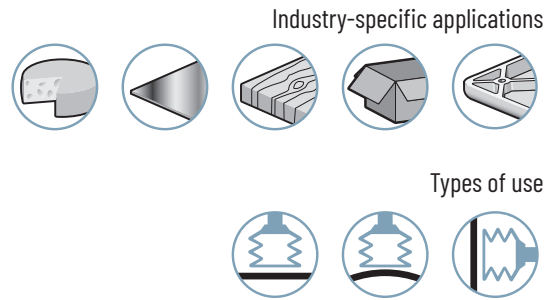


## Suction Cups with 1.5 Bellows Ø 10 to 150 mm



The VSAG series 1.5 bellows suction cups are recommended for gripping concave or convex products as well as sensitive products due to the cushioning effect of the bellows. The bellows also compensate for height variations in product gripping.



2

### Materials

**NBR** Nitrile  
**SI** Translucent silicone  
**STN** SITON®

### Suction Cup Properties

|          | Ø (mm) | (cm²) | (N) <sup>(1)</sup> | (N) <sup>(1)</sup> | R <sub>min</sub> (mm) | NBR        | SI        | STN        |
|----------|--------|-------|--------------------|--------------------|-----------------------|------------|-----------|------------|
| VSAG 10  | 10.7   | 0.2   | 1.8                | 0.9                | 4                     | VSAG10NBR  | VSAG10SI  | VSAG10STN  |
| VSAG 15  | 15     | 0.7   | 2.5                | 1.3                | 6                     | VSAG15NBR  | VSAG15SI  | VSAG15STN  |
| VSAG 20B | 20     | 1     | 4.8                | 2.4                | 8                     | VSAG20BNBR | VSAG20BSI | VSAG20BSTN |
| VSAG 30  | 30     | 4     | 15.2               | 7.6                | 15                    | VSAG30NBR  | VSAG30SI  | -          |
| VSAG 40  | 40     | 9     | 23.1               | 11.6               | 30                    | VSAG40NBR  | VSAG40SI  | -          |
| VSAG 50  | 50     | 26    | 38.3               | 18.8               | 40                    | VSAG50NBR  | VSAG50SI  | -          |
| VSAG 75  | 75     | 76    | 90.3               | 44.8               | 70                    | VSAG75NBR  | VSAG75SI  | VSAG75STN  |
| VSAG 110 | 110    | 280   | 191.4              | 93.9               | 100                   | VSAG110NBR | VSAG110SI | VSAG110STN |
| VSAG 150 | 150    | 640   | 377.7              | 187.8              | 130                   | VSAG150NBR | VSAG150SI | -          |

(1) Actual force of the suction cup in use with a 65% vacuum and including a safety factor of 2 for horizontal handling and a factor of 4 for vertical handling.

### Choice of Fittings

| (Ø)       | M5-F | M5-M | M6-M | M10-M | M10x125F | G1/8"-M | G1/8"-F | G1/4"-M | G1/4"-F | G1/2"-F |
|-----------|------|------|------|-------|----------|---------|---------|---------|---------|---------|
| 10...15   | ■    | ■    | -    | -     | -        | ■       | ■       | -       | -       | -       |
| 20...50   | -    | -    | ■    | □     | -        | ■       | ■       | ■       | ■       | -       |
| 75        | -    | -    | -    | -     | ■        | -       | -       | ■       | ■       | -       |
| 110...150 | -    | -    | -    | -     | -        | -       | -       | -       | -       | ■       |

■ Standard available configurations (suction cup + fitting)  
 refer to page 2/38

□ Additional mounting configurations  
 see page 2/40

Fitting: M = male

F = female

### Types of Assembly

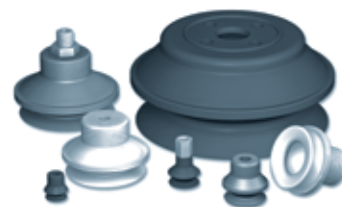
COVAL suction cups can be assembled in a wide variety of configurations:

- C** **Version C**  
Barbed fitting
- V** **Version V**  
Removable fitting  
(adapter and hollow screw)
- E** **Version E**  
Pressed fitting

### Accessories

To optimize use of your suction cups, Coval offers a comprehensive range of accessories (sensors, spring extensions, and feeder systems, etc.) see chapters 4 and 14.

