

COVAL

vacuum managers

C SERIES

High-Performance Suction Cups



The COVAL C series High-Performance Suction Cups



Main advantages

- Extreme resistance to slipping and acceleration.
- A full range of shapes and sizes to meet every requirement.
- Non-slip cleats ensure optimum positioning of oily metal sheets.
- Ideal for automated applications.
- Rigid central stopper with integrated cleats allows gripping of thin sheet metal without any deformation.
- Lightweight polyamide fittings allow for better integration on end-of-arm tooling.
- Airtight sealing lips.
- O-ring seals included on all male threaded vacuum cups.
- Visual wear indicator.
- Double tightening: 2 wrenches of 22 mm and 1 hex key of 6 mm or 8 mm.

*The **C Series high-performance suction cup range** has been designed to meet automotive industry requirements.*

*The improves characteristics of the **C series** range optimizes production tools in all branches of activity.*

Application fields

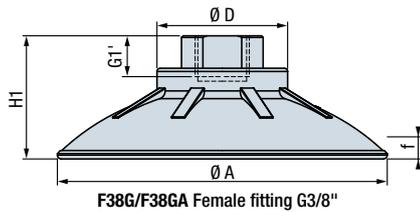
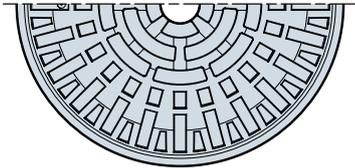
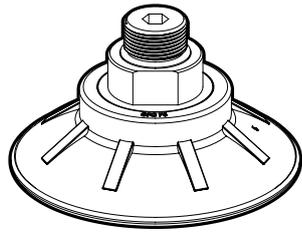
The COVAL C series vacuum cups have been specially designed for high speed robot applications due to their high resistance to slipping and acceleration, as well as their reduced weight.



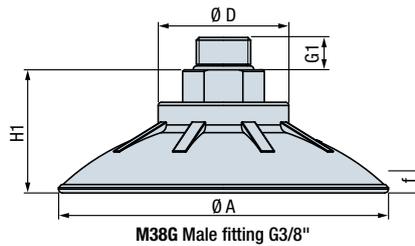
The C series vacuum cups are dedicated to handling sheet metal, glass and plastics in operations such as Stamping, BIW, Glass and Assembly.



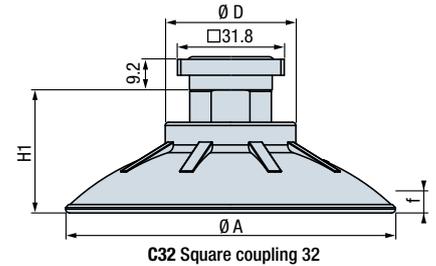
CFC Flat Suction Cup



F38G/F38GA Female fitting G3/8"



M38G Male fitting G3/8"



C32 Square coupling 32

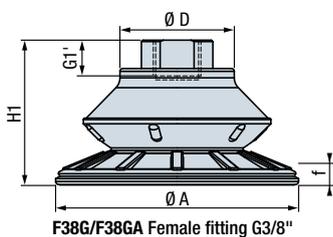
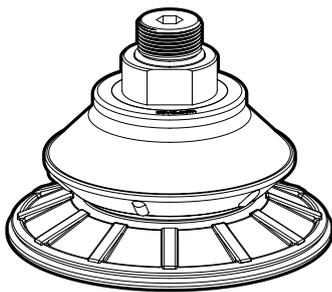
| | A at rest (mm) | Ø A gripping (mm) | Volume (cm ³) | Force (lbs) ⁽¹⁾ | Force (lbs) ⁽¹⁾ | R _{min} (mm) | R _{min} (mm) | Ø bore (mm) | tightening (mm) |
|---------|----------------|-------------------|---------------------------|----------------------------|----------------------------|-----------------------|-----------------------|-------------|-------------------|
| CFC 35 | 37 | 38.5 | 2.46 | 11.2 | 11.2 | 58 | 50 | 6.3 | wrench 22 + hex 6 |
| CFC 50 | 51 | 54 | 8.37 | 22.5 | 22.5 | 66 | 52 | 6.3 | wrench 22 + hex 6 |
| CFC 75 | 76 | 80 | 25.03 | 45.0 | 38.2 | 100 | 58 | 6.3 | wrench 22 + hex 6 |
| CFC 100 | 101 | 105.7 | 57.61 | 78.7 | 60.7 | 120 | 90 | 6.3 | wrench 22 + hex 6 |
| CFC 125 | 127 | 132 | 119.7 | 123.6 | 107.9 | 160 | 115 | 6.3 | wrench 22 + hex 8 |

