

## VOC Series

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Advantages

Good lifting forces can be achieved with small size  
Excellent for parallel to the surface of the object by thick and durable lip structure

### Application



### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers

### Available size option

Model	Description	Model	Description
VOC11x23	Oval-Curved suction cup, Ø11x23	VOC60x140	Oval-Curved suction cup, Ø60x140
VOC35x90	Oval-Curved suction cup, Ø35x90	VOC60x180	Oval-Curved suction cup, Ø60x180
VOC35x110	Oval-Curved suction cup, Ø35x110		



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular			Lifting Force (Kg) - Parallel			Page
		- 20 kPa	- 60 kPa	- 90 kPa	- 20 kPa	- 60 kPa	- 90 kPa	
VOC11x23	2.00	0.61	1.30	1.60	0.60	1.20	1.50	
VOC35x90	20.00	5.00	13.40	17.40	4.00	10.72	13.92	
VOC35x110	25.00	6.25	16.70	21.70	5.00	13.36	17.36	
VOC60x140	52.00	13.40	38.00	53.00	10.72	30.40	42.40	
VOC60x180	67.00	19.10	54.20	75.70	15.28	43.36	60.56	

※ The lifting force above does not include safety factor

## VOC11x23

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers  
Wood panel, Furniture



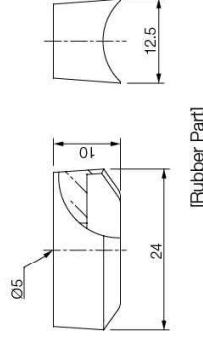
## Build an Ordering No.



1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 11x23mm diameter, Nitrile (NBR)	1.53	VOC11x23-N
	Oval-Curved suction cup, 11x23mm diameter, Silicone	1.48	VOC11x23-S
	Oval-Curved suction cup, 11x23mm diameter, White silicone	1.46	VOC11x23-WS
	Oval-Curved suction cup, 11x23mm diameter, White silicone (FDA)	1.46	VOC11x23-WS (FDA)
	Oval-Curved suction cup, 11x23mm diameter, High temperature silicone	1.58	VOC11x23-HS
	Oval-Curved suction cup, 11x23mm diameter, Conductive silicone	1.51	VOC11x23-CS
	Oval-Curved suction cup, 11x23mm diameter, Urethane	1.58	VOC11x23-U
	Oval-Curved suction cup, 11x23mm diameter, Mark free	1.65	VOC11x23-A

## Dimension

[Unit : mm]



[Rubber Part]

## Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular		Lifting Force (Kg) - Parallel			
		- 20 kPa	- 60 kPa	- 20 kPa	- 60 kPa	- 90 kPa	- 90 kPa
VOC11x23	2.00	0.61	1.30	1.60	0.60	1.20	1.50

※ The lifting force above does not include safety factor

## Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20-110
Silicone	55	Red	-70-200
White Silicone	55	Translucent White	-70-200
White Silicone (FDA)	55	Translucent White	-70-200
High temp. Silicone	50	Blue	-70-280
Conductive Silicone	70	Smoky Black	-45-90
Urethane	60	Dark Green	0-100
Mark Free	75	Black	-10-100

## Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

# SUCTION CUPS / Oval Curve

## VOC35x90

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers  
Wood panel, Furniture



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular		Lifting Force (Kg) - Parallel	
		- 20 kPa	- 60 kPa	- 20 kPa	- 60 kPa
VOC35x90	20.00	5.00	13.40	4.00	10.72
					13.92

※ The lifting force above does not include safety factor

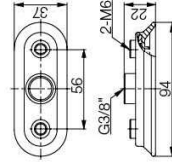
### Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

### Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

### Dimension



[With 38F fitting]

[Unit : mm]

### Build an Ordering No.

VOC35x90 - ○ - ○ : Pre-mounted fitting

#### 1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 35x90mm diameter, Nitrile (NBR), G3/8 female	47.18	VOC35x90-N-38F
	Oval-Curved suction cup, 35x90mm diameter, Silicone, G3/8 female	45.40	VOC35x90-S-38F
	Oval-Curved suction cup, 35x90mm diameter, White silicone, G3/8 female	44.93	VOC35x90-WS-38F
	Oval-Curved suction cup, 35x90mm diameter, White silicone (FDA), G3/8 female	44.93	VOC35x90-WS-38F (FDA)
	Oval-Curved suction cup, 35x90mm diameter, High temperature silicone, G3/8 female	45.75	VOC35x90-HS-38F
	Oval-Curved suction cup, 35x90mm diameter, Conductive silicone, G3/8 female	46.72	VOC35x90-CS-38F
	Oval-Curved suction cup, 35x90mm diameter, Urethane, G3/8 female	47.89	VOC35x90-U-38F
	Oval-Curved suction cup, 35x90mm diameter, Mark free, G3/8 female	48.97	VOC35x90-A-38F



## VOC35x110

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers  
Wood panel, Furniture



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular		Lifting Force (Kg) - Parallel	
		- 20 kPa	- 60 kPa	- 20 kPa	- 60 kPa
VOC35x110	25.00	6.25	16.70	5.00	13.36

※ The lifting force above does not include safety factor

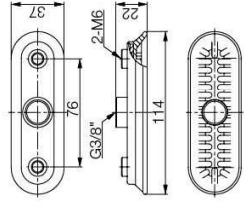
### Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

### Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

### Dimension



[With 38F fitting]

[Unit : mm]

### Build an Ordering No.

VOC35x110 - ○ - ○ - ○ : Pre-mounted fitting  
1. Suction Cup

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 35x110mm diameter, Nitrile (NBR), G3/8 female	56.26	VOC35x110-N-38F
	Oval-Curved suction cup, 35x110mm diameter, Silicone, G3/8 female	55.16	VOC35x110-S-38F
	Oval-Curved suction cup, 35x110mm diameter, White silicone, G3/8 female	54.74	VOC35x110-WS-38F
	Oval-Curved suction cup, 35x110mm diameter, White silicone (FDA), G3/8 female	54.74	VOC35x110-WS-38F (FDA)
	Oval-Curved suction cup, 35x110mm diameter, High temperature silicone, G3/8 female	55.36	VOC35x110-HS-38F
	Oval-Curved suction cup, 35x110mm diameter, Conductive silicone, G3/8 female	56.81	VOC35x110-CS-38F
	Oval-Curved suction cup, 35x110mm diameter, Urethane, G3/8 female	56.07	VOC35x110-U-38F
	Oval-Curved suction cup, 35x110mm diameter, Mark free, G3/8 female	58.78	VOC35x110-A-38F

## VOC60x140

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers  
Wood panel, Furniture



### Build an Ordering No.

VOC60x140 - ○ - ○ - ○  
: Pre-mounted fitting  
1. Suction Cup

### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular		Lifting Force (Kg) - Parallel			
		- 20 kPa	- 60 kPa	- 20 kPa	- 60 kPa	- 90 kPa	- 90 kPa
VOC60x140	52.00	13.40	38.00	53.00	10.72	30.40	42.40

※ The lifting force above does not include safety factor

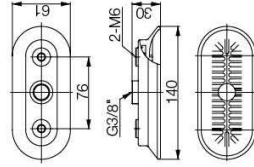
### Material Specifications

Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

### Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

### Dimension



[With 38F fitting]

[Unit : mm]

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 60x140mm diameter, Nitrile (NBR), G3/8 female	148.54	VOC60x140-N-38F
	Oval-Curved suction cup, 60x140mm diameter, Silicone, G3/8 female	145.14	VOC60x140-S-38F
	Oval-Curved suction cup, 60x140mm diameter, White silicone, G3/8 female	145.34	VOC60x140-WS-38F
	Oval-Curved suction cup, 60x140mm diameter, White silicone (FDA), G3/8 female	145.34	VOC60x140-WS-38F (FDA)
	Oval-Curved suction cup, 60x140mm diameter, High temperature silicone, G3/8 female	149.02	VOC60x140-HS-38F
	Oval-Curved suction cup, 60x140mm diameter, Conductive silicone, G3/8 female	150.97	VOC60x140-CS-38F
	Oval-Curved suction cup, 60x140mm diameter, Urethane, G3/8 female	149.54	VOC60x140-U-38F
	Oval-Curved suction cup, 60x140mm diameter, Mark free, G3/8 female	155.48	VOC60x140-A-38F

## VOC60x180

### Features and Strengths

Good for long objects with flat and curved surfaces  
Strong lifting force and long life-span

### Examples of use

Long flat objects, Curved surface, Metal panels, Automobile bumpers



### Build an Ordering No.

VOC60x180 -  : Pre-mounted fitting  
1. Suction Cup

### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Lifting Force (Kg) - Perpendicular		Lifting Force (Kg) - Parallel			
		- 20 kPa	- 60 kPa	- 20 kPa	- 60 kPa	- 90 kPa	- 90 kPa
VOC60x180	67.00	19.10	54.20	75.70	15.28	43.36	60.56

※ The lifting force above does not include safety factor

### Material Specifications

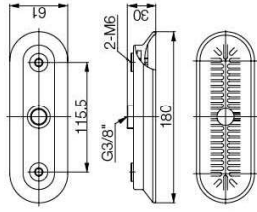
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100
Mark Free	75	Black	-10~100

### Material Resistance

Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane	Mark Free
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent	Good
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair	Good
Acid	Fair	Poor	Poor	Poor	Poor	Poor	Excellent

### Dimension

[Unit : mm]



[With 38F fitting]

1. Suction cup	Description	Weight (g)	Symbol
	Oval-Curved suction cup, 60x180mm diameter, Nitrile (NBR), G3/8 female	213.43	VOC60x180-N-38F
	Oval-Curved suction cup, 60x180mm diameter, Silicone, G3/8 female	204.01	VOC60x180-S-38F
	Oval-Curved suction cup, 60x180mm diameter, White silicone, G3/8 female	204.56	VOC60x180-WS-38F
	Oval-Curved suction cup, 60x180mm diameter, White silicone (FDA), G3/8 female	204.56	VOC60x180-WS-38F (FDA)
	Oval-Curved suction cup, 60x180mm diameter, High temperature silicone, G3/8 female	204.96	VOC60x180-HS-38F
	Oval-Curved suction cup, 60x180mm diameter, Conductive silicone, G3/8 female	204.88	VOC60x180-CS-38F
	Oval-Curved suction cup, 60x180mm diameter, Urethane, G3/8 female	215.75	VOC60x180-U-38F
	Oval-Curved suction cup, 60x180mm diameter, Mark free, G3/8 female	143.11	VOC60x180-A-38F