Please specify the part n°. e.g. VSAG10NBRIM18C  
 Refer to page 2/38



| Ø 10 - 15 mm | THREAD    | C  |                |                |                |
|--------------|-----------|-------------------------------------------------------------------------------------|----------------|----------------|----------------|
|              | THREAD    | M5-M                                                                                | M5-F           | G1/8"-M        | G1/8"-F        |
|              | VSAG10NBR | VSAG10NBRIMM5C                                                                      | VSAG10NBRIFM5C | VSAG10NBRIM18C | VSAG10NBRIF18C |
|              | VSAG10SI  | VSAG10SIIMM5C                                                                       | VSAG10SIIFM5C  | VSAG10SIIM18C  | VSAG10SIIF18C  |
|              | VSAG10STN | VSAG10STNIMM5C                                                                      | VSAG10STNIFM5C | VSAG10STNIM18C | VSAG10STNIF18C |
|              | VSAG15NBR | VSAG15NBRIMM5C                                                                      | VSAG15NBRIFM5C | VSAG15NBRIM18C | VSAG15NBRIF18C |
|              | VSAG15SI  | VSAG15SIIMM5C                                                                       | VSAG15SIIFM5C  | VSAG15SIIM18C  | VSAG15SIIF18C  |
|              | VSAG15STN | VSAG15STNIMM5C                                                                      | VSAG15STNIFM5C | VSAG15STNIM18C | VSAG15STNIF18C |

|              |            | <b>E</b>  |                | <b>V</b>  |                 |                 |                 |                 |
|--------------|------------|--------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|
| Ø 20 - 50 mm | THREAD     | G1/8"-M                                                                                    | G1/8"-F        | M6-M                                                                                       | G1/8"-M         | G1/8"-F         | G1/4"-M         | G1/4"-F         |
|              | VSAG20BNBR | VSAG20BNBRIM18                                                                             | VSAG20BNBRIF18 | VSAG20BNBRIMM6V                                                                            | VSAG20BNBRIM18V | VSAG20BNBRIF18V | VSAG20BNBRIM14V | VSAG20BNBRIF14V |
|              | VSAG20BSI  | VSAG20BSIIM18                                                                              | VSAG20BSIIF18  | VSAG20BSIIMM6V                                                                             | VSAG20BSIIM18V  | VSAG20BSIIF18V  | VSAG20BSIIM14V  | VSAG20BSIIF14V  |
|              | VSAG20BSTN | VSAG20BSTNIM18                                                                             | VSAG20BSTNIF18 | VSAG20BSTNIMM6V                                                                            | VSAG20BSTNIM18V | VSAG20BSTNIF18V | VSAG20BSTNIM14V | VSAG20BSTNIF14V |
|              | VSAG30NBR  | VSAG30NBRIM18                                                                              | VSAG30NBRIF18  | VSAG30NBRIMM6V                                                                             | VSAG30NBRIM18V  | VSAG30NBRIF18V  | VSAG30NBRIM14V  | VSAG30NBRIF14V  |
|              | VSAG30SI   | VSAG30SIIM18                                                                               | VSAG30SIIF18   | VSAG30SIIMM6V                                                                              | VSAG30SIIM18V   | VSAG30SIIF18V   | VSAG30SIIM14V   | VSAG30SIIF14V   |
|              | VSAG40NBR  | VSAG40NBRIM18                                                                              | VSAG40NBRIF18  | VSAG40NBRIMM6V                                                                             | VSAG40NBRIM18V  | VSAG40NBRIF18V  | VSAG40NBRIM14V  | VSAG40NBRIF14V  |
|              | VSAG40SI   | VSAG40SIIM18                                                                               | VSAG40SIIF18   | VSAG40SIIMM6V                                                                              | VSAG40SIIM18V   | VSAG40SIIF18V   | VSAG40SIIM14V   | VSAG40SIIF14V   |
|              | VSAG50NBR  | -                                                                                          | -              | VSAG50NBRIMM6V                                                                             | VSAG50NBRIM18V  | VSAG50NBRIF18V  | VSAG50NBRIM14V  | VSAG50NBRIF14V  |
|              | VSAG50SI   | -                                                                                          | -              | VSAG50SIIMM6V                                                                              | VSAG50SIIM18V   | VSAG50SIIF18V   | VSAG50SIIM14V   | VSAG50SIIF14V   |

