

Suction cup, 1.5 bellows



DCA

For uneven surfaces

- Materials:

nitrile (NBR) : black color

silicone (SI) : translucent

natural rubber (NR) : grey color

Natural
rubber

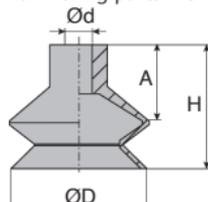
Nitrile

Silicone

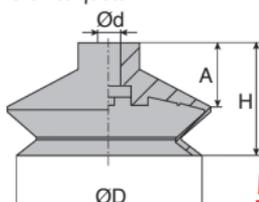


Uses

- 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 |
|-----------------------|------|------|----|------|-----------------------------|--------|--------------------|
| Nitrile | | | | | | | |
| 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 € |
| Silicone | | | | | | | |
| 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 € |
| Natural rubber | | | | | | | |
| 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

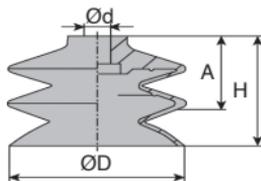
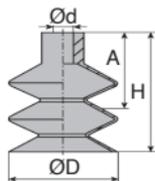
Nitrile



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 |
|-----------------------|------|------|-----|-------|-------------------------------|---------|--------------------|
| Nitrile | | | | | | | |
| 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 € |
| Silicone | | | | | | | |
| 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 € |
| Natural rubber | | | | | | | |
| 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:

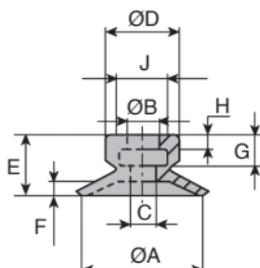
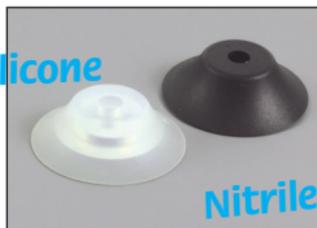
nitrile (NBR) : black colour

silicone (SI) : translucent

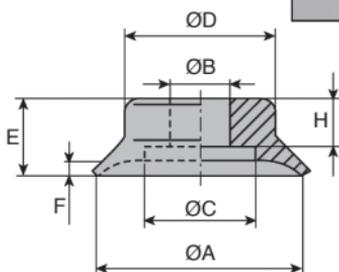
Uses

- Ideal where accuracy is required

- Only for use on flat surfaces



DFG05A to DFG15A



DFG20 to DFG50

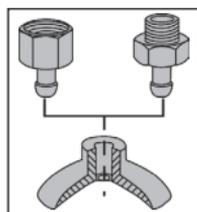
DISCOUNTS

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

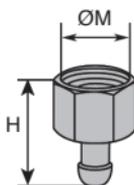
| Part number | ØA | ØB | ØC | ØD | E | F | G | H | J | Corresponding threaded insert | Stock* | Price each 1 to 49 |
|-----------------|------|-----|------|------|------|-----|---|-----|---|-------------------------------|--------|--------------------|
| Nitrile | | | | | | | | | | | | |
| DFG05A-NBR | 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 € |
| Silicone | | | | | | | | | | | | |
| 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

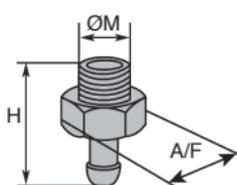
- Threaded insert for suction cup
- Material: nickel brass



Assembly diagram



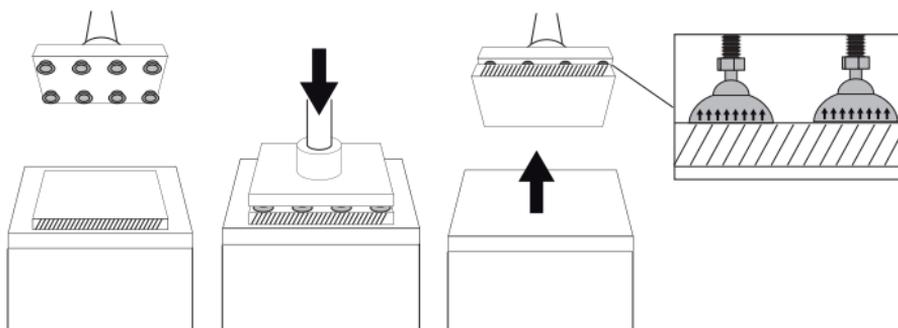
Female



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 | female | DCG18, DCG20, DCG25 | ✓ | 3,24 € |

*Depending on availability - Dimensions in mm

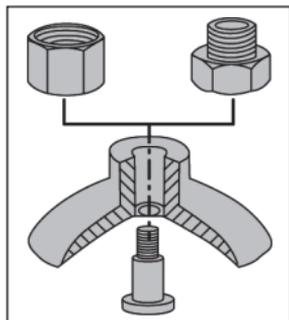
Suction cup threaded insert

Stock

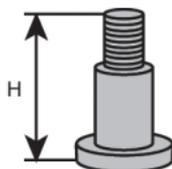
SCR
ADAG

Socket screw

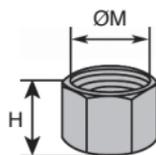
- Material: nickel brass



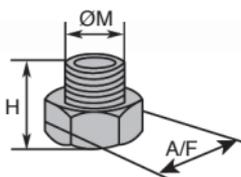
Assembly diagram



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 Area (cm ²) | 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 |