

## VACUUM CUP PROPERTIES



FLAT CUPS



1.5 BELLOW CUPS



2.5 BELLOW CUPS

## TYPE SELECTION GUIDE

### FLAT CUPS

The flat suction cups provide accuracy in load gripping and speeds up the cycle process. Flat cups are used only on flat surfaces.

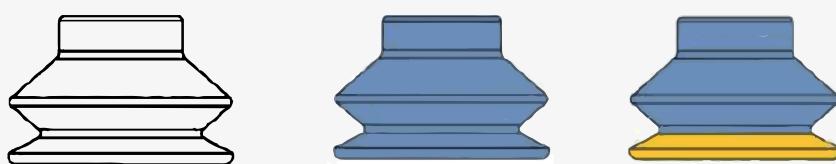
### 1.5 BELLOW CUPS

The 1.5 bellow cups combine the advantages of the flat suction cups (precision and positioning) with the freedom of bellows (angle and flexibility). They provide flexibility, precision and low internal volume suitable for high-speed applications

### 2.5 BELLOW CUPS

The suction cups with 2.5 bellow are recommended for gripping products with un-even surfaces (large deflection). The 2.5 bellow allow objects to be gripped from an angle (ball-joint effect).

## MATERIAL PROPERTIES



APPLICATION	SILICONE	FLEXTEMP HT	MULTIFLEX
Wear resistance	★★	★★	★★★
Oil resistance	★	★★★	★★
Ozone resistance	★★★	★★	★★★
Tensile strength (lifting force)	★	★	★★★
Leaves marks on products	★	★★	★★★
Temperature resistance	-70 to +200°C	-40 to +160°C	-20 to +80°C
Shore hardness	30-60°	60°	30-60°

The holding force of the suction cups increases proportionally with the difference between the ambient pressure and the pressure inside the cup.

$$F = \Delta p * A$$

This means the holding force is proportional to the pressure difference and the suction area. The force can vary depending on a change of the pressure difference and area parameters.



## VACUUM CUP MATERIALS

SI



SILICONE

HT1



NON-MARKING

NBR



NITRILE RUBBER

MATERIAL PROPERTIES	SILICONE	NON-MARKING	NITRILE RUBBER				
Shore hardness	55	60	55				
Temperature resistance	-40 to +200°C	0 to +160°C	0 to +80°C				
Colour	Translucent	Blue	Black				
MATERIAL PROPERTIES (TYPE L)	CR	NBR	SI	PUR	NR	NRE	SBR
Temperature Range	-40 to 110°C	-30 to 90°C	-40 to 200°C	-20 to 80°C	-40 to 80°C	-40 to 80°C	-30 to 80°C
Wear Strength*	3	3	x	2	2	2	1
Oil Resistance*	2	1	x	1	x	x	x
Ozone Resistance*	2	x	1	3	x	x	3
Petrol Resistance*	x	3	x	2	x	x	x

CR: Chloroprene

NBR: Nitrile Rubber

SI: Silicone

PUR: Polyurethane

NR: Natural Rubber

NRE: Natural Rubber

SBR: Styrene-butadiene Rubber

All materials 45 - 55 Shore A (unless otherwise specified)

\*1 = Very good, 2 = Good, 3 = Fair, x = Not recommended.