

# Suction cup, 1.5 bellows



## DCA

## For uneven surfaces

- Materials:

nitrile (NBR) : black color

silicone (SI) : translucent

natural rubber (NR) : grey color

Natural  
rubber

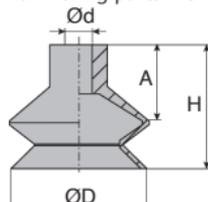
Nitrile

Silicone

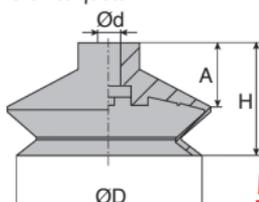


### Uses

- For moving parts with uneven surfaces



DCA05 to DCA16



DCA20 to DCA43

### DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

Part number	ØD	H	Ød	A	Corresponding thread insert	Stock*	Price each 1 to 49
<b>Nitrile</b>							
DCA05-NBR	5,5	11,1	4	8,0	TM5M5	✓	6,87 €
DCA11-NBR	11,0	16,0	4	10,5	CTM10M5	✓	5,95 €
DCA14-NBR	13,0	15,8	4	11,0		-	6,19 €
DCA16-NBR	16,0	19,0	4	10,5		-	6,66 €
DCA20-NBR	19,0	15,8	4	10,5		✓	6,50 €
DCA22-NBR	22,0	19,5	4	11,0	-	-	6,76 €
DCA25-NBR	24,0	23,0	4	16,5	-	-	7,37 €
DCA33-NBR	33,0	28,0	8	16,5	SCR30M6	-	7,44 €
DCA43-NBR	43,0	28,0	8	15,5		✓	8,04 €
<b>Silicone</b>							
DCA05-SI	5,5	11,1	4	8,0	TM5M5	-	11,90 €
DCA11-SI	11,0	16,0	4	10,5	CTM10M5	✓	7,36 €
DCA14-SI	13,0	15,8	4	11,0		-	7,95 €
DCA16-SI	16,0	19,0	4	10,5		✓	7,95 €
DCA20-SI	19,0	15,8	4	10,5		✓	7,95 €
DCA22-SI	22,0	19,5	4	11,0	-	✓	7,95 €
DCA25-SI	24,0	23,0	4	16,5	-	✓	8,21 €
DCA33-SI	33,0	28,0	8	16,5	SCR30M6	✓	9,12 €
DCA43-SI	43,0	28,0	8	15,5		✓	9,23 €
<b>Natural rubber</b>							
DCA05-NR	5,5	11,1	4	8,0	TM5M5	-	5,95 €
DCA11-NR	11,0	16,0	4	10,5	CTM10M5	-	6,19 €
DCA14-NR	13,0	15,8	4	11,0		-	8,88 €
DCA16-NR	16,0	19,0	4	10,5		✓	8,48 €
DCA20-NR	19,0	15,8	4	10,5		-	12,38 €
DCA22-NR	22,0	19,5	4	11,0	-	-	6,76 €
DCA25-NR	24,0	23,0	4	16,5	-	-	9,45 €
DCA33-NR	33,0	28,0	8	16,5	SCR30M6	✓	8,40 €
DCA43-NR	43,0	28,0	8	15,5		✓	8,40 €

\*Depending on availability - Dimensions in mm

- Suction cup for lifting and moving objects

- Materials:

nitrile (NBR) : black colour, silicone (SI) :  
translucent, natural rubber (NR) grey colour

Natural  
rubber

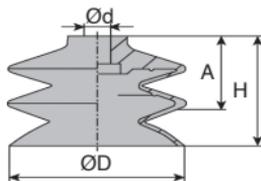
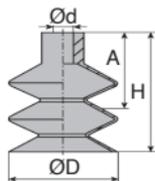
Nitrile



silicone

### Uses

- For moving parts with irregular or curved surfaces
- These bellows allow for a more supple and faster grip, and also compensate for differences in height



### DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

DCG07C to DCG25

DCG30 to DCG60

Part number	ØD	H	Ød	A	Corresponding threaded insert	Stock*	Price each 1 to 49
<b>Nitrile</b>							
DCG07C-NBR	7,0	14,2	4,0	10,0	CTM10M5	-	6,22 €
DCG10-NBR	9,0	15,0	5,0	12,0		✓	5,63 €
DCG15-NBR	15,2	22,0	5,0	12,0		✓	6,50 €
DCG18-NBR	17,5	23,0	5,0	13,0		-	6,76 €
DCG20-NBR	20,0	23,0	5,0	13,0		-	6,76 €
DCG25-NBR	25,0	33,0	4,5	19,34	-	6,76 €	
DCG30-NBR	32,0	37,5	8,0	23,0	SCR30M6	-	7,36 €
DCG40-NBR	42,0	46,0	8,0	24,0		-	8,61 €
DCG60-NBR	62,0	55,0	8,0	28,0		-	11,65 €
<b>Silicone</b>							
DCG07C-SI	7,0	14,2	4,0	10,0	CTM10M5	-	7,95 €
DCG10-SI	9,0	15,0	5,0	12,0		✓	7,03 €
DCG15-SI	15,2	22,0	5,0	12,0		✓	7,95 €
DCG18-SI	17,5	23,0	5,0	12,0		✓	7,95 €
DCG20-SI	20,0	23,0	5,0	13,0		✓	8,21 €
DCG25-SI	25,0	33,0	4,5	19,34	✓	8,21 €	
DCG30-SI	32,0	37,5	8,0	23,0	SCR30M6	✓	12,18 €
DCG40-SI	42,0	46,0	8,0	24,0		✓	10,80 €
DCG60-SI	62,0	55,0	8,0	28,0		✓	13,90 €
<b>Natural rubber</b>							
DCG07C-NR	7,0	14,2	4,0	10,0	CTM10M5	-	7,72 €
DCG10-NR	9,0	15,0	5,0	12,0		-	11,35 €
DCG15-NR	15,2	22,0	5,0	12,0		-	6,50 €
DCG18-NR	17,5	23,0	5,0	12,0		-	6,76 €
DCG20-NR	20,0	23,0	5,0	13,0		-	11,76 €
DCG25-NR	25,0	33,0	4,5	19,34	-	14,13 €	
DCG30-NR	32,0	37,5	8,0	23,0	SCR30M6	-	7,36 €
DCG40-NR	42,0	46,0	8,0	24,0		-	15,52 €
DCG60-NR	62,0	55,0	8,0	28,0		✓	17,41 €

\*Depending on availability - Dimensions in mm

# Flat suction cup



## DFG

## For flat surfaces

- Suction cup to lifting and moving objects

- Materials:

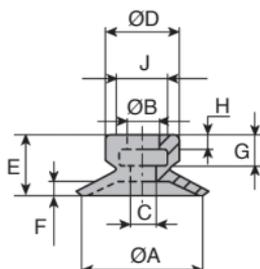
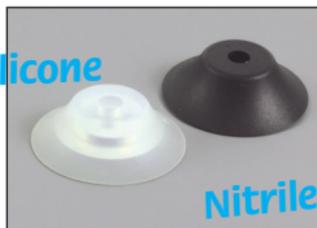
nitrile (NBR) : black colour

silicone (SI) : translucent

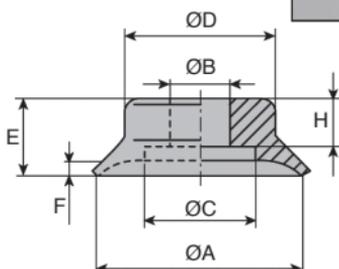
### Uses

- Ideal where accuracy is required

- Only for use on flat surfaces



DFG05A to DFG15A



DFG20 to DFG50

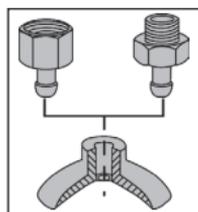
### DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

