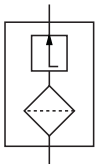
Vacuum security valve ISV

FESTO

Characteristics

At a glance



When several suction cups are arranged in parallel, the vacuum security valve prevents the vacuum from collapsing if one or more suction cups are not tightly seated.

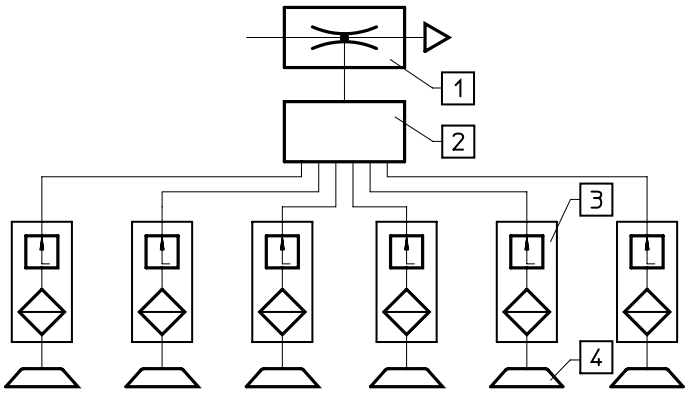
- Enables randomly placed products to be gripped
- Gripping only takes place with full contact

Diagrams

Link isv

The diagrams shown in this document are also available online. These can be used to display precise values.

Series



[1] Vacuum generator, [2] Distributor, [3] Vacuum security valve, [4] Suction cup

[ISV]	Vacuum security valve

The vacuum security valve ISV is mounted between the suction cup and the vacuum generator. If, during vacuum generation, a suction cup is uncovered, or only partly covered, the vacuum security valve automatically shuts off the influx of air. Once the suction cup is seated tightly on the surface, the vacuum is switched back on again. If the workpiece is separated from the suction cup, the vacuum security valve immediately closes.

- If the suction cup is open to the environment, the float is pushed back against the housing. In this position, air can only flow through a small hole at the front of the float.
- If a workpiece comes in contact with the suction cup, the air flow is reduced and the spring forces the float forward. This causes the vacuum security valve to open, and a complete vacuum is created in the suction cup.

Type code

001	Series	
ISV	Vacuum security valve	

002	Vacuum port	
G14	G1/4	
G18	G1/8	
G38	G3/8	
M10	M10	
M4	Male thread M4	
M5	M5	
M6	M6	

Datasheet

General technical data – Vacuum security valves for suction cups				
Pneumatic connection, port 1	M5	G1/8	G1/4	G3/8
Pneumatic connection, port 2	M5	G1/8	G1/4	G3/8
Mounting position	optional			
Type of mounting	Screw-in			
Suitable for ejector pulse	≤8 MPa			
Suitable for ejector pulse	8 bar			
Required suction volumetric flow at -0.05 MPa (-0.5 bar, -7.25 psi)	1 l/min	2 l/min	1.6 l/min	1.5 l/min

General technical data – Vacuum security valves for suction grippers			
Pneumatic connection, port 1	M4	M6	M10
Pneumatic connection, port 2	M4	M6	M10
Mounting position	optional		
Type of mounting	Screw-in		
Suitable for ejector pulse	≤0.8 MPa		
Suitable for ejector pulse	≤8 bar		
Required suction volumetric flow at -0.05 MPa (-0.5 bar, -7.25 psi)	1 l/min	2 l/min	

Operating and environmental conditions – Vacuum security valves for suction cups				
Pneumatic connection, port 1	M5	G1/8	G1/4	G3/8
Operating pressure	-95 ... 0 kPa			
Operating pressure	-0.95 ... 0 bar			
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]			
Ambient temperature	-10 ... 60°C			
Corrosion resistance class CRC [1]	2 - Moderate corrosion stress			

1) More information www.festo.com/x/topic/crc

Operating and environmental conditions – Vacuum security valves for suction grippers			
Pneumatic connection, port 1	M4	M6	M10
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Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]		
Ambient temperature	-10 ... 60°C		
Corrosion resistance class CRC [1]	2 - Moderate corrosion stress		

