



Superior Clamping and Gripping



Product Information

Adhesive grippers ADHES0

ADHESO

Adhesive grippers

Energy free. Residue-free. Compact.

Adhesive grippers ADHESO

Bionically inspired gripping units with ADHESO technology

Field of application

Primarily smooth and clean surfaces in the field of assembly, electronics production, but also medical technology. Residue-free handling applications where there is only one-sided access to the handling object.



Advantages – Your benefits

Energy-efficient gripping without additional hoses and wiring

Residue-free gripping without residue on the gripping object

Customized gripping unit can be customized for any customer application on request

Compact design enables installation in the smallest systems

Low noise emission by doing without compressed air and moving parts

Workpiece monitoring via optical sensor attachment kit

Automated changing by turning the bayonet



Sizes
Quantity: 4



Weight
20.5 .. 54.6 g



Workpiece weight
3 .. 16 kg

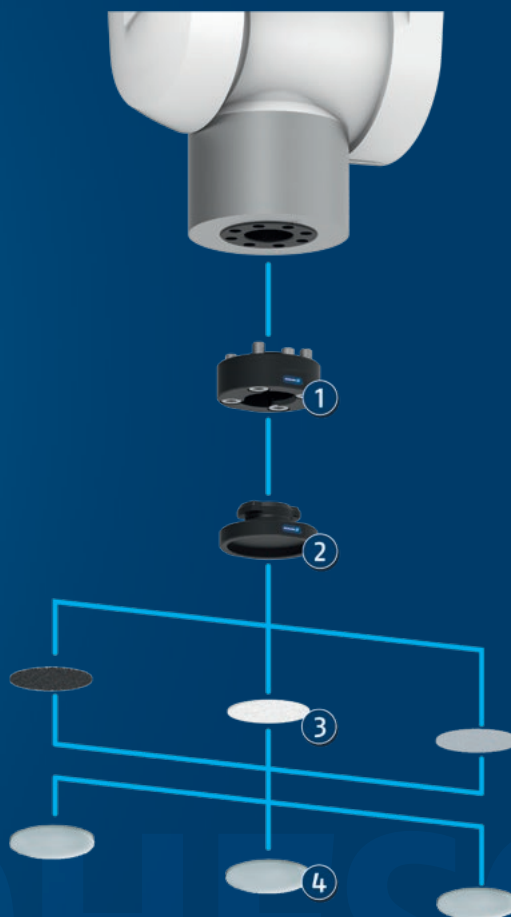


Diameter
24 .. 56 mm

Functional description

The bionically inspired ADHESO gripper technology is based on the principle of adhesion and uses intermolecularly acting Van der Waals forces to handle various workpieces. Due to the high variability of the adhesive structures,

grippers with ADHESO technology can be tailored individually to different applications.



① **Robot adapter**
individually adaptable to different robots flanges

② **Pad bracket**
available in four standard sizes

③ **Foam**
in various degrees of hardness to compensate for unevenness, thereby increasing the contact surface

④ **Adhesive structure**
in different structure sizes for workpieces with different surface roughness levels

Detailed functional description

Gripping principle



The ADHESO gripper is based on the principle of dry adhesion, which is based on intermolecular forces ("Van der Waals forces"). The pillar structure shown here maximizes contact with the surface. As a result, the gripper does not require an external power supply and can reliably grip a wide range of different materials.

Gripping



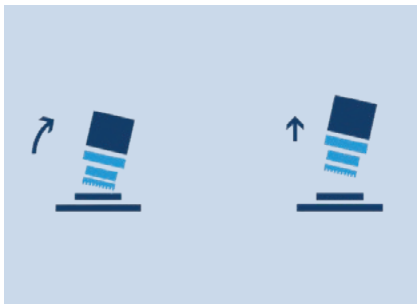
Gripping with the ADHESO is done by making contact with the workpiece simultaneously. The maximum adhesive force is achieved by a defined contact force.

Detachment through turning



A slight rotary movement releases the pillars from the surface and the workpiece is gently detached.

Detachment through tilting



The workpiece is detached by a tilting movement. Ideal detachment mechanism when using a 6-axis robot.

Detachment through sliding



A slight pushing movement releases the pillars from the surface and the workpiece is gently detached.

Loosening due to overpressure



Due to excess pressure, the pillars buckle in on themselves and release the contact to the workpiece surface (only possible with the 700 μm structure).

ADHESO

Adhesive grippers

General notes about the series

Operating principle: (Dry) adhesion

Housing material: Aluminum, anodized

Material foam: Closed-cell polyethylene foam (H)/foamed acrylic adhesive (S)

Adhesive structure material: Thermoplastic polyurethane (TPU) 700 µm/polyurethane acrylate (PUA) 50 µm

Adhesive material: Acrylic adhesive

Workpiece weight: 1 kg/cm², depending on the workpiece surface

Scope of delivery: ADHESO gripper with cover plug

Gripper, consisting of: Pad bracket, foam, adhesive structure



Application example

Gripping and depositing packaged cookie wafers. The gripper uses a combination of medium foam and the 700 µm structure. This combination enables short cycle times and smooth gripping.

