,78	35,9	35,0	4,3	3,2	17	0,007
40PFG	43,11	47,4	37,6	7,0	7,0	25	0,011
50PFG	53,5	58,7	42,2	7,2	14,1	26	0,016
60PFG	62,74	68,4	44,2	8,8	23,8	31	0,024
80PFG	84,0	92,03	48,0	13,2	50,4	35	0,051
100PFG	105,0	111,4	57,2	16,1	93,9	45	0,077

Conversion Reference and Notes
 a. 1 Psi (pounds per square inch) equals 6.89475729 kPa (Kilopascal)
 b. Force is measured in Newtons
 c. Measured holding force on oiled, zinc-plated steel

Technical Data

Part No.	vertical stroke at vacuum of			lateral forces parallel at vacuum of		
	-50kPa	-70kPa	-90kPa	-50kPa	-70kPa	-90kPa
30PFG	45	55	60	35	45	51
40PFG	45	74	81	49	70	79
50PFG	91	119	129	89	119	127
60PFG	140	172	184	148	165	179
80PFG	219	291	307	220	291	301
100PFG	309	429	439	341	421	430

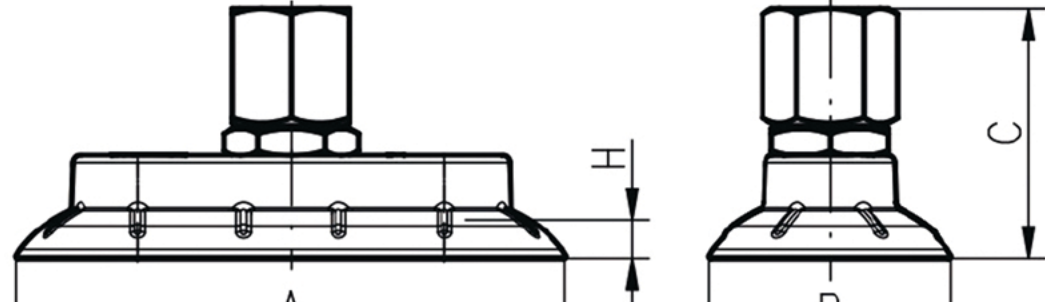
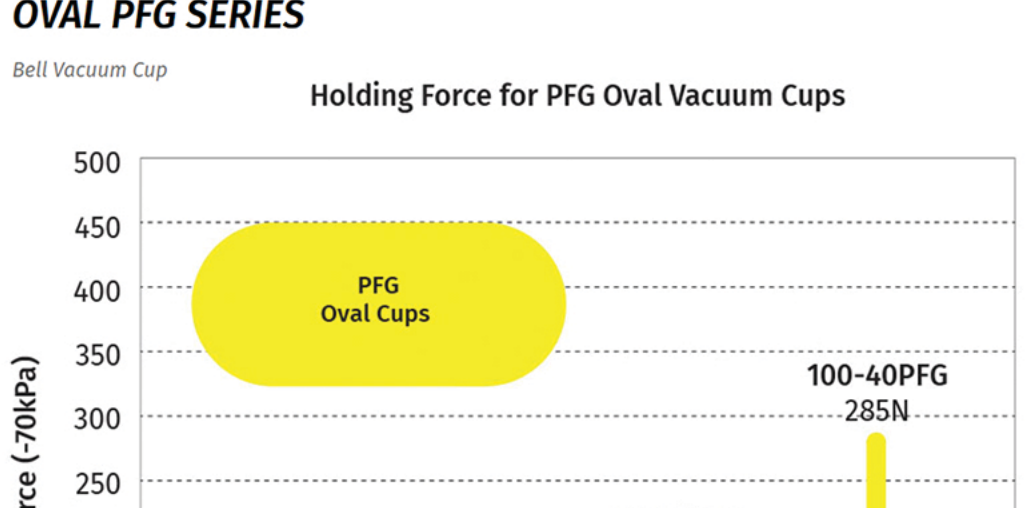
measured holding forces on oiled, zinc-plated. Measurements in N
 Depending on temperature and part surface as well as other parameters the real values can diversify