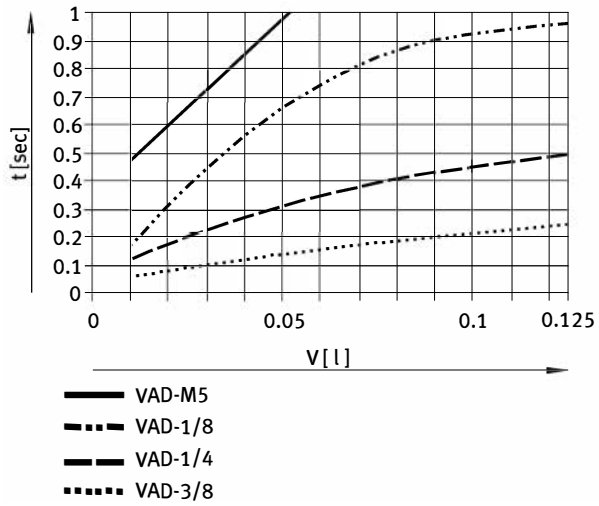
1) More information www.festo.com/x/topic/crc

Materials – Vacuum security valves for suction cups				
Pneumatic connection, port 1	M5	G1/8	G1/4	G3/8
Material housing	High-alloy steel	Wrought aluminium alloy		
Material filter	Sintered bronze	Wrought aluminium alloy, Stainless steel mesh		
Material spring	–	High-alloy steel		
Material hollow bolt	–	Wrought aluminium alloy		
Material float	–	POM		
LABS (PWIS) conformity	VDMA24364-B1/B2-L	VDMA24364-B2-L		

Materials – Vacuum security valves for suction grippers			
Pneumatic connection, port 1	M4	M6	M10
Material housing	Wrought aluminium alloy		
Material filter	Sintered bronze		
Material spring	–	High-alloy steel	
Material float	–	POM	
LABS (PWIS) conformity	VDMA24364-B1/B2-L		

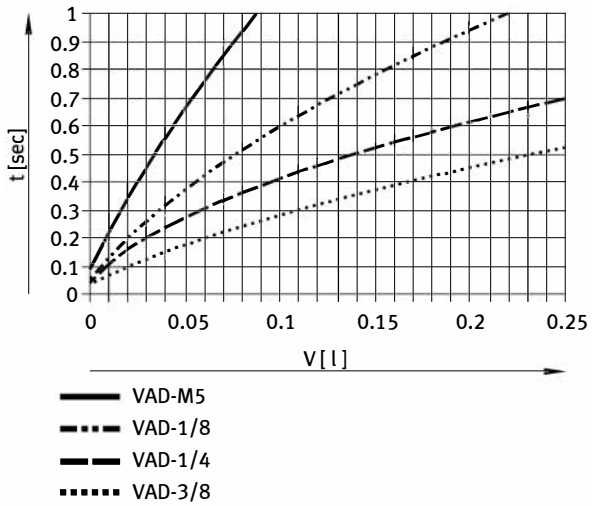
Datasheet

Evacuation time t as a function of the volume V to be evacuated with various vacuum generators (ISV-M5)



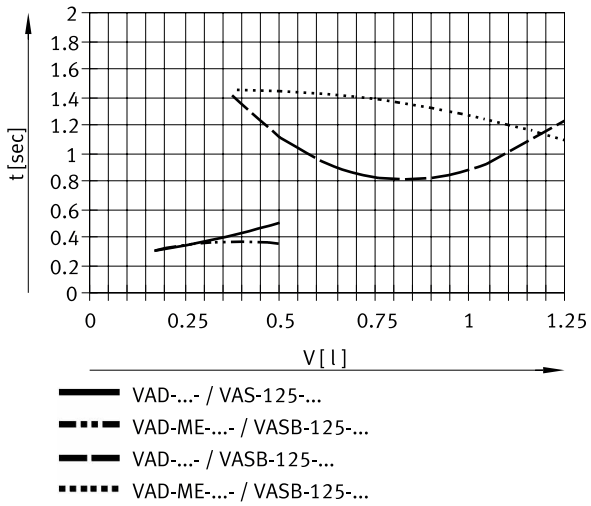
Evacuation time is the time required to achieve 90% of the maximum possible vacuum.