Ordering example

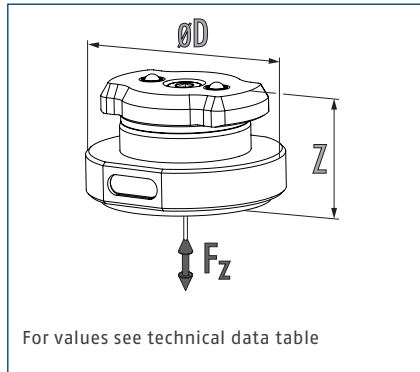
	ADHESO	G	-	5	-	50	-	S
Description	ADHESO							
G = Grippers								
Gripper pad size								
3 = Ø 24 mm								
5 = Ø 32 mm								
10 = Ø 44 mm								
16 = Ø 56 mm								
ADHESO adhesive structure, diameter of pillars								
50 = 50 µm								
700 = 700 µm								
Foam								
S = Soft								
M = Medium								
H = Hard								

ADHESO G-3

Adhesive grippers



Dimensions

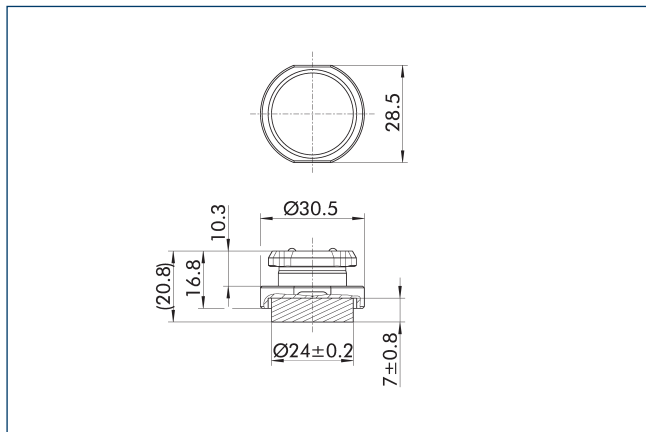


Technical data

Description		ADHESO G-3-700-S	ADHESO G-3-700-H	ADHESO G-3-50-S	ADHESO G-3-50-H
ID		1518727	1518751	1518731	1518756
Adhesive structure	[μm]	700	700	50	50
Weight	[g]	20.5	20.5	20.5	20.5
Pad diameter	[mm]	24	24	24	24
Typical adhesive force with horizontal gripping surface (F_z)	[N]	20	20	42	60
Recommended contact force	[N]	15	15	25	25
Max. detachment force	[N]	42	42	70	70
Roughness value R_a (glass/surface)	[mm]	<0.025	<0.025	<0.025	<0.025
Min./max. workpiece temperature	[$^{\circ}\text{C}$]	0/60	0/60	0/60	0/60
Min./max. ambient temperature	[$^{\circ}\text{C}$]	0/40	0/40	0/40	0/40
Ambient conditions		dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry
Adhesive material		UV acrylic adhesive	Acrylic	UV acrylic adhesive	Acrylic
Material foam		closed-cell polyethylene foam	foamed acrylic adhesive	closed-cell polyethylene foam	foamed acrylic adhesive
Adhesive structure material		TPU	TPU	PUA	PUA
Dimensions $\varnothing D \times Z$	[mm]	30.5 x 20.8	30.5 x 18.9	30.5 x 19.7	30.5 x 17.8

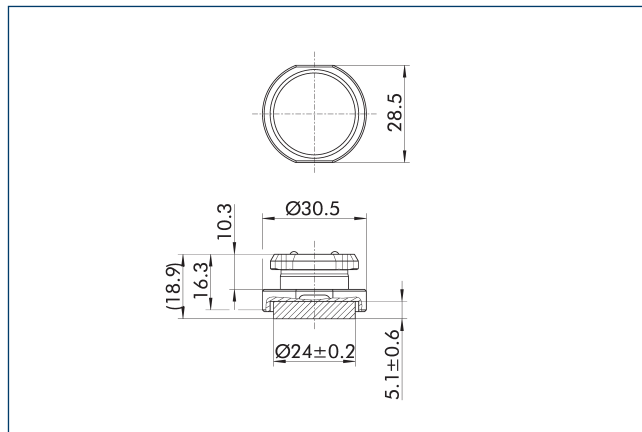
ⓘ The specified values only apply under the following ambient conditions: glass substrate, room temperature, normal relative humidity and clean workpiece surface.

Main view G-3-700-S



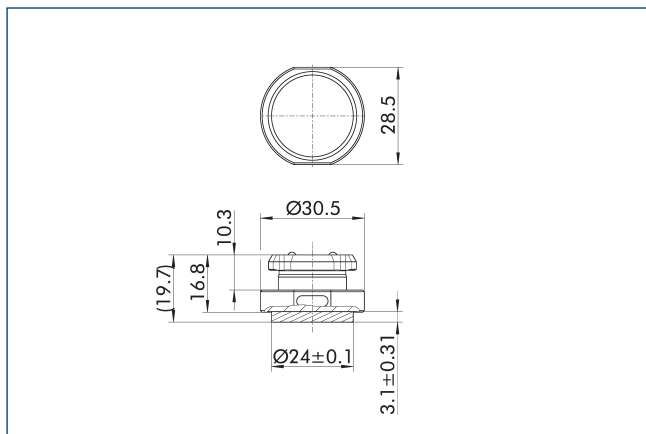
Easy to change with the help of the bayonet lock.

