

# SUCTION CUPS / Oval Universal

## VOU Series

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Advantages

Good lifting forces can be achieved with small size

Conductive silicon is excellent for handling PCB Board or Electronic components

Easily mountable without detaching a fitting from the machine (save the maintenance time)

### Application



### Examples of use

Semiconductor Chips, PCB boards, Electronic component

Solar cell, Small glass cases, Pipes

### Available size option

Model	Description	Model	Description
VOU4x10	Oval universal suction cup Ø4x10	VOU8x30	Oval universal suction cup Ø8x30
VOU4x20	Oval universal suction cup Ø4x20	VOU10x30	Oval universal suction cup Ø10x30
VOU6x10	Oval universal suction cup Ø6x10	VOU15x45	Oval universal suction cup Ø15x45
VOU6x20	Oval universal suction cup Ø4x20	VOU20x60	Oval universal suction cup Ø20x60
VOU8x20	Oval universal suction cup Ø8x20		



### I Recommended Lifting Force (Max.)

Model	Volume(cm <sup>3</sup> )	Min. Curvatur Radius R (mm)	Lifting Force (Kg) - Perpendicular			Page
			- 20 kPa	- 60 kPa	- 90 kPa	
VOU4x10	0.064	3.50	0.19	0.30	0.35	268
VOU4x20	0.094	3.50	0.24	0.48	0.60	270
VOU6x10	0.081	4.50	0.21	0.39	0.49	272
VOU6x20	0.137	4.50	0.31	0.64	0.80	274
VOU8x20	0.170	6.50	0.38	0.83	1.21	276
VOU8x30	0.250	6.50	0.52	1.21	1.66	278
VOU10x30	0.394	8.00	0.62	1.42	2.05	280
VOU15x45	1.584	11.00	1.06	2.88	4.22	282
VOU20x60	3.532	17.00	1.93	5.10	7.65	284

※ The lifting force above does not include safety factor

# SUCTION CUPS / Oval Universal

## VOU4x10

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces



### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU4x10	0.064	3.50	0.19	0.30	0.35

※ The lifting force above does not include safety factor

### Material Specifications

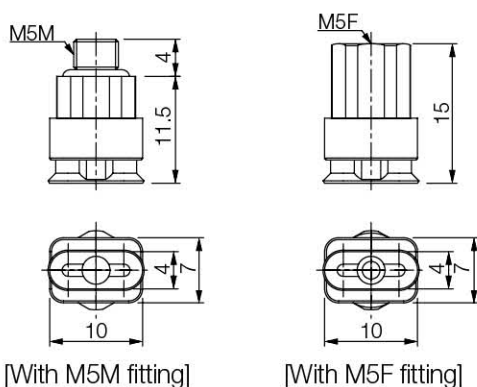
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

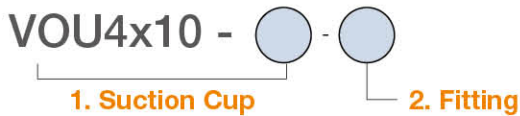
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid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

### Dimension

[ Unit : mm ]



## Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 4x10mm diameter, Nitrile (NBR)	VOU4x10-N
	Oval-Universal suction cup, 4x10mm diameter, Silicone	VOU4x10-S
	Oval-Universal suction cup, 4x10mm diameter, White silicone	VOU4x10-WS
	Oval-Universal suction cup, 4x10mm diameter, White silicone (FDA)	VOU4x10-WS (FDA)
	Oval-Universal suction cup, 4x10mm diameter, High temperature silicone	VOU4x10-HS
	Oval-Universal suction cup, 4x10mm diameter, Conductive silicone	VOU4x10-CS
	Oval-Universal suction cup, 4x10mm diameter, Urethane	VOU4x10-U

