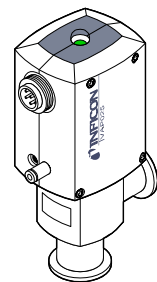


## Angle Valve

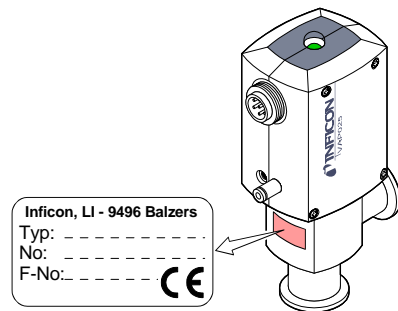
pneumatically actuated bellows sealed with position indicator, without pilot valve  
VAP016-040-A/X



Instruction Sheet  
incl. Manufacturer's Declaration  
sima46e1-a (0102)

## Product Identification

In all communications with Inficon, please specify the information on the product nameplate. For convenient reference copy that information into the space provided below.



## Validity

This document applies to products with the following part numbers:

### Aluminum housing

250-204 (DN 16 ISO-KF)  
250-224 (DN 25 ISO-KF)  
250-244 (DN 40 ISO-KF)

### Stainless steel housing

250-214 (DN 16 ISO-KF)  
250-234 (DN 25 ISO-KF)  
250-254 (DN 40 ISO-KF)

The part number can be taken from the product nameplate.

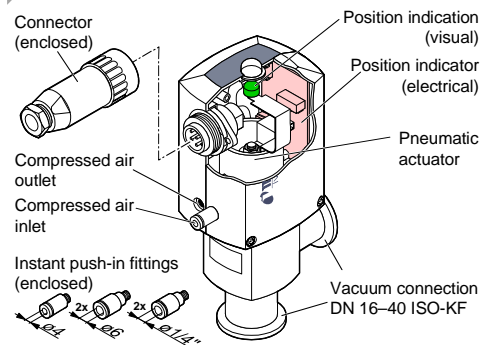
If not indicated otherwise in the legends, the illustrations in this document correspond to the valve with the nominal diameter DN 25 ISO-KF. They apply to valves with other nominal diameters by analogy.

We reserve the right to make technical changes without prior notice.

## Intended Use

The angle valves are used as shut-off and venting devices for vacuum applications.

## Description



### Functional principle

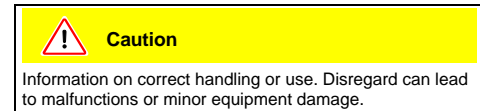
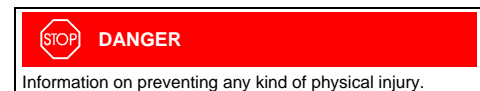
When compressed air is admitted to the angle valve, it opens and the green position indicator becomes visible.

When no compressed air is admitted to the angle valve, it is closed by the pressure spring and the green position indicator is no longer visible.

The final positions can be polled by the electrical position indicator.

## Safety

### Symbols Used



20 Dimensions in mm

### General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used. Consider possible reactions between the materials and the process media.
- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.
- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate the safety instructions to all other users.

### Liability and Warranty

Inficon assumes no liability and the warranty becomes null and void if end-user or third parties

- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of interventions (modifications, alterations etc.) on the product
- use the product with accessories and options not listed in the corresponding product documentation.

The end-user assumes the responsibility in conjunction with the process media used.

## Technical Data

Position indicator connection rating	soldered joints 250 VAC / 25 VA / 0.1 A 50 VDC / 12.5 W / 0.25 A		
Connection flange	DN 16 ISO-KF	DN 25 ISO-KF	DN 40 ISO-KF
Actuation	opening: pneumatic closing: by pressure spring		
Compressed air supply tube connection pressure range	ø4 mm, ø6 mm or ø¼" 3 ... 7 bar overpressure		
piston displacement	5.5 cm <sup>3</sup>	12.1 cm <sup>3</sup>	26.2 cm <sup>3</sup>
Stroke of the valve plate	5 mm	10 mm	14 mm
Conductance <sup>1)</sup>	4.5 l/s	16 l/s	40 l/s
Switching frequency <sup>2)</sup>	100 / min	100 / min	75 / min
Opening time <sup>2)</sup>	100 ms	110 ms	250 ms
Closing time <sup>2)</sup>	200 ms	290 ms	500 ms
Cycle life <sup>3)</sup>	10 million		
Tightness	1x10 <sup>-9</sup> mbar l/s		
Pressure range min.	1x10 <sup>-8</sup> mbar		
Pressure range max.(abs.)	4 bar	2.5 bar	
Pressure difference Δp in closing direction in opening direction	4 bar 2 bar	2 bar 1.5 bar	
Opens to a pressure difference Δp <sup>4)</sup>	4 bar 2 bar		
Temperatures	0 °C ... 50 °C		
ambience			
bakeout			
housing			
aluminum	80 °C		
stainless steel	150 °C		
actuator	50 °C		
pilot valve	50 °C		
Type of protection	IP 50 according to DIN 40 050		
Protection class	II		
Installation angle	any		
Flow direction	any		
Materials			
housing			
aluminum	3.2572		
stainless steel	1.4301		
bellows / valve plate	1.4541 / 14301		
pressure spring			
DN 16+25 ISO-KF	1.4301		
DN 40 ISO-KF	1.1200		
seals	FPM		
shell	PBTP		
cylinder unit	PBTP		
protective caps	PE		
packing material	carton box, PE, PU		
Weight			
housing			
aluminum	0.28 kg	0.42 kg	0.88 kg
stainless steel	0.38 kg	0.73 kg	1.58 kg