Main view G-3-700-H



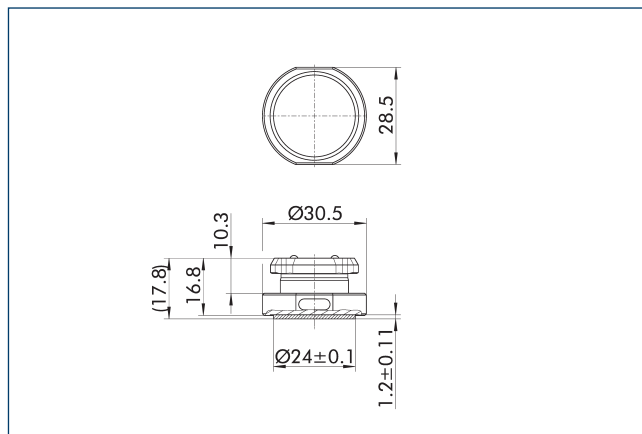
Easy to change with the help of the bayonet lock.

Main view G-3-50-S



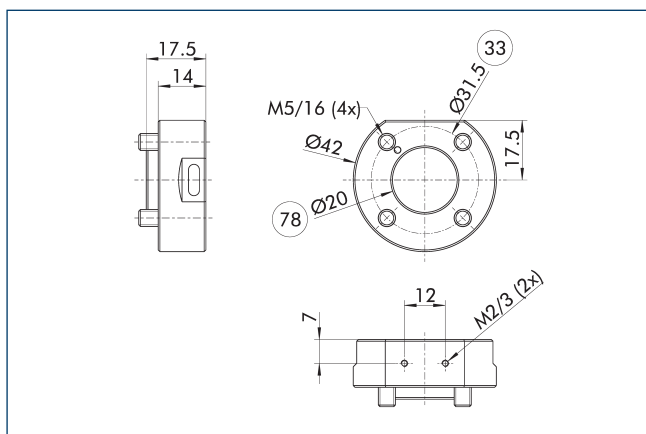
Easy to change with the help of the bayonet lock.

Main view G-3-50-H



Easy to change with the help of the bayonet lock.

Robot adapter ISO 031.5

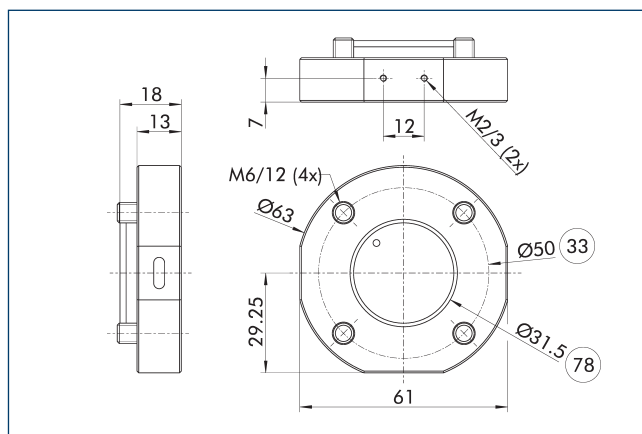


33 DIN ISO-9409 bolt circle

73 Fit for centering pins

Description	ID	
Adapter flange		
ADHESO K-ISO31.5	1524169	

Robot adapter ISO 050



33 DIN ISO-9409 bolt circle

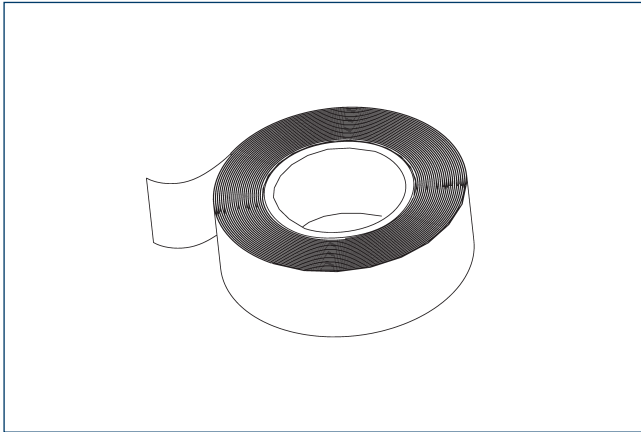
73 Fit for centering pins

Description	ID	
Adapter flange		
ADHESO K-ISO50	1524168	

ADHESO G-3

Adhesive grippers

Cleaning tape



Description	ID	Width [mm]	Length [m]
Cleaning tape			
ADHESO Reinigungstape	1472156	19	33

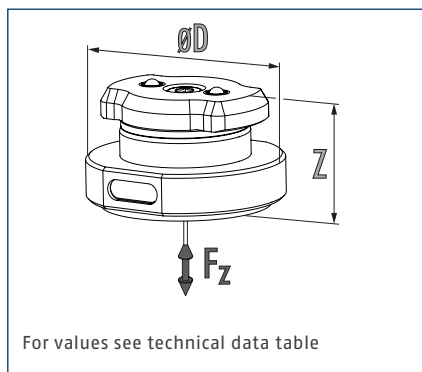
① The cleaning tape is used for manual cleaning and must be ordered as an optional accessory.