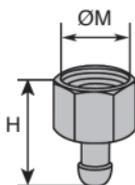
Part number	ØA	ØB	ØC	ØD	E	F	G	H	J	Corresponding threaded insert	Price each	
											Stock*	1 to 49
<b>Nitrile</b>												
DFG05A-NBR	5,0	4,0	1,4	7,5	6,5	0,8	4	2,0	6	TM5M5	-	5,50 €
DFG06A-NBR	6,0	4,0	2,0	7,5	6,5	0,8	4	2,0	6		-	5,79 €
DFG08A-NBR	8,0	4,0	2,0	8,0	7,0	1,2	4	2,0	6		-	5,79 €
DFG10A-NBR	10,0	4,0	2,0	8,5	7,5	1,5	4	2,0	6		-	5,98 €
DFG15-NBR	15,0	4,0	2,0	9,0	8,0	2,0	4	2,0	6	SCR15M5	-	6,61 €
DFG20-NBR	20,0	6,0	11,0	15,0	12,5	2,3	-	7,0	-	SCR20M5	✓	4,42 €
DFG25-NBR	25,0	6,0	11,0	16,0	14,0	3,0	-	7,0	-	-	-	4,06 €
DFG30-NBR	30,0	6,0	11,0	14,0	12,0	2,0	-	7,0	-	SCR20BM6	✓	4,23 €
DFG40-NBR	40,0	6,0	11,0	21,0	14,0	4,0	-	7,0	-	-	✓	6,65 €
DFG50-NBR	50,0	8,0	20,0	27,0	15,0	3,5	-	7,0	-	SCR50M6	-	8,82 €
<b>Silicone</b>												
DFG05A-SI	5,0	4,0	1,4	7,5	6,5	0,8	4	2,0	6	TM5M5	-	4,30 €
DFG06A-SI	6,0	4,0	2,0	7,5	6,5	0,8	4	2,0	6		-	7,37 €
DFG08A-SI	8,0	4,0	2,0	8,0	7,0	1,2	4	2,0	6		-	6,14 €
DFG10A-SI	10,0	4,0	2,0	8,5	7,5	1,5	4	2,0	6		-	4,87 €
DFG15-SI	15,0	4,0	2,0	9,0	8,0	2,0	4	2,0	6	SCR15M5	✓	5,81 €
DFG20-SI	20,0	6,0	11,0	15,0	12,5	2,3	-	7,0	-	SCR20M5	✓	5,63 €
DFG25-SI	25,0	6,0	11,0	16,0	14,0	3,0	-	7,0	-	-	-	5,21 €
DFG30-SI	30,0	6,0	11,0	14,0	12,0	2,0	-	7,0	-	SCR20BM6	✓	7,12 €
DFG40-SI	40,0	6,0	11,0	24,0	14,0	4,0	-	7,0	-	-	-	7,71 €
DFG50-SI	50,0	8,0	20,0	27,0	15,0	3,5	-	7,0	-	SCR50M6	-	12,26 €

\*Depending on availability - Dimensions in mm

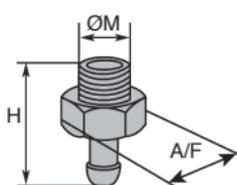
- Threaded insert for suction cup
- Material: nickel brass



Assembly diagram



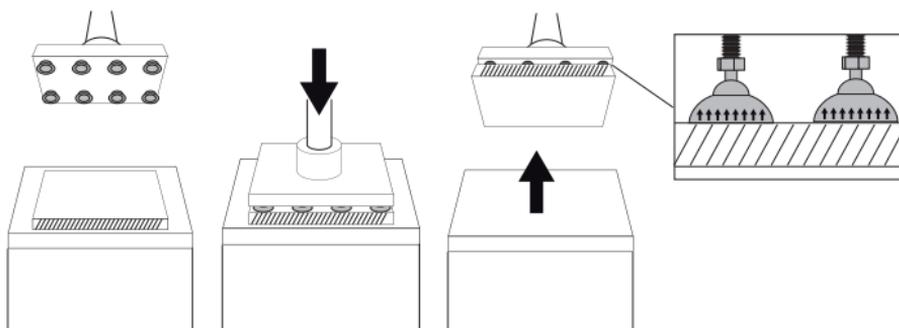
Female



Male



Typical assembly



### DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

Part number	ØM	H	A/F	type	For suction cup	Stock*	Price each 1 to 49
TM5M5	M5	12,0	8	male	DFG05A, DFG06A, DFG08A, DFG10A, DCA05	✓	2,50 €
CTM10M5	M5	13,5	13	male	DCA11, DCA14, DCA16, DCA22, DCA25	✓	2,64 €
CTM10G18	1/8"	19,5	13	male	DCG05C, DCG07C, DCG10, DCG12, DCG15	✓	3,51 €
CTF10G18	1/8"	18,5	13	femelle	DCG18, DCG20, DCG25	✓	3,24 €

\*Depending on availability - Dimensions in mm

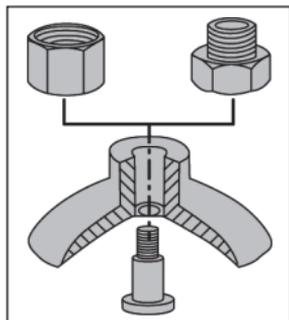
# Suction cup threaded insert

Stock

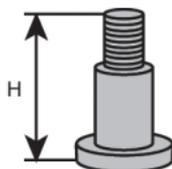
SCR  
ADAG

Socket screw

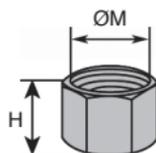
- Material: nickel brass



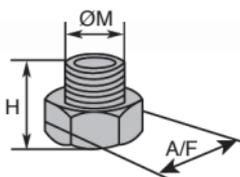
Assembly diagram



Socket screw insert



Female



Male



Adaptor

Insert socket head

## DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

Part number	Ø	H	For suction cup	For adaptor	Stock*	Price each 1 to 49
SCR15M5	M5	9	DFG15	ADAG18M5F	✓	4,06 €
SCR20M5	M5	11	DFG20	ADAG18F5F	✓	4,80 €
SCR30M6	M6	19	DCA33, DCA43, DCG30, DCG40, DCG60	ADAG18F6F, ADAG18M6F	✓	2,70 €
SCR20BM6	M6	14	DFG25, DFG30, DFG40	ADAG14F6F	✓	4,80 €
SCR50M6	M6	17	DFG50	ADAG14M6F	✓	6,73 €