| | H1 (mm) | f ⁽²⁾ (mm) | G1 (mm) | G1' (mm) | Ø D (mm) | Weight (g) | | | |
|---------|---------|-----------------------|---------|----------|----------|------------|-------|------|-------|
| | | | | | | F38G | F38GA | M38G | C32 |
| CFC 35 | 25 | 3 | 10 | 12.6 | 37 | 14 | 25.7 | 18 | 36.2 |
| CFC 50 | 30 | 5.5 | 10 | 12.6 | 38 | 25 | 34.9 | 29 | 47.2 |
| CFC 75 | 33 | 8 | 10 | 12.6 | 41 | 40 | 48.9 | 45 | 62.2 |
| CFC 100 | 38 | 10 | 10 | 12.6 | 41 | 67 | 75.3 | 72 | 89.2 |
| CFC 125 | 44 | 14 | 10 | 12.6 | 55 | 119 | 146 | 124 | 141.2 |

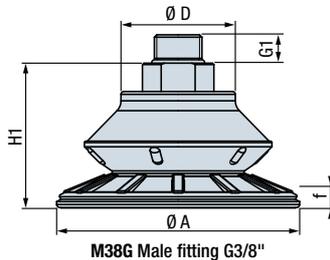
(1) Force measured at 65% vacuum on dry, smooth and flat sheet metal **without safety factor**.

(2) f: deflection of the suction cup

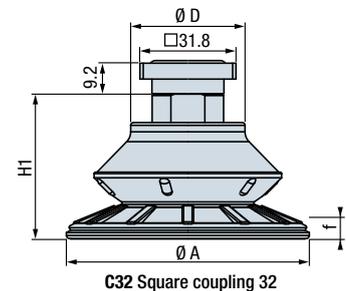
CBC Suction Cup with 1.5 Bellows



F38G/F38GA Female fitting G3/8"



M38G Male fitting G3/8"



C32 Square coupling 32

| | A at rest (mm) | Ø A gripping (mm) | Volume (cm ³) | Force (lbs) ⁽¹⁾ | Force (lbs) ⁽¹⁾ | R _{min} (mm) | R _{min} (mm) | Ø bore (mm) | tightening (mm) |
|-----------------------|----------------|-------------------|---------------------------|----------------------------|----------------------------|-----------------------|-----------------------|-------------|-------------------|
| CBC 22 | 21.5 | 22 | 1.6 | 3.8 | 3.8 | 25 | 30 | 6.3 | wrench 22 + hex 6 |
| CBC 30 ⁽³⁾ | 32 | 34 | 5 | 9.0 | 9.0 | 30 | 32 | 6.3 | wrench 22 + hex 6 |
| CBC 45 | 47 | 48.7 | 11.47 | 15.7 | 20.2 | 36 | 45 | 6.3 | wrench 22 + hex 6 |
| CBC 60 | 62 | 64.5 | 25.31 | 31.5 | 29.2 | 44 | 62 | 6.3 | wrench 22 + hex 6 |
| CBC 85 | 85 | 88 | 66.54 | 51.7 | 54.0 | 65 | 115 | 6.3 | wrench 22 + hex 6 |
| CBC 115 | 115 | 119 | 141.47 | 94.4 | 87.7 | 84 | 140 | 6.3 | wrench 22 + hex 8 |