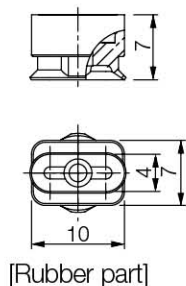
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU4x10-N	Oval-Universal suction cup, 4x10mm diameter, Nitrile (NBR)	0.30	Black
VOU4x10-S	Oval-Universal suction cup, 4x10mm diameter, Silicone	0.28	Red
VOU4x10-WS	Oval-Universal suction cup, 4x10mm diameter, White silicone	0.28	Translucent White
VOU4x10-WS (FDA)	Oval-Universal suction cup, 4x10mm diameter, White silicone (FDA)	0.28	Translucent White
VOU4x10-HS	Oval-Universal suction cup, 4x10mm diameter, High temperature silicone	0.31	Blue
VOU4x10-CS	Oval-Universal suction cup, 4x10mm diameter, Conductive silicone	0.29	Smoky Black
VOU4x10-U	Oval-Universal suction cup, 4x10mm diameter, Urethane	0.31	Dark Green

## Dimension

[ Unit : mm ]



## Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1111	M5F	M5 female	2.82
350 002 1011	M5M	M5 male	1.78

# SUCTION CUPS / Oval Universal

## VOU4x20

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU4x20	0.094	3.50	0.24	0.48	0.60

※ The lifting force above does not include safety factor

### Material Specifications

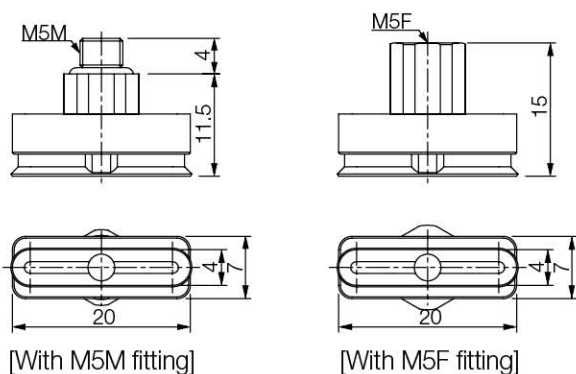
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

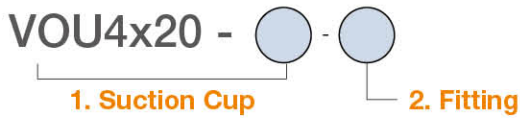
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid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

### Dimension

[ Unit : mm ]



## Build an Ordering No.



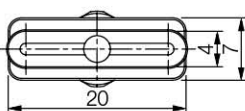
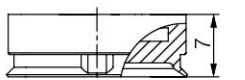
1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 4x20mm diameter, Nitrile (NBR)	VOU4x20-N
	Oval-Universal suction cup, 4x20mm diameter, Silicone	VOU4x20-S
	Oval-Universal suction cup, 4x20mm diameter, White silicone	VOU4x20-WS
	Oval-Universal suction cup, 4x20mm diameter, White silicone (FDA)	VOU4x20-WS (FDA)
	Oval-Universal suction cup, 4x20mm diameter, High temperature silicone	VOU4x20-HS
	Oval-Universal suction cup, 4x20mm diameter, Conductive silicone	VOU4x20-CS
	Oval-Universal suction cup, 4x20mm diameter, Urethane	VOU4x20-U
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU4x20-N	Oval-Universal suction cup, 4x20mm diameter, Nitrile (NBR)	0.72	Black
VOU4x20-S	Oval-Universal suction cup, 4x20mm diameter, Silicone	0.61	Red
VOU4x20-WS	Oval-Universal suction cup, 4x20mm diameter, White silicone	0.60	Translucent White
VOU4x20-WS (FDA)	Oval-Universal suction cup, 4x20mm diameter, White silicone (FDA)	0.60	Translucent White
VOU4x20-HS	Oval-Universal suction cup, 4x20mm diameter, High temperature silicone	0.74	Blue
VOU4x20-CS	Oval-Universal suction cup, 4x20mm diameter, Conductive silicone	0.7	Smoky Black
VOU4x20-U	Oval-Universal suction cup, 4x20mm diameter, Urethane	0.74	Dark Green

## Dimension

[ Unit : mm ]



