

**Type Selection Guide**

**Type**

**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 belows (angle and flexibility). They provide flexibility, precision and low internal volume suitable for high-speed applications.

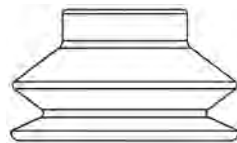


**2,5 Bellow Cups**

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
Ozone resistance	✓✓✓	✓✓	✓✓✓
Oil resistance	✓	✓✓✓	✓✓
Wear 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.

The holding force of a suction pad is calculated with the formula:

$$F = \Delta p \times A.$$

F = Holding force.

$\Delta p$  = Difference between ambient pressure and pressure of the system.

A = Effective suction area (the effective area of a suction pad under vacuum).

This means the holding force is proportional to the pressure difference and the suction area. The greater the difference between ambient pressure and pressure in the suction cup or the larger the effective suction area, the greater the holding force.

The force can vary depending on a change of the pressure difference and area parameters.