| | H1 (mm) | f ⁽²⁾ (mm) | G1 (mm) | G1' (mm) | Ø D (mm) | Weight (g) | | | |
|-----------------------|---------|-----------------------|---------|----------|----------|------------|-------|------|-------|
| | | | | | | F38G | F38GA | M38G | C32 |
| CBC 22 | 32 | 6 | 10 | 12.6 | 37 | 10 | 23 | 14 | 32.2 |
| CBC 30 ⁽³⁾ | 31 | 8 | 10 | 12.6 | 37 | 14 | 26.3 | 19 | 36.2 |
| CBC 45 | 36 | 11 | 10 | 12.6 | 37 | 22 | 31.5 | 26 | 44.2 |
| CBC 60 | 41 | 14 | 10 | 12.6 | 39 | 32 | 42 | 37 | 54.2 |
| CBC 85 | 51 | 22 | 10 | 12.6 | 41 | 64 | 71.2 | 69 | 86.2 |
| CBC 115 | 53 | 24 | 10 | 12.6 | 55 | 103 | 131.1 | 107 | 125.2 |

(1) Force measured at 65% vacuum on dry, smooth and flat sheet metal **without safety factor**.

(2) f: deflection of the suction cup

(3) Specific model available with M3/8 Fitting and air-flow Ø 9,5mm: **CBC30 M38G SP624**

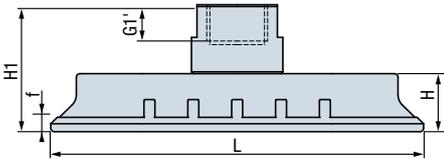
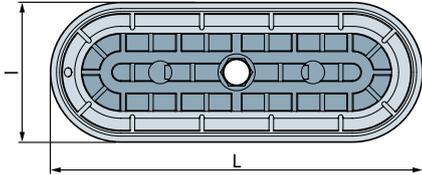
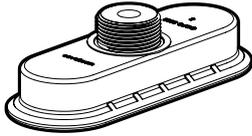


3D
COVAL Data

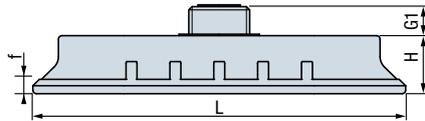
On our website www.coval.com, you will find 3D drawings of all our products in many formats adapted to standard CAD software.



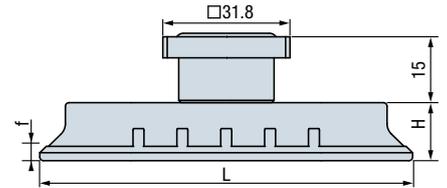
COFC Flat Oblong Suction Cup



F38G/F38GA Female fitting G3/8"



M38G Male fitting G3/8"



C32 Square coupling 32

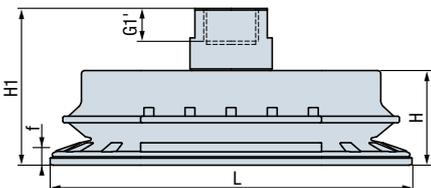
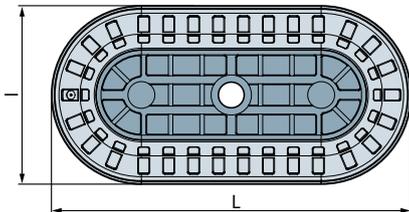
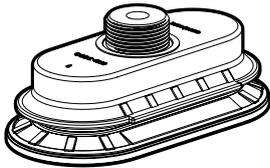
| | Dim. rest (l x L mm) | Dim. gripping (l x L mm) | (cm ³) | (lbs) ⁽¹⁾ | (lbs) ⁽¹⁾ | R _{min} (mm) | R _{min} (mm) | Ø bore (mm) | tightening (mm) |
|------------|-------------------------|-----------------------------|--------------------|----------------------|----------------------|-----------------------|-----------------------|-------------|-----------------|
| COFC 2565 | 25x65 | 26.8x67 | 3.78 | 15.7 | 15.7 | 25 | 25 | 6 | hex 6 |
| COFC 3080 | 30x80 | 31.5x82 | 6.08 | 24.7 | 20.2 | 40 | 32 | 6 | hex 6 |
| COFC 4080 | 40x80 | 42x82 | 11.03 | 31.5 | 27.0 | 60 | 40 | 6 | hex 6 |
| COFC 50100 | 50x100 | 52.5x102.5 | 22.25 | 51.7 | 54.0 | 70 | 50 | 6 | hex 6 |