[Rubber part]

## Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

# SUCTION CUPS / Oval Universal

## VOU6x10

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces



### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU6x10	0.081	4.50	0.21	0.39	0.49

※ The lifting force above does not include safety factor

### Material Specifications

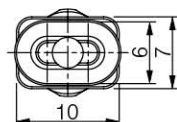
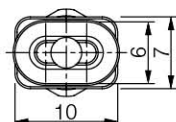
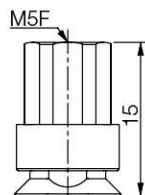
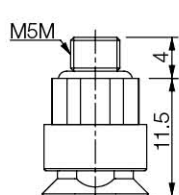
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

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

### Dimension

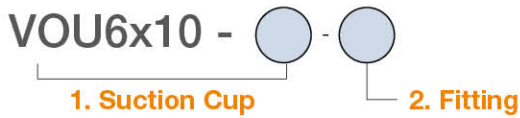
[ Unit : mm ]



[With M5M fitting]

[With M5F fitting]

## Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 6x10mm diameter, Nitrile (NBR)	VOU6x10-N
	Oval-Universal suction cup, 6x10mm diameter, Silicone	VOU6x10-S
	Oval-Universal suction cup, 6x10mm diameter, White silicone	VOU6x10-WS
	Oval-Universal suction cup, 6x10mm diameter, White silicone (FDA)	VOU6x10-WS (FDA)
	Oval-Universal suction cup, 6x10mm diameter, High temperature silicone	VOU6x10-HS
	Oval-Universal suction cup, 6x10mm diameter, Conductive silicone	VOU6x10-CS
	Oval-Universal suction cup, 6x10mm diameter, Urethane	VOU6x10-U

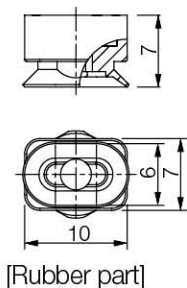
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU6x10-N	Oval-Universal suction cup, 6x10mm diameter, Nitrile (NBR)	0.30	Black
VOU6x10-S	Oval-Universal suction cup, 6x10mm diameter, Silicone	0.28	Red
VOU6x10-WS	Oval-Universal suction cup, 6x10mm diameter, White silicone	0.28	Translucent White
VOU6x10-WS (FDA)	Oval-Universal suction cup, 6x10mm diameter, White silicone (FDA)	0.28	Translucent White
VOU6x10-HS	Oval-Universal suction cup, 6x10mm diameter, High temperature silicone	0.31	Blue
VOU6x10-CS	Oval-Universal suction cup, 6x10mm diameter, Conductive silicone	0.29	Smoky Black
VOU6x10-U	Oval-Universal suction cup, 6x10mm diameter, Urethane	0.31	Dark Green

## Dimension

[ Unit : mm ]



## Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1111	M5F	M5 female	2.82
350 002 1011	M5M	M5 male	1.78



# SUCTION CUPS / Oval Universal

## VOU6x20

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU6x20	0.137	4.50	0.31	0.64	0.80

※ The lifting force above does not include safety factor

### Material Specifications

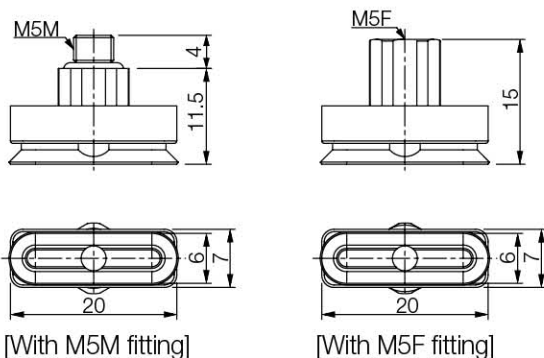
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

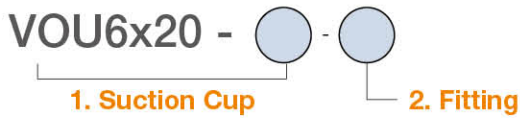
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid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