| Ø 75 mm | V  |           |                |                |
|---------|---------------------------------------------------------------------------------------|-----------|----------------|----------------|
|         | THREAD                                                                                | M10x125 F | G1/4"-M        | G1/4"-F        |
|         | VSAG75NBR                                                                             | VSAG75NBR | VSAG75NBRIM14V | VSAG75NBRIF14V |
|         | VSAG75SI                                                                              | VSAG75SI  | VSAG75SIIM14V  | VSAG75SIIF14V  |
|         | VSAG75STN                                                                             | VSAG75STN | VSAG75STNIM14V | VSAG75STNIF14V |

| Ø 110 - 150 mm | V  |                  |                 |
|----------------|---------------------------------------------------------------------------------------|------------------|-----------------|
|                | THREAD                                                                                | G1/2"-F *        | G1/2"-F **      |
|                | VSAG110NBR                                                                            | VSAG110NBRIFS12V | VSAG110NBRIF12V |
|                | VSAG110SI                                                                             | VSAG110SIIFS12V  | VSAG110SIIF12V  |
|                | VSAG110STN                                                                            | VSAG110STNIFS12V | VSAG110STNIF12V |
|                | VSAG150NBR                                                                            | VSAG150NBRIFS12V | VSAG150NBRIF12V |
|                | VSAG150SI                                                                             | VSAG150SIIFS12V  | VSAG150SIIF12V  |

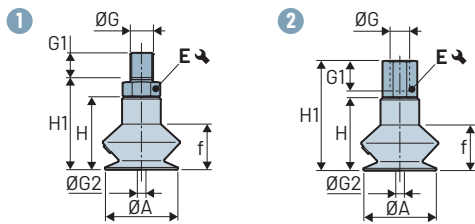
\*Configured using fitting n° IFS12120

\*\* Configured using fitting n° IF12120

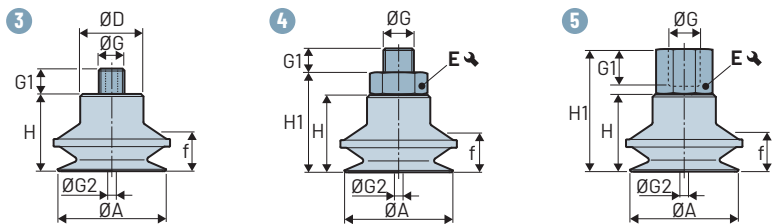
Additional mounting configurations are available (see page 2/40).  
For standard configurations (suction cup+fitting), the C and V versions are delivered unassembled.