ADHESO G-5

Adhesive grippers



Dimensions

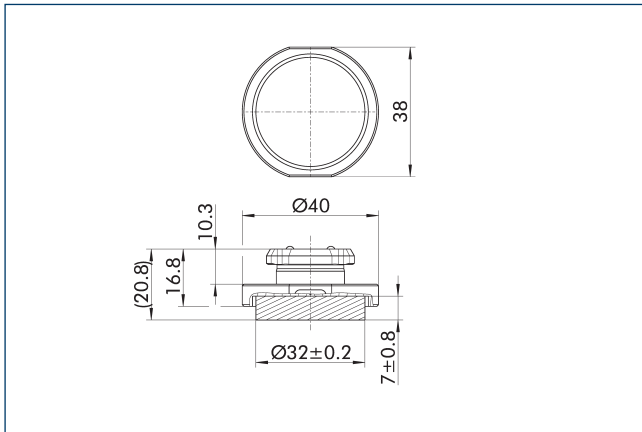


Technical data

Description		ADHESO G-5-700-S	ADHESO G-5-700-H	ADHESO G-5-50-S	ADHESO G-5-50-H
ID		1518761	1518822	1518769	1518831
Adhesive structure	[μm]	700	700	50	50
Weight	[g]	28.5	28.5	28.5	28.5
Pad diameter	[mm]	32	32	32	32
Typical adhesive force with horizontal gripping surface (F_z)	[N]	50	50	70	100
Recommended contact force	[N]	27	27	44	44
Max. detachment force	[N]	70	70	98	98
Roughness value R_a (glass/surface)	[mm]	<0.025	<0.025	<0.025	<0.025
Min./max. workpiece temperature	[$^{\circ}\text{C}$]	0/60	0/60	0/60	0/60
Min./max. ambient temperature	[$^{\circ}\text{C}$]	0/40	0/40	0/40	0/40
Ambient conditions		dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry
Adhesive material		UV acrylic adhesive	Acrylic	UV acrylic adhesive	Acrylic
Material foam		closed-cell polyethylene foam	foamed acrylic adhesive	closed-cell polyethylene foam	foamed acrylic adhesive
Adhesive structure material		TPU	TPU	PUA	PUA
Dimensions $\varnothing D \times Z$	[mm]	40 x 20.8	40 x 18.9	40 x 19.7	40 x 17.8

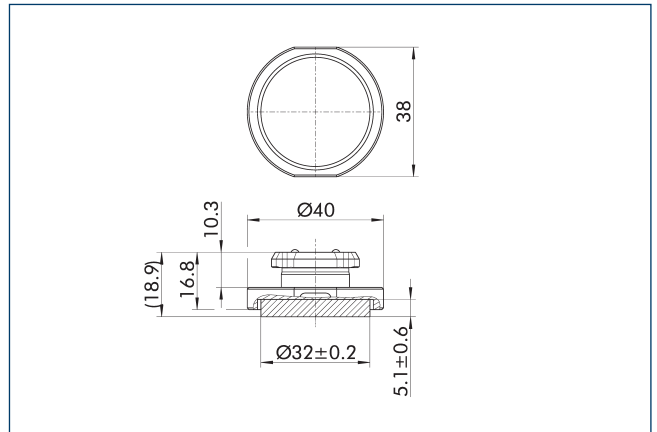
ⓘ The specified values only apply under the following ambient conditions: glass substrate, room temperature, normal relative humidity and clean workpiece surface.

Main view G-5-700-S



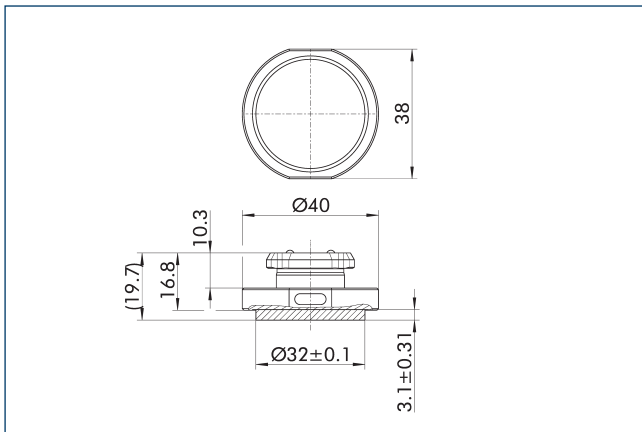
Easy to change with the help of the bayonet lock.

Main view G-5-700-H



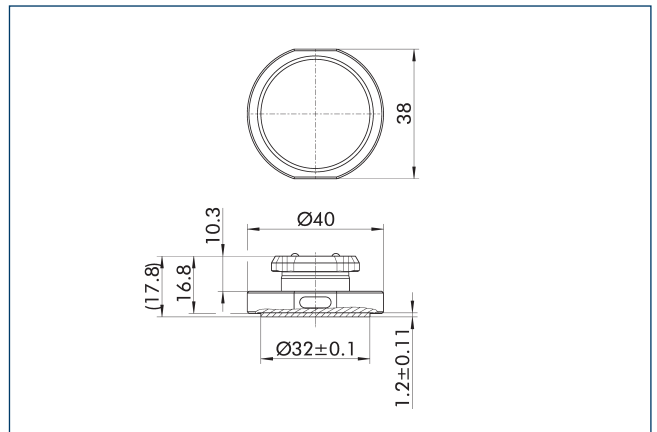
Easy to change with the help of the bayonet lock.

Main view G-5-50-S



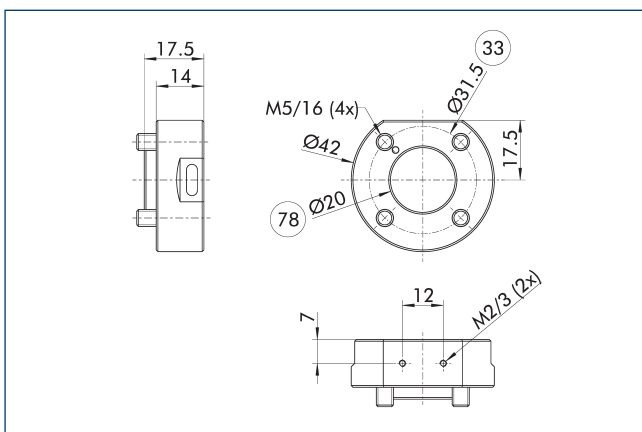
Easy to change with the help of the bayonet lock.