| | H1 (mm) | H (mm) | G1 (mm) | G1' (mm) | f ⁽²⁾ (mm) | (g) | | | |
|------------|---------|--------|---------|----------|-----------------------|------|-------|------|-----|
| | | | | | | F38G | F38GA | M38G | C32 |
| COFC 2565 | 31.5 | 12.5 | 8 | 10 | 3 | 24 | 35 | 17 | 35 |
| COFC 3080 | 32 | 13 | 8 | 10 | 3 | 29 | 45 | 22 | 40 |
| COFC 4080 | 34 | 15 | 8 | 10 | 4.5 | 30 | 45.5 | 23 | 41 |
| COFC 50100 | 35 | 16 | 8 | 10 | 6 | 43 | 72.7 | 36 | 54 |

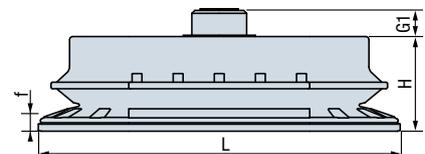
(1) Force measured at 65% vacuum on dry, smooth and flat sheet metal **without safety factor**.

(2) f: deflection of the suction cup

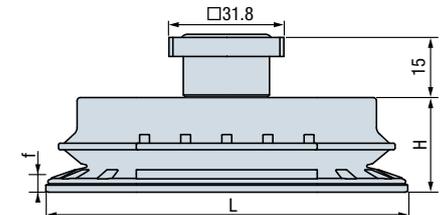
COBC Oblong Suction Cup with 1.5 Bellows



F38G/F38GA Female fitting G3/8"



M38G Male fitting G3/8"



C32 Square coupling 32

| | Dim. rest (l x L mm) | Dim. gripping (l x L mm) | (cm ³) | (lbs) ⁽¹⁾ | (lbs) ⁽¹⁾ | R _{min} (mm) | R _{min} (mm) | Ø bore (mm) | tightening (mm) |
|------------|-------------------------|-----------------------------|--------------------|----------------------|----------------------|-----------------------|-----------------------|-------------|-----------------|
| COBC 3065 | 31x65 | 32.3x67 | 9.98 | 13.5 | 13.5 | 25 | 30 | 6 | hex 6 |
| COBC 4080 | 40x80 | 41.5x82 | 19.44 | 24.7 | 27.0 | 38 | 37 | 6 | hex 6 |
| COBC 55110 | 55x110 | 57x112.5 | 49.25 | 38.2 | 42.7 | 58 | 57 | 6 | hex 6 |
| COBC 70140 | 70x140 | 72x143 | 93.57 | 67.4 | 67.4 | 72 | 68 | 6 | hex 6 |

| | H1 (mm) | H (mm) | G1 (mm) | G1' (mm) | f ⁽²⁾ (mm) | (g) | | | |
|------------|---------|--------|---------|----------|-----------------------|------|-------|------|-----|
| | | | | | | F38G | F38GA | M38G | C32 |
| COBC 3065 | 39 | 20 | 8 | 10 | 7 | 31 | 45.5 | 25 | 43 |
| COBC 4080 | 41 | 22 | 8 | 10 | 9 | 37 | 53.1 | 31 | 49 |
| COBC 55110 | 48 | 29 | 8 | 10 | 13 | 68 | 95.1 | 62 | 80 |
| COBC 70140 | 49 | 30 | 8 | 10 | 16 | 103 | 121.4 | 97 | 115 |

(1) Force measured at 65% vacuum on dry, smooth and flat sheet metal **without safety factor**.