### Dimension

[ Unit : mm ]



## Build an Ordering No.



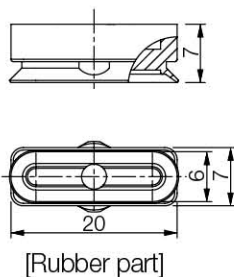
1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 6x20mm diameter, Nitrile (NBR)	VOU6x20-N
	Oval-Universal suction cup, 6x20mm diameter, Silicone	VOU6x20-S
	Oval-Universal suction cup, 6x20mm diameter, White silicone	VOU6x20-WS
	Oval-Universal suction cup, 6x20mm diameter, White silicone (FDA)	VOU6x20-WS (FDA)
	Oval-Universal suction cup, 6x20mm diameter, High temperature silicone	VOU6x20-HS
	Oval-Universal suction cup, 6x20mm diameter, Conductive silicone	VOU6x20-CS
	Oval-Universal suction cup, 6x20mm diameter, Urethane	VOU6x20-U
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU6x20-N	Oval-Universal suction cup, 6x20mm diameter, Nitrile (NBR)	0.64	Black
VOU6x20-S	Oval-Universal suction cup, 6x20mm diameter, Silicone	0.61	Red
VOU6x20-WS	Oval-Universal suction cup, 6x20mm diameter, White silicone	0.61	Translucent White
VOU6x20-WS (FDA)	Oval-Universal suction cup, 6x20mm diameter, White silicone (FDA)	0.61	Translucent White
VOU6x20-HS	Oval-Universal suction cup, 6x20mm diameter, High temperature silicone	0.66	Blue
VOU6x20-CS	Oval-Universal suction cup, 6x20mm diameter, Conductive silicone	0.63	Smoky Black
VOU6x20-U	Oval-Universal suction cup, 6x20mm diameter, Urethane	0.66	Dark Green

## Dimension

[ Unit : mm ]



## Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

# SUCTION CUPS / Oval Universal

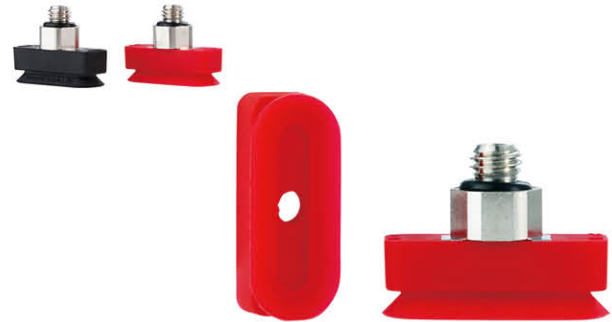
## VOU8x20

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU8x20	0.170	6.50	0.38	0.83	1.21

※ The lifting force above does not include safety factor

### Material Specifications

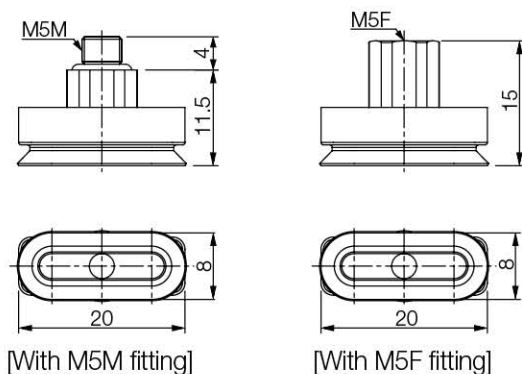
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

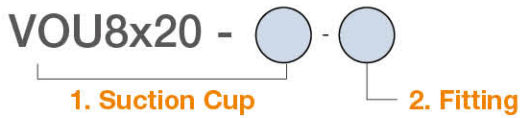
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid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

### Dimension

[ Unit : mm ]