Main view G-5-50-H



Easy to change with the help of the bayonet lock.

Robot adapter ISO 031.5

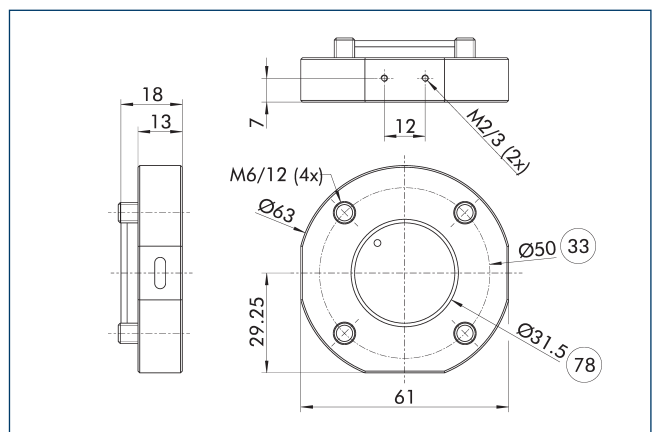


33 DIN ISO-9409 bolt circle

78 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-IS031.5	1524169

Robot adapter ISO 050



33 DIN ISO-9409 bolt circle

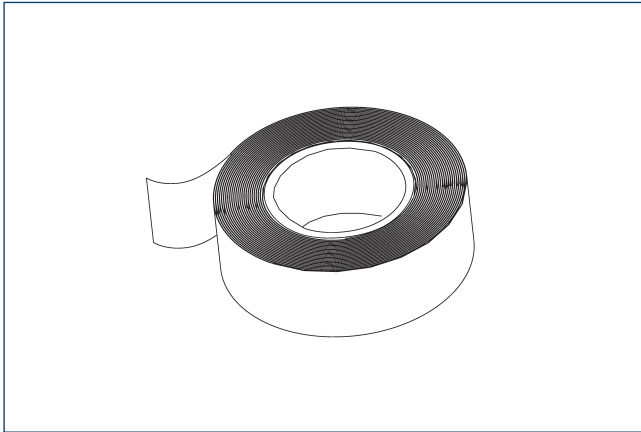
78 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-IS050	1524168

ADHESO G-5

Adhesive grippers

Cleaning tape



Description	ID	Width [mm]	Length [m]
Cleaning tape			
ADHESO Reinigungstape	1472156	19	33

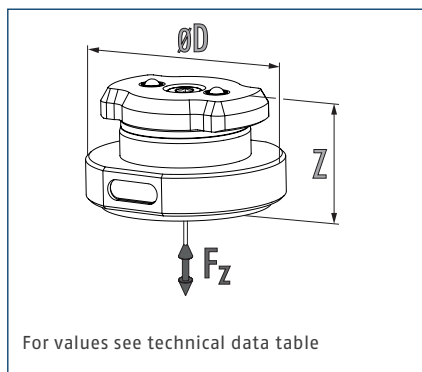
① The cleaning tape is used for manual cleaning and must be ordered as an optional accessory.

ADHESO G-10

Adhesive grippers



Dimensions

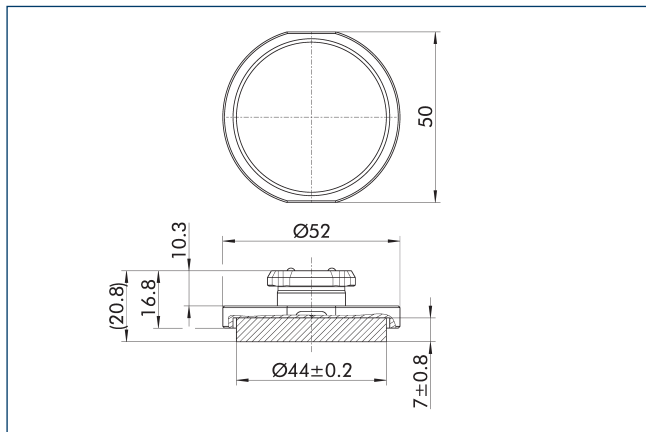


Technical data

Description		ADHESO G-10-700-S	ADHESO G-10-700-H	ADHESO G-10-50-S	ADHESO G-10-50-H
ID		1518833	1518866	1518847	1518885
Adhesive structure	[μm]	700	700	50	50
Weight	[g]	39.5	39.5	39.5	39.5
Pad diameter	[mm]	44	44	44	44
Typical adhesive force with horizontal gripping surface (F_z)	[N]	90	90	140	200
Recommended contact force	[N]	50	50	82	82
Max. detachment force	[N]	140	140	182	182
Roughness value Ra (glass/surface)	[mm]	<0.025	<0.025	<0.025	<0.025
Min./max. workpiece temperature	[$^{\circ}\text{C}$]	0/60	0/60	0/60	0/60
Min./max. ambient temperature	[$^{\circ}\text{C}$]	0/40	0/40	0/40	0/40
Ambient conditions		dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry
Adhesive material		UV acrylic adhesive	Acrylic	UV acrylic adhesive	Acrylic
Material foam		closed-cell polyethylene foam	foamed acrylic adhesive	closed-cell polyethylene foam	foamed acrylic adhesive
Adhesive structure material		TPU	TPU	PUA	PUA
Dimensions \varnothing D x Z	[mm]	52 x 20.8	52 x 18.9	52 x 19.7	52 x 17.8