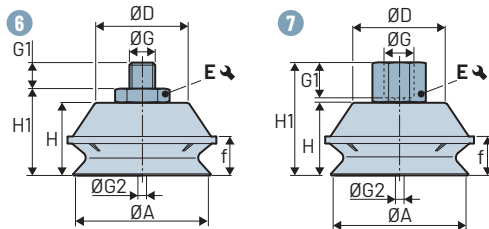
#### VSAG 10 - 15



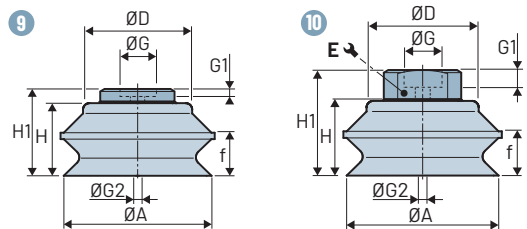
#### VSAG 20B - 50



#### VSAG 75



#### VSAG 110 - 150



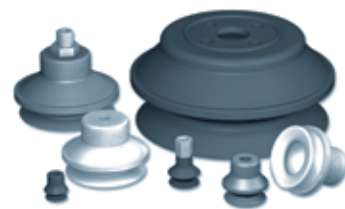
|                |                  | Diagrams | Ø A  | Ø D  | f <sup>(1)</sup> | H    | H1      | Ø G       | G1  | Ø G2 <sup>(2)</sup> | E  | g  (g) |
|----------------|------------------|----------|------|------|------------------|------|---------|-----------|-----|---------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Ø 10 - 15 mm   | VSAG10---IMM5C   | 1        | 10.7 | -    | 5                | 13.3 | 16.8    | M5-M      | 4.5 | 2.2                 | 7                                                                                     | 1.3                                                                                       |
|                | VSAG10---IFM5C   | 2        | 10.7 | -    | 5                | 13.3 | 22.3    | M5-F      | 6   | 2.2                 | 8                                                                                     | 1.8                                                                                       |
|                | VSAG10---IM18C   | 1        | 10.7 | -    | 5                | 13.3 | 18.3    | G1/8"-M   | 8   | 2.2                 | 14                                                                                    | 4.5                                                                                       |
|                | VSAG10---IF18C   | 2        | 10.7 | -    | 5                | 13.3 | 28.3    | G1/8"-F   | 9   | 2.2                 | 14                                                                                    | 5.7                                                                                       |
|                | VSAG15---IMM5C   | 1        | 15   | -    | 10               | 16   | 19.5    | M5-M      | 4.5 | 2.2                 | 7                                                                                     | 1.6                                                                                       |
|                | VSAG15---IFM5C   | 2        | 15   | -    | 10               | 16   | 25      | M5-F      | 6   | 2.2                 | 8                                                                                     | 2.1                                                                                       |
|                | VSAG15---IM18C   | 1        | 15   | -    | 10               | 16   | 21      | G1/8"-M   | 8   | 2.2                 | 14                                                                                    | 4.8                                                                                       |
| VSAG15---IF18C | 2                | 15       | -    | 10   | 16               | 31   | G1/8"-F | 9         | 2.2 | 14                  | 6                                                                                     |                                                                                           |
| Ø 20 - 40 mm   | VSAG20B---IM18   | 4        | 20   | -    | 12               | 22   | 27      | G1/8"-M   | 8   | 4                   | 14                                                                                    | 7.1                                                                                       |
|                | VSAG20B---IF18   | 5        | 20   | -    | 12               | 22   | 37      | G1/8"-F   | 9   | 4                   | 14                                                                                    | 8.5                                                                                       |
|                | VSAG20B---IMM6V  | 3        | 20   | 15   | 12               | 22   | -       | M6-M      | 6   | 3.5                 | -                                                                                     | 5.7                                                                                       |
|                | VSAG20B---IM18V  | 4        | 20   | -    | 12               | 22   | 26.5    | G1/8"-M   | 6   | 3.5                 | 13                                                                                    | 12.3                                                                                      |
|                | VSAG20B---IF18V  | 5        | 20   | -    | 12               | 22   | 35      | G1/8"-F   | 7.5 | 3.5                 | 13                                                                                    | 15.6                                                                                      |
|                | VSAG20B---IM14V  | 4        | 20   | -    | 12               | 22   | 27      | G1/4"-M   | 8   | 3.5                 | 17                                                                                    | 21.6                                                                                      |
|                | VSAG20B---IF14V  | 5        | 20   | -    | 12               | 22   | 38      | G1/4"-F   | 11  | 3.5                 | 17                                                                                    | 26.2                                                                                      |
|                | VSAG30---IM18    | 4        | 30   | -    | 17               | 30.5 | 35.5    | G1/8"-M   | 8   | 4                   | 14                                                                                    | 13.2                                                                                      |
|                | VSAG30---IF18    | 5        | 30   | -    | 17               | 30.5 | 45.5    | G1/8"-F   | 9   | 4                   | 14                                                                                    | 14.6                                                                                      |
|                | VSAG30---IMM6V   | 3        | 30   | 20   | 17               | 30.5 | -       | M6-M      | 6   | 3.5                 | -                                                                                     | 11.8                                                                                      |
|                | VSAG30---IM18V   | 4        | 30   | -    | 17               | 30.5 | 35      | G1/8"-M   | 6   | 3.5                 | 13                                                                                    | 18.4                                                                                      |
|                | VSAG30---IF18V   | 5        | 30   | -    | 17               | 30.5 | 43.5    | G1/8"-F   | 7.5 | 3.5                 | 13                                                                                    | 21.7                                                                                      |