- For air with molecular flow
- With pressure difference Δp=0, compressed air = 5 bar (overpressure) and pilot valve nominal diameter = 2
- Cycles without expendable parts (seals) and under clean operating conditions
- Compressed air = 5 bar (overpressure)

**Dimensions**

DN	A	B	C	D	E	F	G
DN 16 ISO-KF	154	127	71	60	51	100	40
DN 25 ISO-KF	176	147.4	92.5	74	63	108	50
DN 40 ISO-KF	196.5	167.3	112	98	83	120	65

## Installation

### Vacuum Connection

**Skilled personnel**

The vacuum connection may only be established by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

**DANGER**

Caution: overpressure in the vacuum system >1 bar  
Injury caused by released parts and harm caused by escaping process gases can result if clamps are opened while the vacuum system is pressurized.  
Do not open any clamps while the vacuum system is pressurized. Use the type clamps which are suited to overpressure.

**Caution**

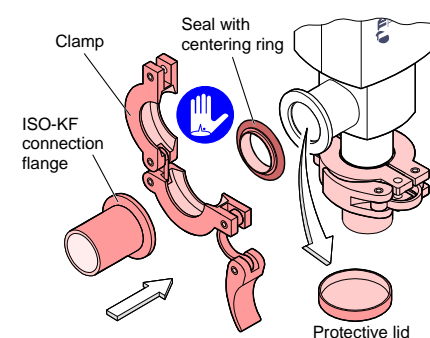
Caution: dirt sensitive area  
Touching the product or parts thereof with one's bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

**Caution**

Caution: vacuum component  
Dirt and damages impair the function of the vacuum component.  
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

**Keep the lids.**

Remove the protective lids and install the valve to the vacuum system by means of the small flange fittings. Any installation angle and flow direction may be chosen.



### Compressed Air Connection

**Skilled personnel**

The compressed air connection may only be established by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

**Caution**

The compressed air must meet the following specifications:

- free of oil
- dry
- free of particles >5 μm
- 3 ... 7 bar (overpressure)

**Caution**

The plastic tube must meet the following specifications:

- bursting pressure ≥10 bar overpressure
- material: PA soft or PU.

**Caution**

To ensure leak tightness of the instant push-in fitting

- cut the plastic tube square
- make sure the outside of the plastic tube is not damaged.

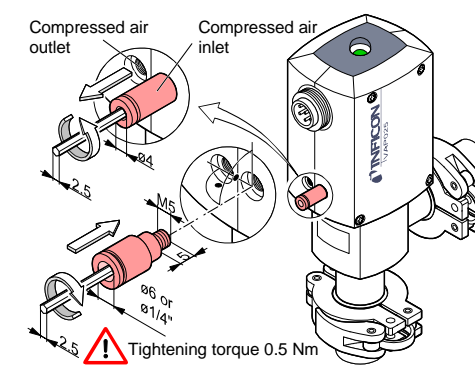
**Caution**

Caution: plastic thread  
The plastic thread is damaged by tilting or overturning the instant push-in fitting.

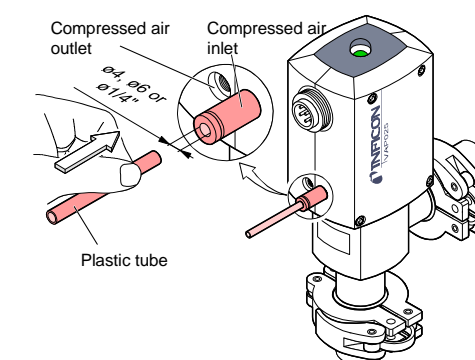
- use the enclosed instant push-in fitting (with extra-long thread) only.
- screw in the instant push-in fitting without tilting it and without exceeding the tightening torque of 0.5 Nm.

### Compressed Air Inlet

For connection of a ø6 mm or ø¼" plastic tube, exchange the instant push-in fitting.

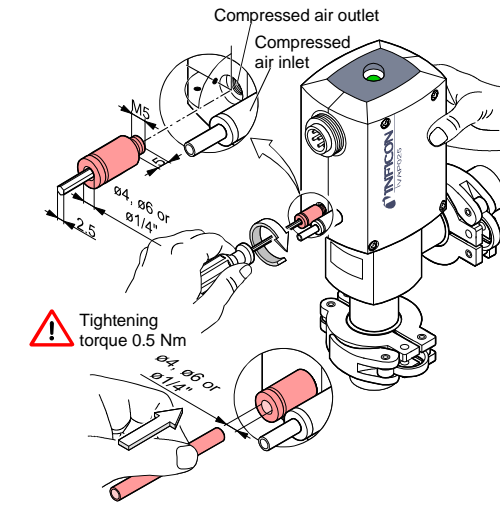


Push the tube into the instant push-in fitting until the mechanical stop is reached. Check that it is correctly mounted by slightly pulling.



### Compressed Air Outlet

Screw in the enclosed instant push-in fitting for exhausting the compressed air if necessary. Push the tube into the instant push-in fitting until the mechanical stop is reached. Check that it is correctly mounted by slightly pulling.



### Power Connection

**Skilled personnel**

The electrical connection, in accordance with the VDE 0100 guidelines, may be made only by a licensed electrician, qualified as per VDE 0105. The line cables shall be isolated from the line supply during all electrical work.

**Caution**

The cable must meet the following specifications:

- flexible
- conductor cross-section ≤0.75 mm<sup>2</sup>
- cable cross-section ≤10 mm
- 4-pole without protective conductor or 5-pole with protective conductor.

### Preparing the connector

- Slide the screw fitting, connector housing, and strain relief on the cable.