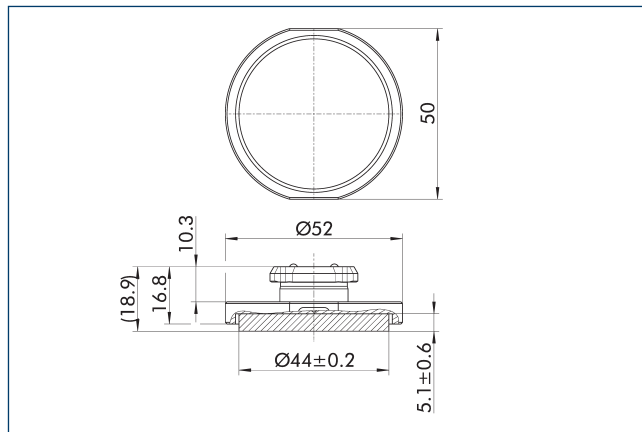
ⓘ The specified values only apply under the following ambient conditions: glass substrate, room temperature, normal relative humidity and clean workpiece surface.

Main view G-10-700-S



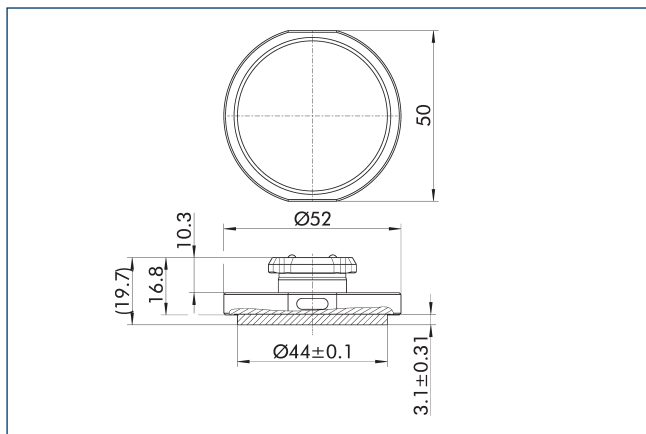
Easy to change with the help of the bayonet lock.

Main view G-10-700-H



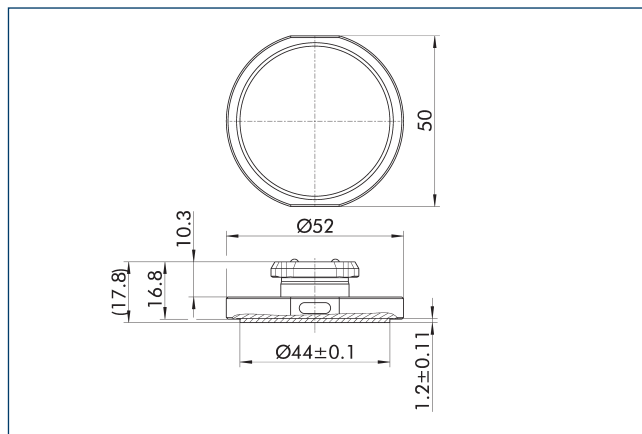
Easy to change with the help of the bayonet lock.

Main view G-10-50-S



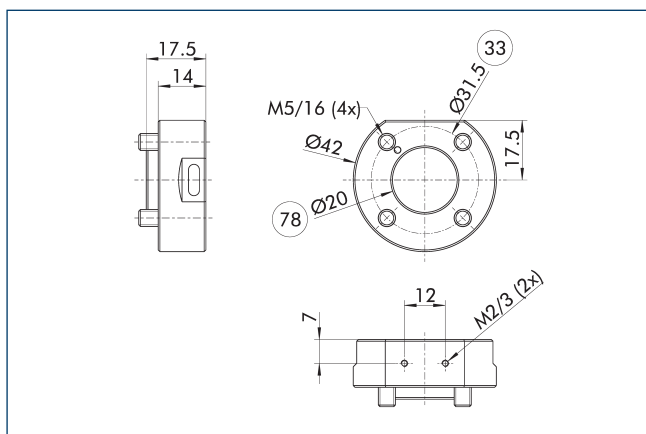
Easy to change with the help of the bayonet lock.

Main view G-10-50-H



Easy to change with the help of the bayonet lock.