## DISCOUNTS

Qty	1+	50+	100+	150+	200+
Disc.	List	-5%	-10%	-15%	On request

Adaptor

Part number	ØM	H	A/F	Type	For socket screw insert	Stock*	Price each 1 to 49
ADAG18F6F	1/8»	14,0	13	female	SCR30M6, SCR20BM6, SCR50M6	-	3,24 €
ADAG14F6F	1/4»	17,5	17	female		✓	4,24 €
ADAG18M6F	1/8»	13,0	13	male		✓	3,24 €
ADAG14M6F	1/4»	15,0	17	male		✓	3,24 €
ADAG18M5F	1/8»	13,0	13	male	SCR15M5, SCR20M5	✓	4,24 €
ADAG18F5F	1/8»	14,0	13	female			-

\*Depending on availability - Dimensions in mm

## Introduction

A suction cup allows you to lift and move objects that differ in shape, size and weight by means of a vacuum. The Venturi phenomenon allows a vacuum to be created inside the cup lowering the internal atmospheric pressure by 30 to 98%, thus creating a near vacuum.

The theoretical holding force (N) of a suction cup is calculated by multiplying the surface area of the suction cup by the decrease in pressure (%):

$$\text{Suction force (N)} = \text{suction cup surface area (cm}^2\text{)} \times \text{vacuum level (\%)} \times 0.099366$$

To guarantee operational safety and to allow for movement and acceleration, safety coefficients should be applied, these are a Factor of 3 for horizontally applied suction cups and 5 for those vertically applied to allow for any sliding.

You will find the typical forces (N) of the suction cups at different vacuum rates (%) in the table below.

Example: for a 50mm diameter suction cup and a 90% vacuum, the theoretical suction force = 175.5N = 17.5kg = 5.83kg (when Fos of 3 applied).

Suction cup diameter (mm)	Surface cm <sup>2</sup>	Theoretical force (N) of the suction cup at vacuum level (%)									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	
5	0,196	0,195	0,390	0,585	0,780	0,975	1,170	1,365	1,560	1,755	
6	0,282	0,280	0,561	0,842	1,123	1,404	1,685	1,966	2,247	2,528	
8	0,502	0,499	0,998	1,498	1,997	2,497	2,996	3,496	3,995	4,495	
10	0,785	0,780	1,560	2,341	3,121	3,902	4,682	5,462	6,243	7,023	
15	1,767	1,755	3,511	5,267	7,023	8,779	10,53	12,29	14,04	15,80	
20	3,141	3,121	6,243	9,365	12,48	15,60	18,73	21,85	24,97	28,09	
25	4,908	4,877	9,755	14,63	19,51	24,38	29,26	34,14	39,02	43,89	
30	7,068	7,023	14,04	21,07	28,09	35,11	42,14	49,16	56,19	63,21	
35	9,621	9,560	19,12	28,68	38,24	47,80	57,36	66,92	76,48	86,04	
40	12,56	12,48	24,97	37,46	49,94	62,43	74,92	87,40	99,89	112,3	
50	19,63	19,51	39,02	58,53	78,04	97,55	117,0	136,5	156,0	175,5	
60	28,27	28,09	56,19	84,28	112,3	140,4	168,5	196,6	224,7	252,8	

Materials	Working temperature C°	Shore hardness	Colour	Information
NBR = Nitrile	-30 to +110	55 ±5	black	Most common
SI = Silicone	-30 to +220	55 ±5	translucent	Resistant to high and low temperatures, suitable for food prep.
NR = Natural rubber	-25 to +90	50 ±5	grey	Good friction, resistance and very supple

Materials	Resistance: insufficient 1						excellent 6					
	tearing	cracking	elasticity	wear	friction	age	ozone	petrol	oil and grease	acid	alkali	hot water
NBR = Nitrile	4	5	4	4	4	4	4	5	6	2	4	4
SI = Silicone	5	4	5	4	5	4	6	4	6	3	3	3
NR = natural rubber	4	3	4	2	2	2	3	3	3	1	2	2