## I Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 8x20mm diameter, Nitrile (NBR)	VOU8x20-N
	Oval-Universal suction cup, 8x20mm diameter, Silicone	VOU8x20-S
	Oval-Universal suction cup, 8x20mm diameter, White silicone	VOU8x20-WS
	Oval-Universal suction cup, 8x20mm diameter, White silicone (FDA)	VOU8x20-WS (FDA)
	Oval-Universal suction cup, 8x20mm diameter, High temperature silicone	VOU8x20-HS
	Oval-Universal suction cup, 8x20mm diameter, Conductive silicone	VOU8x20-CS
	Oval-Universal suction cup, 8x20mm diameter, Urethane	VOU8x20-U

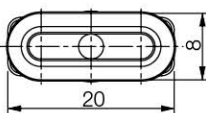
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## I Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU8x20-N	Oval-Universal suction cup, 8x20mm diameter, Nitrile (NBR)	0.71	Black
VOU8x20-S	Oval-Universal suction cup, 8x20mm diameter, Silicone	0.67	Red
VOU8x20-WS	Oval-Universal suction cup, 8x20mm diameter, White silicone	0.68	Translucent White
VOU8x20-WS (FDA)	Oval-Universal suction cup, 8x20mm diameter, White silicone (FDA)	0.68	Translucent White
VOU8x20-HS	Oval-Universal suction cup, 8x20mm diameter, High temperature silicone	0.70	Blue
VOU8x20-CS	Oval-Universal suction cup, 8x20mm diameter, Conductive silicone	0.70	Smoky Black
VOU8x20-U	Oval-Universal suction cup, 8x20mm diameter, Urethane	0.73	Dark Green

## I Dimension

[ Unit : mm ]



[Rubber part]

## I Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

# SUCTION CUPS / Oval Universal

## VOU8x30

### Features and Strengths

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### Examples of use

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### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU8x30	0.250	6.50	0.52	1.21	1.66

※ The lifting force above does not include safety factor

### Material Specifications

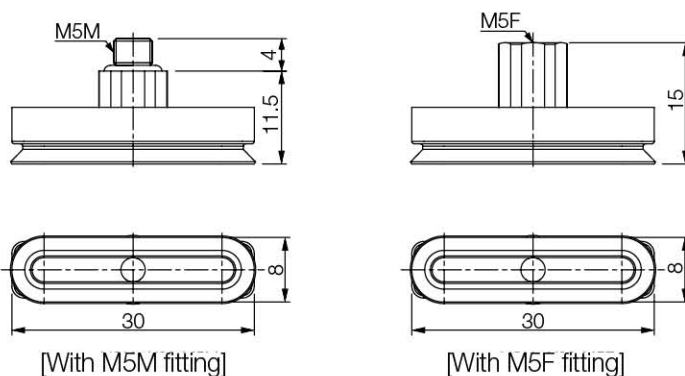
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

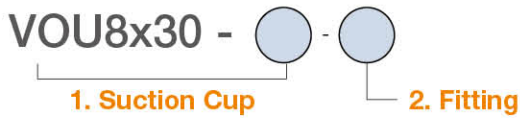
Description	NBR	Silicone	White Silicone	High temp. Silicone	Conductive Silicone	Urethane
Wear Resistance	Excellent	Good	Good	Good	Good	Excellent
Oil	Excellent	Poor	Poor	Poor	Poor	Excellent
Weather / Ozone	Fair	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohol	Good	Good	Good	Good	Good	Fair
Acid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

### Dimension

[ Unit : mm ]



## Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 8x30mm diameter, Nitrile (NBR)	VOU8x30-N
	Oval-Universal suction cup, 8x30mm diameter, Silicone	VOU8x30-S
	Oval-Universal suction cup, 8x30mm diameter, White silicone	VOU8x30-WS
	Oval-Universal suction cup, 8x30mm diameter, White silicone (FDA)	VOU8x30-WS (FDA)
	Oval-Universal suction cup, 8x30mm diameter, High temperature silicone	VOU8x30-HS
	Oval-Universal suction cup, 8x30mm diameter, Conductive silicone	VOU8x30-CS
	Oval-Universal suction cup, 8x30mm diameter, Urethane	VOU8x30-U