Robot adapter ISO 031.5

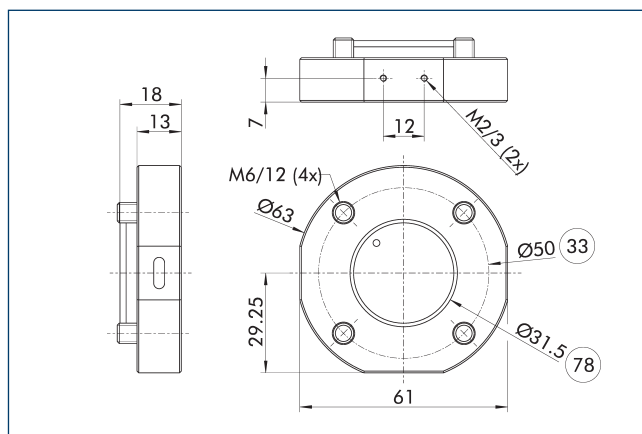


33 DIN ISO-9409 bolt circle

73 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-ISO31.5	1524169

Robot adapter ISO 050



33 DIN ISO-9409 bolt circle

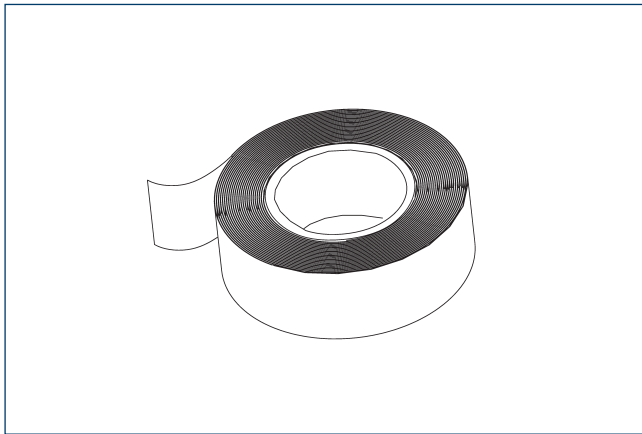
73 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-ISO50	1524168

ADHESO G-10

Adhesive grippers

Cleaning tape



Description	ID	Width [mm]	Length [m]
Cleaning tape			
ADHESO Reinigungstape	1472156	19	33

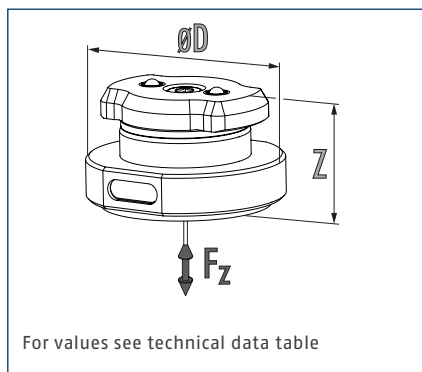
① The cleaning tape is used for manual cleaning and must be ordered as an optional accessory.

ADHESO G-16

Adhesive grippers



Dimensions

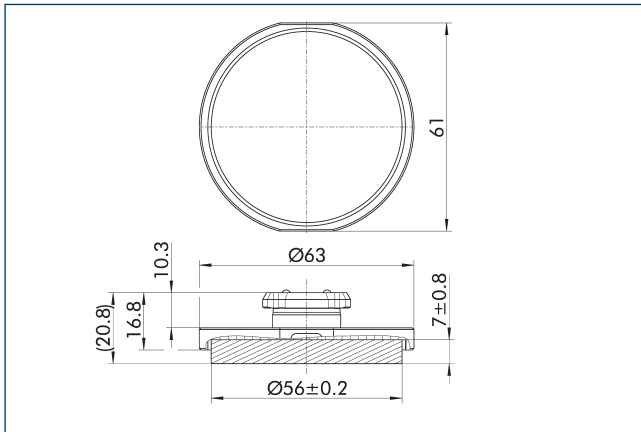


Technical data

Description		ADHESO G-16-700-S	ADHESO G-16-700-H	ADHESO G-16-50-S	ADHESO G-16-50-H
ID		1518888	1518903	1518894	1518906
Adhesive structure	[μm]	700	700	50	50
Weight	[g]	54.6	54.6	54.6	54.6
Pad diameter	[mm]	56	56	56	56
Typical adhesive force with horizontal gripping surface (F_z)	[N]	140	140	220	320
Recommended contact force	[N]	81	81	132	132
Max. detachment force	[N]	224	224	266	266
Roughness value Ra (glass/surface)	[mm]	<0.025	<0.025	<0.025	<0.025
Min./max. workpiece temperature	[$^{\circ}\text{C}$]	0/60	0/60	0/60	0/60
Min./max. ambient temperature	[$^{\circ}\text{C}$]	0/40	0/40	0/40	0/40
Ambient conditions		dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry	dust-free, grease-free, dry
Adhesive material		UV acrylic adhesive	Acrylic	UV acrylic adhesive	Acrylic
Material foam		closed-cell polyethylene foam	foamed acrylic adhesive	closed-cell polyethylene foam	foamed acrylic adhesive
Adhesive structure material		TPU	TPU	PUA	PUA
Dimensions $\varnothing D \times Z$	[mm]	63 x 20.8	63 x 18.9	63 x 19.7	63 x 17.8

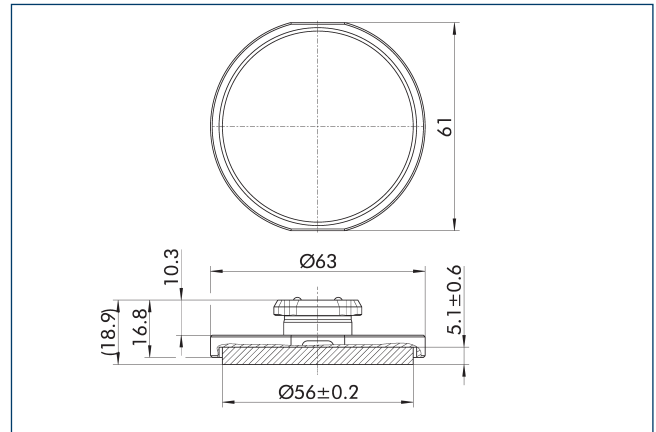
ⓘ The specified values only apply under the following ambient conditions: glass substrate, room temperature, normal relative humidity and clean workpiece surface.