OVAL PFG SERIES

Bell Vacuum Cup

Holding Force for PFG Oval Vacuum Cups



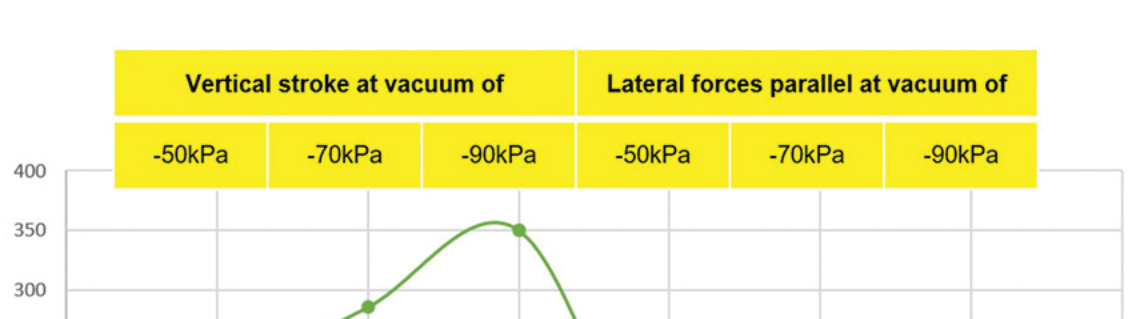
Part No.	AxB	AxB max.	C	H
60-20PFG	64 x 22	66 x 24	38,6	4,7
80-30PFG	84 x 34	86 x 36	39,1	5,7
100-40PFG	104 x 44	107 x 46	45,7	7,3

Conversion Reference and Notes
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 c. Measured holding force on oiled, zinc-plated steel

Technical Data

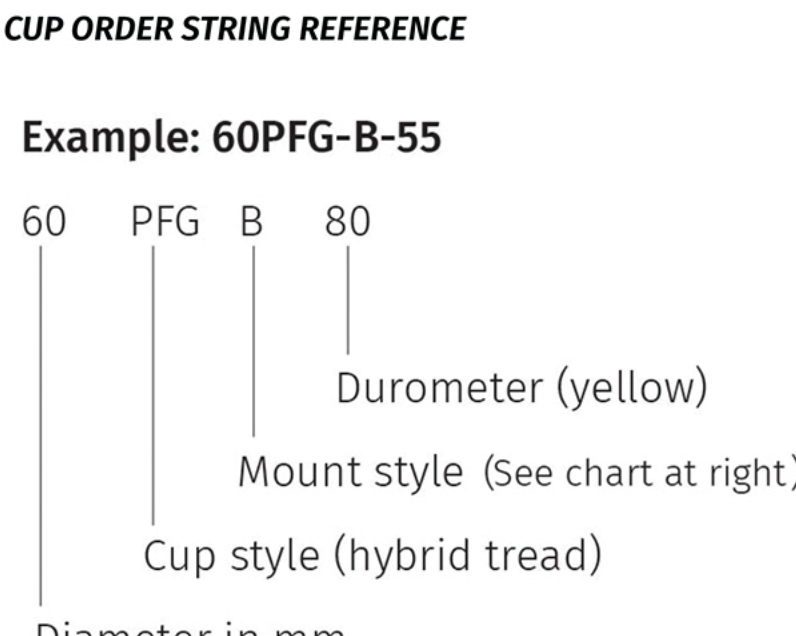
Part No.	vertical stroke at vacuum of			lateral forces parallel at vacuum of		
	-50kPa	-70kPa	-90kPa	-50kPa	-70kPa	-90kPa
55-12PFG	13	20	25	3	5	7
60-20PFG	70	95	115	35	50	75
80-30PFG	125	170	190	75	80	95
100-40PFG	220	285	350	120	135	160

measured holding forces on oiled, zinc-plated. Measurements in N, longitudinal to the tensile direction



CUP ORDER STRING REFERENCE

Example: 60PFG-B-55



CUP MOUNTING STYLES

Cup Mount Style	Thread/Type	Cup Mount Style	Thread/Type
A	G 1/4" internal thread	K	M10 outer thread with SW22
B	G 3/8" internal thread	N	M10 outer thread with SW22 jam nut with SW22 (height - 6mm)
C	C-Mount (Quick disconnect)	P	G 3/8" internal thread with SW22 and plastic insert
F	G 3/8" internal thread with SW22 jam nut with SW22 (height-6mm)	X	G 3/8" internal thread with SW22 jam nut with SW22 (height-9mm)
G	G 1/4" internal thread with SW22 jam nut with SW22 (height-6mm)		