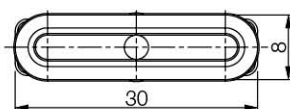
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU8x30-N	Oval-Universal suction cup, 8x30mm diameter, Nitrile (NBR)	1.20	Black
VOU8x30-S	Oval-Universal suction cup, 8x30mm diameter, Silicone	1.12	Red
VOU8x30-WS	Oval-Universal suction cup, 8x30mm diameter, White silicone	1.14	Translucent White
VOU8x30-WS (FDA)	Oval-Universal suction cup, 8x30mm diameter, White silicone (FDA)	1.14	Translucent White
VOU8x30-HS	Oval-Universal suction cup, 8x30mm diameter, High temperature silicone	1.15	Blue
VOU8x30-CS	Oval-Universal suction cup, 8x30mm diameter, Conductive silicone	1.18	Smoky Black
VOU8x30-U	Oval-Universal suction cup, 8x30mm diameter, Urethane	1.24	Dark Green

## Dimension

[ Unit : mm ]



[Rubber part]

## Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78

# SUCTION CUPS / Oval Universal

## VOU10x30

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU10x30	0.394	8.00	0.62	1.42	2.05

※ The lifting force above does not include safety factor

### Material Specifications

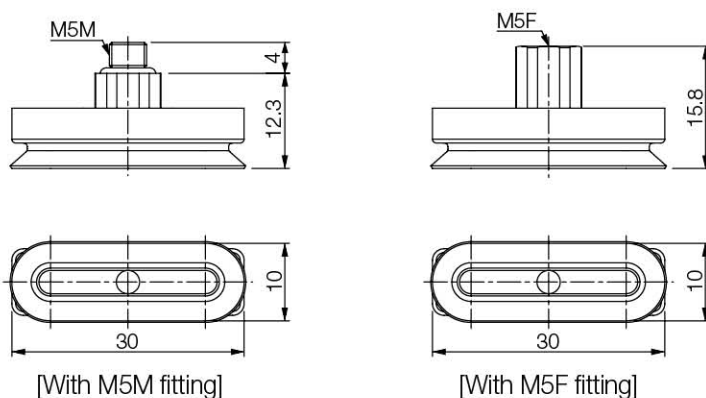
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

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

### Dimension

[ Unit : mm ]



## I Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 10x30mm diameter, Nitrile (NBR)	VOU10x30-N
	Oval-Universal suction cup, 10x30mm diameter, Silicone	VOU10x30-S
	Oval-Universal suction cup, 10x30mm diameter, White silicone	VOU10x30-WS
	Oval-Universal suction cup, 10x30mm diameter, White silicone (FDA)	VOU10x30-WS (FDA)
	Oval-Universal suction cup, 10x30mm diameter, High temperature silicone	VOU10x30-HS
	Oval-Universal suction cup, 10x30mm diameter, Conductive silicone	VOU10x30-CS
	Oval-Universal suction cup, 10x30mm diameter, Urethane	VOU10x30-U

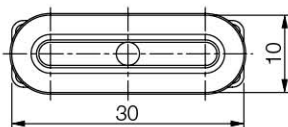
2. Fitting	Description	Symbol
	Fitting, M5 female	M5F
	Fitting, M5 male	M5M

## I Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU10x30-N	Oval-Universal suction cup, 10x30mm diameter, Nitrile (NBR)	1.79	Black
VOU10x30-S	Oval-Universal suction cup, 10x30mm diameter, Silicone	1.55	Red
VOU10x30-WS	Oval-Universal suction cup, 10x30mm diameter, White silicone	1.56	Translucent White
VOU10x30-WS (FDA)	Oval-Universal suction cup, 10x30mm diameter, White silicone (FDA)	1.56	Translucent White
VOU10x30-HS	Oval-Universal suction cup, 10x30mm diameter, High temperature silicone	1.85	Blue
VOU10x30-CS	Oval-Universal suction cup, 10x30mm diameter, Conductive silicone	1.77	Smoky Black
VOU10x30-U	Oval-Universal suction cup, 10x30mm diameter, Urethane	1.85	Dark Green