Evacuation time t as a function of the volume V to be evacuated with various vacuum generators (ISV-1/8, ISV-1/4)



Evacuation time is the time required to achieve 90% of the maximum possible vacuum.

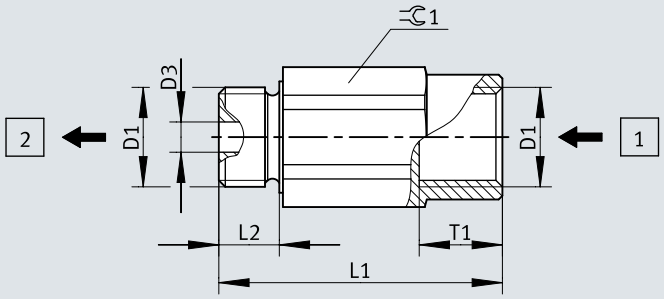
Evacuation time t as a function of the volume V to be evacuated with various vacuum generators (ISV-3/8)



Evacuation time is the time required to achieve 90% of the maximum possible vacuum.

Dimensions

Dimensions – Vacuum security valves ISV for suction cups Download CAD data www.festo.com

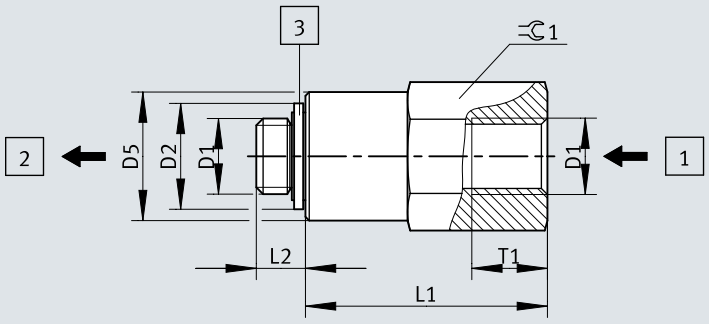


[1] Suction side
[2] Tube side

	D1	D3 ø	L1	L2	T1	1
ISV-M5	M5	2	15	4,3	5,5	8
ISV-1/8	G1/8	4	36	6,5	11	13
ISV-1/4	G1/4	4	37,5	8	11	17
ISV-3/8	G3/8	4	42	9	13	22

Dimensions

Dimensions – Vacuum security valves ISV for suction grippers Download CAD data www.festo.com



[1] Suction side
[2] Tube side
[3] Sealing ring

	D1	D2 Ø	D5 Ø	L1	L2	T1	1
ISV-M4	M4	7,8	7	10,7	3,8	5	7
ISV-M6	M6	8,4	14	28,3	5	5	14
ISV-M10	M10	13	17	32	6,5	10	17

Ordering data

Ordering data – Vacuum security valves for suction cups

	Pneumatic connection, port 1	Required suction volumetric flow at -0.05 MPa (-0.5 bar, -7.25 psi)	Product weight	Part no.	Type
	M5	1 l/min	4 g	**151217**	**ISV-M5**
	G1/8	2 l/min	9 g	**33969**	**ISV-1/8**
	G1/4	1.6 l/min	16 g	**33970**	**ISV-1/4**
	G3/8	1.5 l/min	33 g	**33971**	**ISV-3/8**

Ordering data – Vacuum security valves for suction grippers

	Pneumatic connection, port 1	Required suction volumetric flow at -0.05 MPa (-0.5 bar, -7.25 psi)	Product weight	Part no.	Type
	M4	1 l/min	1.5 g	**545996**	**ISV-M4**
	M6	2 l/min	14 g	**545997**	**ISV-M6**
	M10		18 g	**545998**	**ISV-M10**