|                | VSAG30---IM14V   | 4        | 30   | -    | 17               | 30.5 | 35.5    | G1/4"-M   | 8   | 3.5                 | 17                                                                                    | 27.7                                                                                      |
|                | VSAG30---IF14V   | 5        | 30   | -    | 17               | 30.5 | 46.5    | G1/4"-F   | 11  | 3.5                 | 17                                                                                    | 32.3                                                                                      |
|                | VSAG40---IM18    | 4        | 40   | -    | 15.5             | 30.5 | 35.5    | G1/8"-M   | 8   | 4                   | 14                                                                                    | 18.8                                                                                      |
|                | VSAG40---IF18    | 5        | 40   | -    | 15.5             | 30.5 | 45.5    | G1/8"-F   | 9   | 4                   | 14                                                                                    | 20.2                                                                                      |
|                | VSAG40---IMM6V   | 3        | 40   | 25   | 15.5             | 30.5 | -       | M6-M      | 6   | 3.5                 | -                                                                                     | 17.4                                                                                      |
|                | VSAG40---IM18V   | 4        | 40   | -    | 15.5             | 30.5 | 35      | G1/8"-M   | 6   | 3.5                 | 13                                                                                    | 24                                                                                        |
|                | VSAG40---IF18V   | 5        | 40   | -    | 15.5             | 30.5 | 43.5    | G1/8"-F   | 7.5 | 3.5                 | 13                                                                                    | 27.3                                                                                      |
|                | VSAG40---IM14V   | 4        | 40   | -    | 15.5             | 30.5 | 35.5    | G1/4"-M   | 8   | 3.5                 | 17                                                                                    | 33.3                                                                                      |
|                | VSAG40---IF14V   | 5        | 40   | -    | 15.5             | 30.5 | 46.5    | G1/4"-F   | 11  | 3.5                 | 17                                                                                    | 37.9                                                                                      |
| Ø 50 mm        | VSAG50---IMM6V   | 3        | 50   | -    | 20               | 36.5 | -       | M6-M      | 6   | 3.5                 | -                                                                                     | 30                                                                                        |
|                | VSAG50---IM18V   | 4        | 50   | -    | 20               | 36.5 | 41      | G1/8"-M   | 6   | 3.5                 | 13                                                                                    | 36.6                                                                                      |
|                | VSAG50---IF18V   | 5        | 50   | -    | 20               | 36.5 | 49.5    | G1/8"-F   | 7.5 | 3.5                 | 13                                                                                    | 40                                                                                        |
|                | VSAG50---IM14V   | 4        | 50   | -    | 20               | 36.5 | 41.5    | G1/4"-M   | 8   | 3.5                 | 17                                                                                    | 45.9                                                                                      |
|                | VSAG50---IM14F   | 5        | 50   | -    | 20               | 36.5 | 52.5    | G1/4"-F   | 11  | 3.5                 | 17                                                                                    | 50.4                                                                                      |
| Ø 75 - 150 mm  | VSAG75---        | 8        | 75   | 50.5 | 22               | 43.2 | -       | M10x125-F | -   | -                   | -                                                                                     | 87.6                                                                                      |
|                | VSAG75---IM14V   | 6        | 75   | 50.5 | 22               | 43.2 | 48.2    | G1/4"-M   | 10  | 5                   | 17                                                                                    | 94.6                                                                                      |
|                | VSAG75---IF14V   | 7        | 75   | 50.5 | 22               | 43.2 | 60.2    | G1/4"-F   | 10  | 5                   | 17                                                                                    | 95.9                                                                                      |
|                | VSAG110---IF12V  | 10       | 110  | 85   | 32.5             | 55   | 85      | G1/2"-F   | 24  | 19                  | 48                                                                                    | 488.8                                                                                     |
|                | VSAG110---IFS12V | 9        | 110  | 85   | 32.5             | 55   | 68      | G1/2"-F   | 13  | -                   | -                                                                                     | 407.5                                                                                     |
|                | VSAG150---IF12V  | 10       | 150  | 120  | 39.5             | 75.5 | 105.5   | G1/2"-F   | 24  | 19                  | 48                                                                                    | 911.4                                                                                     |
|                | VSAG150---IFS12V | 9        | 150  | 120  | 39.5             | 75.5 | 88.5    | G1/2"-F   | 13  | -                   | -                                                                                     | 830.1                                                                                     |

