ADHESO gripper pads 700 µm

Adhesion grippers for energy-efficient and residue-free handling of workpieces with smooth and even surfaces in a clean working environment.

Advantages - Your benefit

+ **No energy supply required,** therefore very energy efficient and easy to install
+ **Residue-free,** clean gripping of workpieces, no cleaning necessary
+ **Bayonet lock** for easy manual or automated changing of the pads
+ **Reliable and sensitive handling** of sensitive workpieces such as foils
+ **Compact design and low weight** for optimum utilization of the robot payload
+ **Interference-free workpiece accessibility from five sides** through unnecessary gripper fingers
+ **FDA-compliant materials** for applications with high hygiene and purity requirements

Functional description

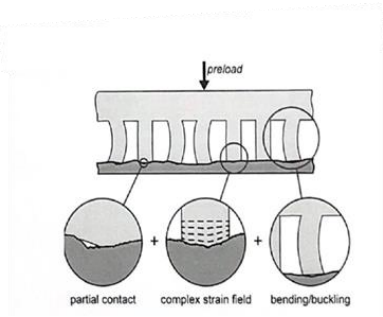
PressGrip is based on the principle of adhesion, which is based on intermolecular forces ("Van der Waals forces"). This means that the gripper does not require any external energy supply and can reliably grip a wide range of different materials.

Van der Waals

When two atoms or molecules get close enough to each other, they influence each other without forming a chemical bond. In many molecules, which are electrically neutral overall, the electrical charges are unequally distributed, resulting in a weak dipole moment. If two surfaces are brought very close together, these dipoles align themselves and attract each other.

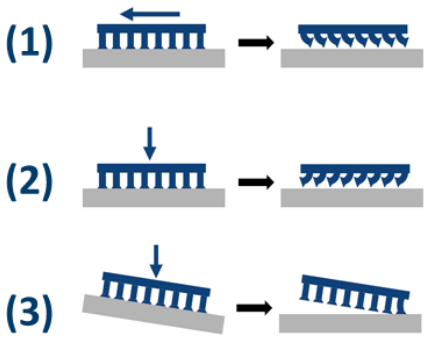
Gripping

During the gripping process, the gripper is pressed onto the workpiece. This presses the hairs of the pad onto the surface of the workpiece, which increases the contact area and the Van der Waals forces act as binding forces. Compared to an unstructured surface, the contact splitting by the hairs leads to an increase in the adhesive force, as the adhesive structure of the surfaces can adapt better. Furthermore, the contact splitting forms a protection against abrupt detachment.



Release

During the release process, the contact between the gripper and the workpiece is triggered by a slight pressure-rotation movement. This causes the hairs to bend and the gripper object can be detached.



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Example 700 µm gripper size 3 to 16

Technical specifications

Property of the ADHESO on reference glass plate	Unit	ADHESO G-3-700-M	ADHESO G-5-700-M	ADHESO G-10-700-M	ADHESO G-16-700-M
Technology		700 µm	700 µm	700 µm	700 µm
Form		round	round	round	round
Diameter	[mm]	24	32	44	56
Type. Adhesion force with horizontal gripping surface (Fz)	[N]	20,7	51,8	97,0	139,6
Type. Adhesion force with vertical gripping surface (Fxy)	[N]	4,1	10,8	19,4	28,0
Type. Adhesion force per surface horizontal (Fz)	[N/mm²]	0,05	0,06	0,06	0,05
Type. Adhesion force per surface vertical (Fxy)	[N/mm²]	0,01	0,012	0,012	0,01
Type. Adhesion moments (Mz)	[Nm]	Release at > 0,1	Release at > 0,3	Release at > 0,5	Release at > 0,9
Min. contact force	[N]	15	26,5	50	80
Min. contact force per surface	[N/mm²]	0,033	0,033	0,033	0,033
Workpiece properties					
Surface roughness Ra	[µm]	<0,025			
Flatness gripping surface	[µm]	<25	<25	<50	<50
min. workpiece temperature	[°C]	0			
max. workpiece temperature	[°C]	60			
Other details					
Environmental conditions		clean, dust-free			
ADHESO material		TPU			
Maintenance interval for pads	[Cycles RT]	Depends on the surroundings and object.			
Change interval for pads	[Cycles RT]	1.000.000	1.000.000	1.000.000	1.000.000