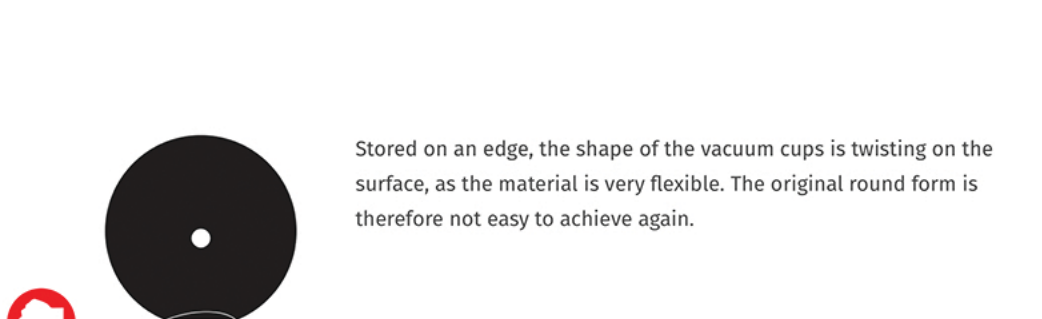


PFG CUP MAINTENANCE & SPARE PARTS

Proper care and storage of your vacuum cups can dramatically improve their performance and life. If you have questions regarding how to best care for, maintain and store your cups, please reach out to your local Bilsing Automation representative to discuss your unique needs.

PROPER STORAGE

When storing, all PFG cups should be laid cup side vs. mount side down, otherwise the shape of the cup can be distorted. For packaging, all materials used in covering and wrapping must be free of substances that degrade elastomers. Appropriate packaging materials include PE-coated craft paper, aluminum foil or opaque PE foil, at least 0.075mm thick. The control temperature must be below 25°C and should not be exposed to direct sunlight – the best storage condition for our cups is in dark surroundings. Additionally, the humidity should be kept so that no condensation appears during temperature changes. In these conditions, the cups can be used for up to five years. If these conditions are deviated from, the cups may only last two to three years.



CARE AND CLEANING

Routinely check cups for wear or damage and cleanliness. If you find the cup needs cleaning, wear protective eyewear and gloves, then wipe the cups with a solution of mild dish soap and warm water. Never apply solvents, such as disc brake cleaner as it will destroy the cup.

- STEP ONE**
Wash hands. Wear gloves and protective eyewear.
- STEP TWO**
Prepare a solution of 1 part dish soap and 20 parts potable water. Then, spray the surface of the cup. Never use solvents.
- STEP THREE**
Gently wipe cup surfaces with the soap solution until you achieve an acceptable level of cleanliness.
- STEP FOUR**
Briefly rinse the cup with clean, potable water.
- STEP FIVE**
Thoroughly dry and reinstall or store appropriately.

APPLICATION AND CARE TRAINING

Contact your local Bilsing Automation contact to arrange training for applications and how best to clean and care for you cups and tooling. Your team will learn basic tasks such as changing o-rings in disconnects as shown in the video at right and more complex repair and care tasks.

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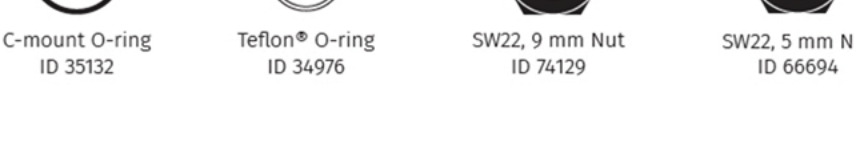


ACCESSORIES



Drive Key SW22
ID 26154

SPARE PARTS



C-mount O-ring ID 33112
Teflon® O-ring ID 34076
SW22, 9 mm Nut ID 74129
SW22, 5 mm Nut ID 66694

ROUND VACUUM CUP STORAGE COVERS

For long term vacuum cup storage, we recommend our fabric covers. These protect the vacuum cup from damage relating to prolonged exposure to light and humidity. These are available for round cups in 40mm, 50mm, 60mm, 80mm and 100mm diameters. These can be applied to non-Bilsing branded cups.

Order ID	Size	Description
30695	40mm	Protective round cup cover for 40mm round cups
30696	50mm	Protective round cup cover for 50mm round cups
30700	60mm	Protective round cup cover for 60mm round cups
30703	80mm	Protective round cup cover for 80mm round cups
30706	100mm	Protective round cup cover for 100mm round cups