## I Dimension

[ Unit : mm ]



[Rubber part]

## I Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 1112	M5F	M5 female	2.82
350 002 1012	M5M	M5 male	1.78



# SUCTION CUPS / Oval Universal

## VOU15x45

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU15x45	1.584	11.00	1.06	2.88	4.22

※ The lifting force above does not include safety factor

### Material Specifications

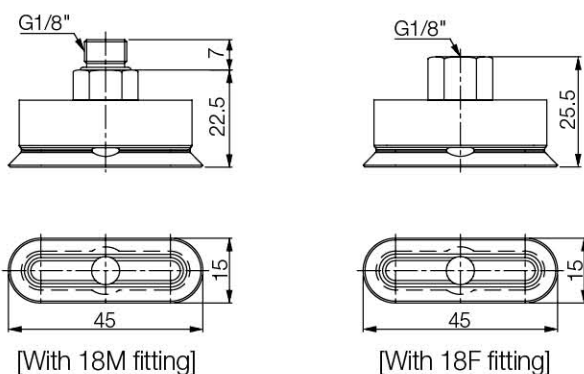
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

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

### Dimension

[ Unit : mm ]



## I Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 15x45mm diameter, Nitrile (NBR)	VOU15x45-N
	Oval-Universal suction cup, 15x45mm diameter, Silicone	VOU15x45-S
	Oval-Universal suction cup, 15x45mm diameter, White silicone	VOU15x45-WS
	Oval-Universal suction cup, 15x45mm diameter, White silicone (FDA)	VOU15x45-WS (FDA)
	Oval-Universal suction cup, 15x45mm diameter, High temperature silicone	VOU15x45-HS
	Oval-Universal suction cup, 15x45mm diameter, Conductive silicone	VOU15x45-CS
	Oval-Universal suction cup, 15x45mm diameter, Urethane	VOU15x45-U

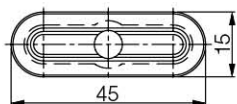
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M

## I Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU15x45-N	Oval-Universal suction cup, 15x45mm diameter, Nitrile (NBR)	5.82	Black
VOU15x45-S	Oval-Universal suction cup, 15x45mm diameter, Silicone	5.13	Red
VOU15x45-WS	Oval-Universal suction cup, 15x45mm diameter, White silicone	5.11	Translucent White
VOU15x45-WS (FDA)	Oval-Universal suction cup, 15x45mm diameter, White silicone (FDA)	5.11	Translucent White
VOU15x45-HS	Oval-Universal suction cup, 15x45mm diameter, High temperature silicone	5.26	Blue
VOU15x45-CS	Oval-Universal suction cup, 15x45mm diameter, Conductive silicone	5.76	Smoky Black
VOU15x45-U	Oval-Universal suction cup, 15x45mm diameter, Urethane	6.02	Dark Green

## I Dimension

[ Unit : mm ]



[Rubber part]

## I Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 3121	18F	G1/8 female	10.32
350 002 3122	18F-F	G1/8 female, Mesh filter	10.46
350 002 3021	18M	G1/8 male	13.74
350 002 3022	18M-F	G1/8 male, Mesh filter	13.84

# SUCTION CUPS / Oval Universal

## VOU20x60

### Features and Strengths

Great performance for handling long objects with flat and curved surfaces

### Examples of use

Semiconductor Chips, PCB boards, Electronic component  
Solar cell, Small glass cases, Pipes



### Recommended Lifting Force (Max.)

Model	Volume (cm <sup>3</sup> )	Min. Curvature Radius R(mm)	Lifting Force (Kg) - Perpendicular		
			- 20 kPa	- 60 kPa	- 90 kPa
VOU20x60	3.532	17.00	1.93	5.10	7.65