Note: All dimensions are in mm.

(1) f = Deflection of the suction cup. (2) Ø G2 = Ø internal orifice of the fitting.

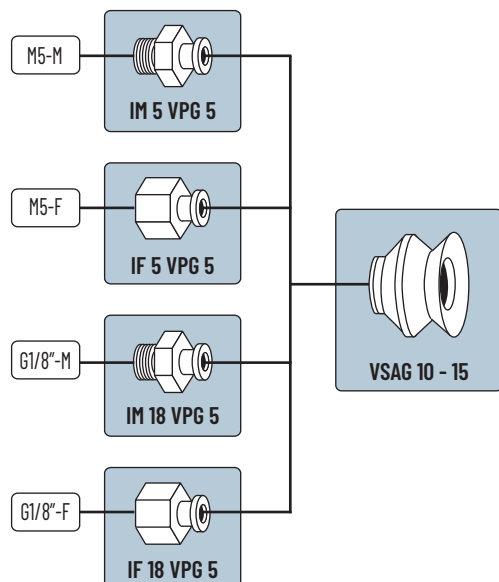
## Suction Cups with 1.5 Bellows Ø 10 to 150 mm

### Assembly Diagrams



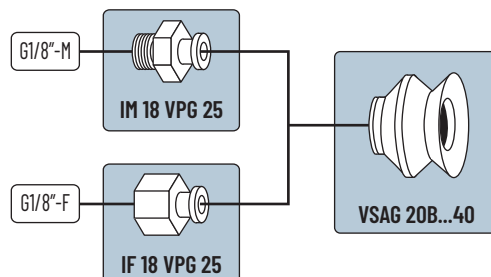
#### VSAG 10 - 15

Barbed fittings



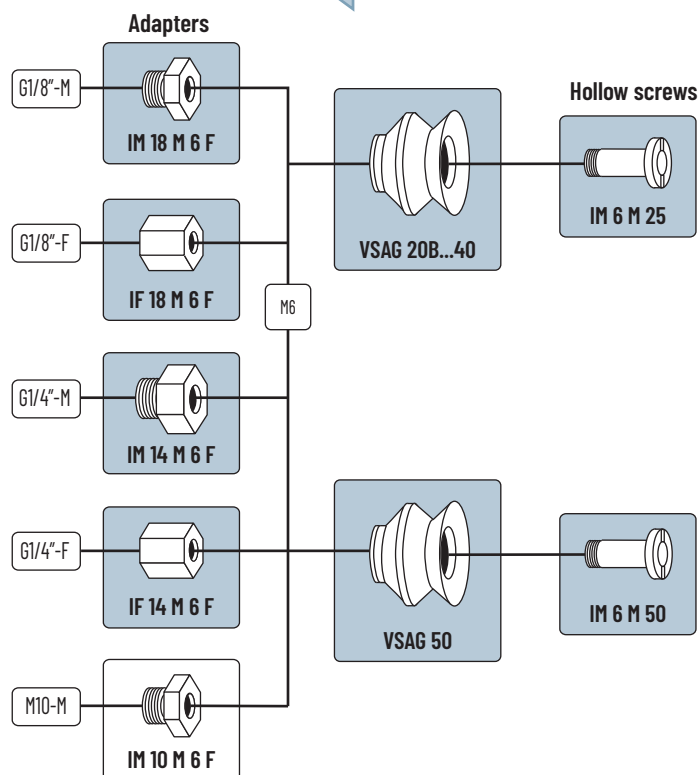
#### VSAG 20B - 40

Pressed fittings



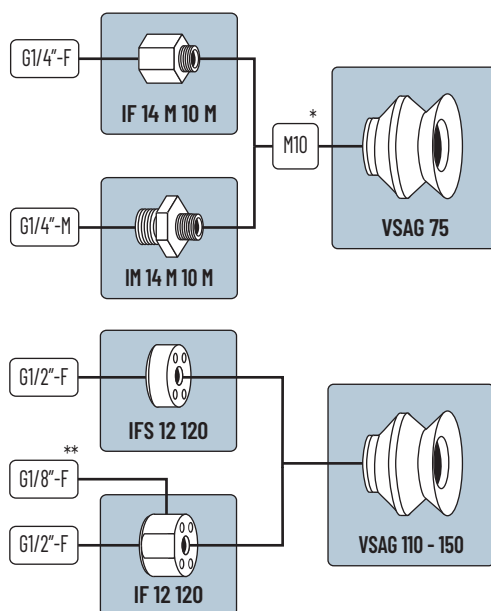
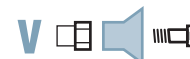
#### VSAG 20B - 50

Removable fittings



#### VSAG 75 - 150

Removable fittings

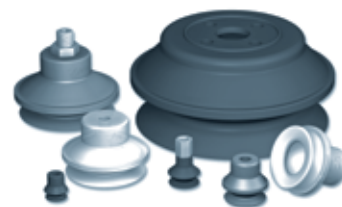


\* 125 thread

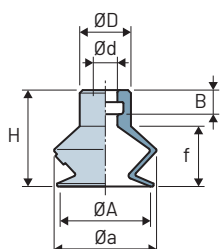
\*\* Female auxiliary radial output

- Configurations (suction cup + fitting) refer to page 2/38
- Non-standard configurations must be ordered in separate part numbers.