(2) f: deflection of the suction cup

To order

| TYPE | DIMENSIONS | FITTING |
|------------|------------|-------------|
| CBC | 85 | M38G |

| |
|------|
| CFC |
| CBC |
| COFC |
| COBC |

Refer to the code in the tables

| | |
|-------|----------------------------------|
| M38G | G3/8" Male Fitting (Polyamide) |
| F38G | G3/8" Female Fitting (Polyamide) |
| F38GA | G3/8" Female Fitting (Aluminum) |
| C32 | 32 Square Fitting (Aluminum) |

EXAMPLE OF A STANDARD VACUUM CUP : CBC 85 M38G

(C series vacuum cup 1.5 bellows, Ø 85mm, G3/8" Male Polyamide Fitting)



Materials

The COVAL C series vacuum cups are made of a nitrile elastomer and the fittings (M38G/ F38G) are polyamide reinforced with fiberglass. These materials guarantee the vacuum cups' long life, strong oil resistance and heat tolerance of up to 212°F (100°C). This approach helps to avoid any risk of damaging costly equipment and facilitates recycling of vacuum cups.

- Suction cups: NBR nitrile 55 shores (high resistance to oils), grey color.
- Fitting:
 - Polyamide (PA 6.6 30%FG) ensuring reduced weight (M38G/F38G Fitting).
 - Aluminum (F38GA/C32 Fitting).
- O-ring: NBR Nitrile Blue.
- Other fittings available on request.

Range

The COVAL C Series high performance vacuum cups are available in a full range of shapes, dimensions and connections in order to meet all your needs in the most appropriate way.

MODELS

CFC
flat
suction cup



CBC
1.5 bellows
suction cup



COFC
flat oblong
suction cup



COBC
oblong suction cup
with 1.5 bellows



FITTINGS

M38G
male fitting
G3/8"



F38G
female fitting
G3/8"



F38GA
aluminium
female
fitting G3/8"



C32
square coupling
32 mm



CBC 30 M38G SP624



In order to meet the specific needs of end-of-arm tooling users in Stamping, COVAL has designed a Ø30 mm suction cup, with an extra-large Ø9.5 mm air-flow, thus removing pressure drops in the vacuum network of the gripper's power supply.

Advanced Vacuum Solutions

COVAL, as a vacuum manager, guarantees optimum performance by offering a complete range of innovative components, integrating reliable and intelligent functions. These solutions ensure the vacuum network is airtight

and adaptable to your industrial needs.

You will find our full product range in the COVAL general catalog, on our website, or by contacting your COVAL distributor.

VACUUM GENERATORS



Energy-efficient vacuum pumps : LEMAR+ & GVMAX series:

- Ultra-compact and lightweight.
- Integrated operation and control functions.
- Over 90% energy savings, thanks to vacuum and pressure regulation.
- Silent operation.
- Non-cloggable through-type silencer.

EXTENSIONS, L SERIES



Our extensions are available in different diameters, lengths and models, including the 3/8 G female version for mounting the C series high performance vacuum cups.

VACUUM SCREWED FITTINGS, RDV/RCOV SERIES



Special vacuum fittings range, complete with a blue o-ring:

- 100% airtight,
- Easily disconnect and reconnect the vacuum network without modifying existing tubing,
- Swivel fittings for better vacuum distribution.

VACUUM FEEDERS, NV SERIES



Available in 2 versions:

- Screwed fittings 4 or 8 outputs, NVS series
- Aluminium body 4 outputs, NVA series.





COVAL
vacuum managers

vacuum components



A TECHNOLOGICAL PARTNER ON A GLOBAL SCALE

Located in the southeast region of France, COVAL designs, manufactures and globally distributes high performance, advanced vacuum automation components and systems for industrial applications in all sectors.

COVAL is an ISO 9001: V2015 certified company which offers innovative solutions integrating reliable and optimized components with intelligent functions. Our goal is to provide the most personalized and economic solution to a given application while ensuring significant improvement in productivity and safety for vacuum users around the world.

COVAL has an ambition for technical excellence and innovation. As a specialist in vacuum automation, COVAL is reputed for offering reliable, personalized, cost effective and productive solutions.

Examples of COVAL's success can be found in several industrial sectors (Packaging, Automotive Industry, Plastics, Graphics, Aeronautics...) where vacuum handling is important for high efficiency and productivity.

COVAL markets its products and services all over Europe, in the United States and South America through its subsidiaries and authorized distribution network. COVAL strives to provide customer-driven solutions and offers the best possible service to satisfy all its clients.

For all enquiries from Australia, Africa and Asia kindly contact COVAL head office in France.

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