※ The lifting force above does not include safety factor

### Material Specifications

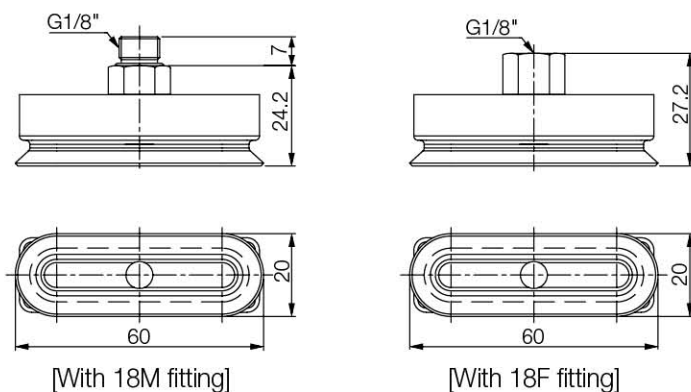
Material	Hardness Shore (°)	Color	Temperature (°C)
NBR	60	Black	-20~110
Silicone	55	Red	-70~200
White Silicone	55	Translucent White	-70~200
White Silicone (FDA)	55	Translucent White	-70~200
High temp. Silicone	50	Blue	-70~280
Conductive Silicone	70	Smoky Black	-45~90
Urethane	60	Dark Green	0~100

### Material Resistance

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

### Dimension

[ Unit : mm ]



## I Build an Ordering No.



1. Suction cup	Description	Symbol
	Oval-Universal suction cup, 20x60mm diameter, Nitrile (NBR)	VOU20x60-N
	Oval-Universal suction cup, 20x60mm diameter, Silicone	VOU20x60-S
	Oval-Universal suction cup, 20x60mm diameter, White silicone	VOU20x60-WS
	Oval-Universal suction cup, 20x60mm diameter, White silicone (FDA)	VOU20x60-WS (FDA)
	Oval-Universal suction cup, 20x60mm diameter, High temperature silicone	VOU20x60-HS
	Oval-Universal suction cup, 20x60mm diameter, Conductive silicone	VOU20x60-CS
	Oval-Universal suction cup, 20x60mm diameter, Urethane	VOU20x60-U

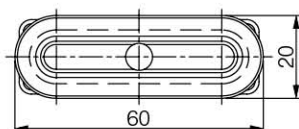
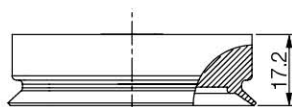
2. Fitting	Description	Symbol
	Fitting, G1/8 female	18F
	Fitting, G1/8 female, Mesh filter	M-18F
	Fitting, G1/8 male	18M
	Fitting, G1/8 male, Mesh filter	M-18M

## I Spare Parts – Rubber Parts

Part No.	Description	Weight (g)	Color
VOU20x60-N	Oval-Universal suction cup, 20x60mm diameter, Nitrile (NBR)	14.78	Black
VOU20x60-S	Oval-Universal suction cup, 20x60mm diameter, Silicone	13.22	Red
VOU20x60-WS	Oval-Universal suction cup, 20x60mm diameter, White silicone	13.04	Translucent White
VOU20x60-WS (FDA)	Oval-Universal suction cup, 20x60mm diameter, White silicone (FDA)	13.04	Translucent White
VOU20x60-HS	Oval-Universal suction cup, 20x60mm diameter, High temperature silicone	15.28	Blue
VOU20x60-CS	Oval-Universal suction cup, 20x60mm diameter, Conductive silicone	14.63	Smoky Black
VOU20x60-U	Oval-Universal suction cup, 20x60mm diameter, Urethane	15.31	Dark Green

## I Dimension

[ Unit : mm ]



[Rubber part]

## I Spare Parts – Fittings

Part No. (Code No.)	Fitting size	Description	Weight (g)
350 002 3121	18F	G1/8 female	10.32
350 002 3122	18F-F	G1/8 female, Mesh filter	10.46
350 002 3021	18M	G1/8 male	13.74
350 002 3022	18M-F	G1/8 male, Mesh filter	13.84