Main view G-16-700-S



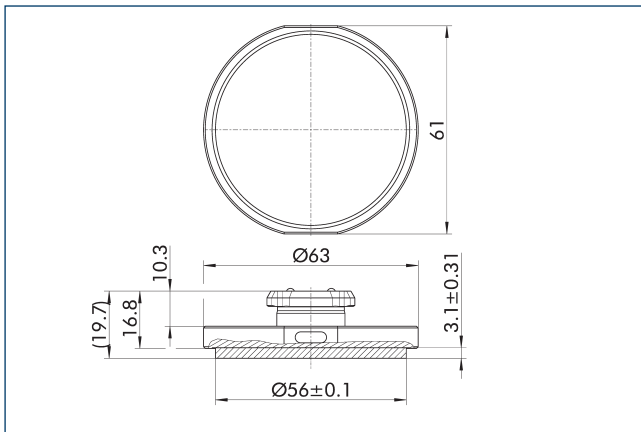
Easy to change with the help of the bayonet lock.

Main view G-16-700-H



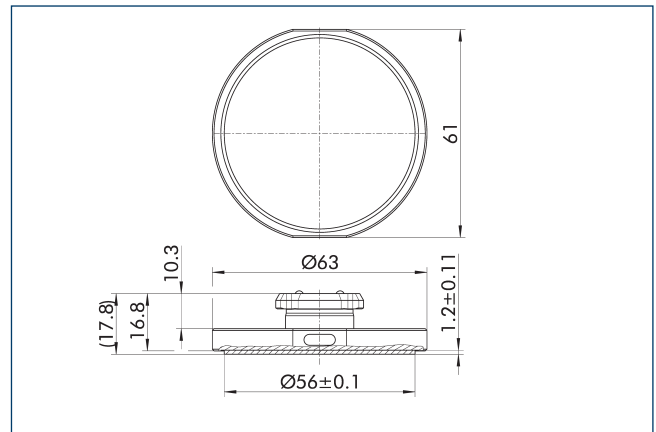
Easy to change with the help of the bayonet lock.

Main view G-16-50-S



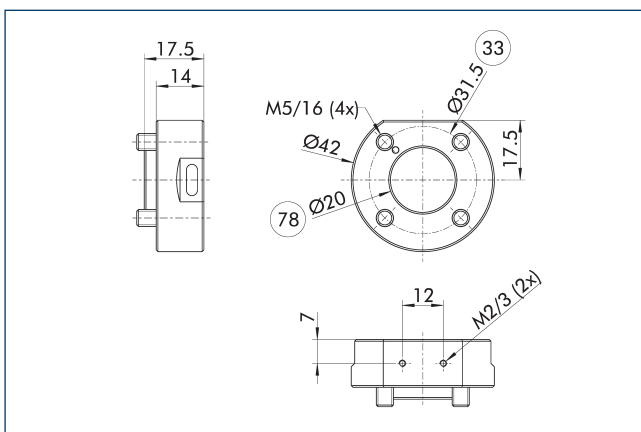
Easy to change with the help of the bayonet lock.

Main view G-16-50-H



Easy to change with the help of the bayonet lock.

Robot adapter ISO 031.5

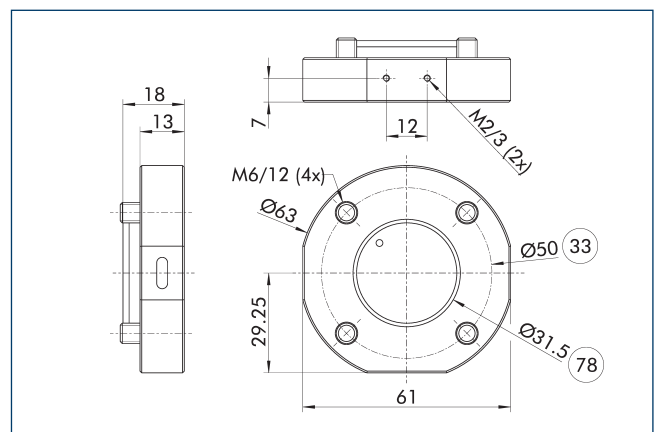


33 DIN ISO-9409 bolt circle

73 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-IS031.5	1524169

Robot adapter ISO 050



33 DIN ISO-9409 bolt circle

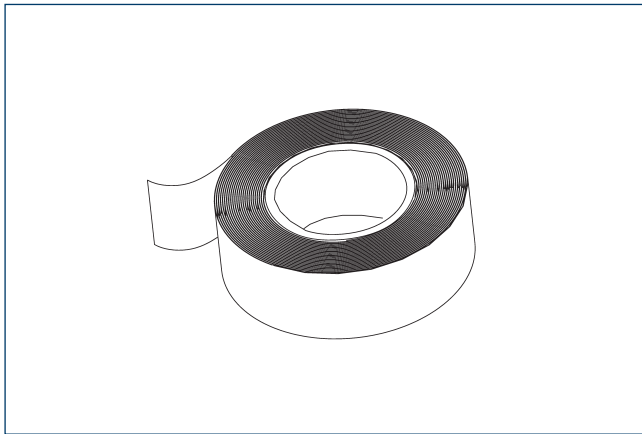
73 Fit for centering pins

Description	ID
Adapter flange	
ADHESO K-IS050	1524168

ADHESO G-16

Adhesive grippers

Cleaning tape



Description	ID	Width [mm]	Length [m]
Cleaning tape			
ADHESO Reinigungstape	1472156	19	33

① The cleaning tape is used for manual cleaning and must be ordered as an optional accessory.



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