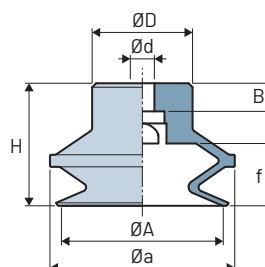
Fittings and suction cups dimensions:  
see pages 2/41 and 2/42.



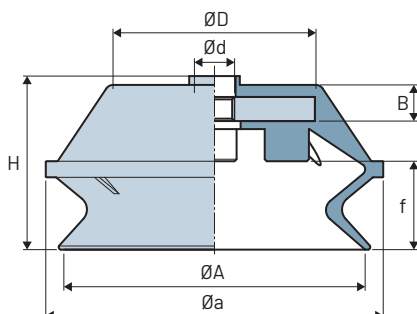
#### VSAG 10 - 15



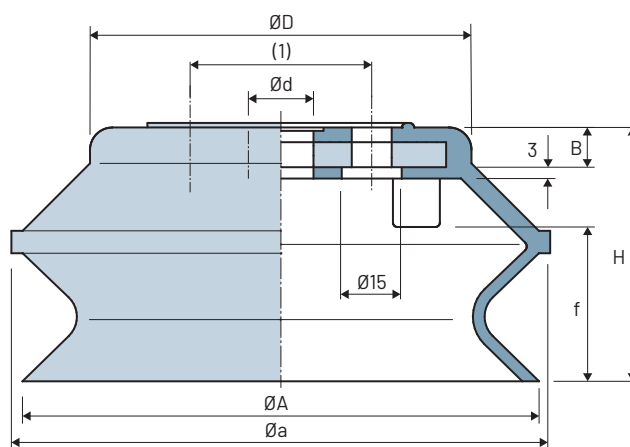
#### VSAG 20 - 50



#### VSAG 75



#### VSAG 110 - 150



(1) 4 holes Ø 9 on Ø 40

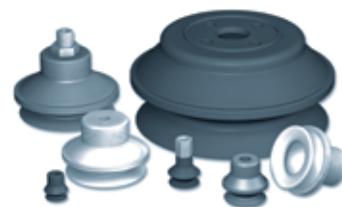
|  (Ø) | Ø A  | H    | Ø a   | Ø d           | Ø D  | f <sup>(1)</sup> | B  |  (g) |
|-----------------------------------------------------------------------------------------|------|------|-------|---------------|------|------------------|----|-------------------------------------------------------------------------------------------|
| VSAG 10                                                                                 | 10.7 | 13.3 | 12.5  | 4             | 8.5  | 5                | 4  | 0.6                                                                                       |
| VSAG 15                                                                                 | 15   | 16   | 17    | 4             | 8.5  | 10               | 4  | 0.9                                                                                       |
| VSAG 20 B                                                                               | 20   | 22   | 24    | 6             | 15   | 12               | 7  | 3                                                                                         |
| VSAG 30                                                                                 | 30   | 30.5 | 36    | 6             | 20   | 17               | 7  | 9.1                                                                                       |
| VSAG 40                                                                                 | 40   | 30.5 | 46    | 6             | 25   | 15.5             | 7  | 14.7                                                                                      |
| VSAG 50                                                                                 | 50   | 36.5 | 59.5  | 7.8           | 28.5 | 20               | 7  | 22.5                                                                                      |
| VSAG 75                                                                                 | 75   | 43.2 | 84    | M10 x 125 - F | 50.5 | 22               | 9  | 87.6                                                                                      |
| VSAG 110                                                                                | 110  | 55   | 121.5 | 14            | 85   | 32.5             | 9  | 264                                                                                       |
| VSAG 150                                                                                | 150  | 75.5 | 166   | 13            | 120  | 39.5             | 11 | 686.6                                                                                     |

The values represent the average characteristics of our products.  
Note: All dimensions are in mm.

(1) f = Deflection of the suction cup.

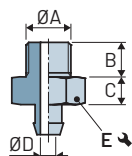
## Suction Cups with 1.5 Bellows Ø 10 to 150 mm

### Dimensions - Fittings

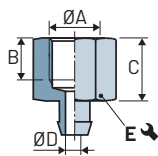


#### Barbed fittings

Male - IM



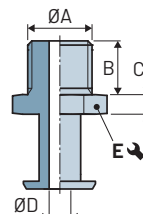
Female - IF



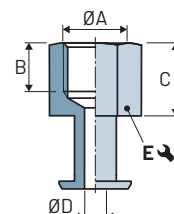
|            | ØA      | B   | C   | ØD  | E  | Material | ⚖ (g) |
|------------|---------|-----|-----|-----|----|----------|-------|
| IM 5 VPG5  | M5-M    | 4.5 | 3.5 | 2.2 | 7  | Aluminum | 0.7   |
| IM 18 VPG5 | G1/8"-M | 8   | 5   | 2.2 | 14 | Aluminum | 3.9   |
| IF 5 VPG5  | M5-F    | 6   | 9   | 2.2 | 8  | Aluminum | 1.2   |
| IF 18 VPG5 | G1/8"-F | 9   | 15  | 2.2 | 14 | Aluminum | 5.1   |

#### Pressed Fittings

Male - IM

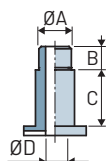


Female - IF



|             | ØA      | B | C  | ØD | E  | Material | ⚖ (g) |
|-------------|---------|---|----|----|----|----------|-------|
| IM 18 VPG25 | G1/8"-M | 8 | 5  | 4  | 14 | Aluminum | 4.08  |
| IF 18 VPG25 | G1/8"-F | 9 | 15 | 4  | 14 | Aluminum | 5.5   |

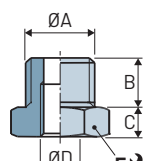
#### Hollow Screws



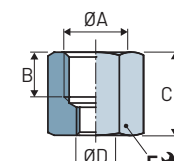
|          | ØA   | B | C | ØD  | Material            | ⚖ (g) |
|----------|------|---|---|-----|---------------------|-------|
| IM 6 M25 | M6-M | 6 | 6 | 3.5 | Nickel-plated brass | 2.7   |
| IM 6 M50 | M6-M | 6 | 6 | 3.5 | Nickel-plated brass | 7.5   |

#### Adapters for Hollow Screws

Male - IM



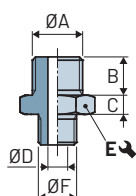
Female - IF



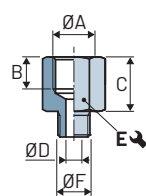
|           | ØA      | B   | C   | ØD   | E  | Material            | ⚖ (g) |
|-----------|---------|-----|-----|------|----|---------------------|-------|
| IM 10 M6F | M10-M   | 7   | 3.5 | M6   | 13 | Brass               | 5.9   |
| IM 14 M6F | G1/4"-M | 8   | 5   | M6-F | 17 | Nickel-plated brass | 15.9  |
| IM 18 M6F | G1/8"-M | 6   | 4.5 | M6-F | 13 | Nickel-plated brass | 6.6   |
| IF 14 M6F | G1/4"-F | 11  | 16  | M6-F | 17 | Nickel-plated brass | 20.5  |
| IF 18 M6F | G1/8"-F | 7.5 | 13  | M6-F | 13 | Nickel-plated brass | 9.9   |

#### Removable Fittings

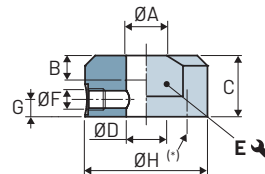
Male - IM



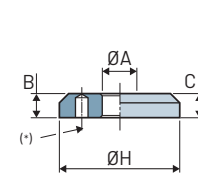
Female - IF



Female - IF 12120



Female - IFS 12120



(1) 4 holes Ø 9 on Ø 40

|            | ØA      | B  | C  | ØD | E  | ØF        | G   | H  | Material | ⚖ (g) |
|------------|---------|----|----|----|----|-----------|-----|----|----------|-------|
| IM 14 M10M | G1/4"-M | 10 | 5  | 5  | 17 | M10x125-M | -   | -  | Aluminum | 7     |
| IF 14 M10M | G1/4"-F | 10 | 17 | 5  | 17 | M10x125-M | -   | -  | Aluminum | 8.3   |
| IF 12120   | G1/2"-F | 24 | 30 | 19 | 48 | G1/8"-F   | 8.7 | 60 | Aluminum | 224.8 |
| IFS 12120  | G1/2"-F | 13 | 13 | -  | -  | -         | -   | 65 | Aluminum | 143.5 |

The values represent the average characteristics of our products.  
Note: All dimensions are in mm.