



VAT Vakuumventile AG  
CH-9469 Haag, Schweiz

# PRODUCT DATA SHEET 283967ED

## Transfer Valve / Insert L-VAT Actuator

### Series 042 / 052

### Description

Intended use transfer valve / insert for load lock & process module isolation  
 Valve Body valve type A & B, insert type C \*)  
 Flange see dimensional drawing  
 Actuator Single-shaft double acting L-motion actuator  
 Feedthroughs welded metal bellows, protected convolutions

### Technical Data

**LEAK RATES** (at room temperature 25°C and under clean environmental conditions)

Sealing surface	FKM seals	FFKM seals	
Metallic blank (milled / ball polished)	Body $<1 \cdot 10^{-9}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-9}$ mbar l s <sup>-1</sup>	Body $<1 \cdot 10^{-8}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-7}$ mbar l s <sup>-1</sup>	
Alu, hard anodized	Body $<1 \cdot 10^{-5}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-4}$ mbar l s <sup>-1</sup>	Body $<1 \cdot 10^{-5}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-4}$ mbar l s <sup>-1</sup>	<b>Measuring conditions:</b> Body: 30s, He-Conc. $\geq 20\%$ Seat: 15s, He-Conc. $\geq 30\%$
Alu, Ni plated	Body $<1 \cdot 10^{-9}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-9}$ mbar l s <sup>-1</sup>	Body $<1 \cdot 10^{-8}$ mbar l s <sup>-1</sup> Seat $<1 \cdot 10^{-7}$ mbar l s <sup>-1</sup>	

Automatic leak rate supervision  
dp = 1bar

**PRESSURE RANGES** (at room temperature 25°C, under clean environmental conditions)

- Metallic blank or Ni plated  $1 \cdot 10^{-9}$  mbar to 1.2 bar (abs)
- Alu hard anodized  $1 \cdot 10^{-6}$  mbar to 1.2 bar (abs)
- Metal seal  $5 \cdot 10^{-10}$  mbar to 1.2 bar (abs)

Differential pressure on the gate 1.2 bar \*) in either direction

Differential pressure at opening  $\leq 30$  mbar \*) in either direction

**CYCLE LIFE** between maintenance

(under clean vacuum conditions, operated with standard actuation speed and standard compression)

- actuator (pneumatic and mechanical parts) 3 million \*)
- bellows (AM 350) 3 million \*)

**Operating TEMPERATURES**

- valve body aluminum  $<150^\circ\text{C}$ ; recommended  $<120^\circ\text{C}$
- pneumatic actuator  $<80^\circ\text{C}$  \*)
- position indicator  $<80^\circ\text{C}$  \*)

Temperature difference between seat and gate  $\leq 40^\circ\text{C}$

Heating and cooling rate  $\leq 40^\circ\text{C h}^{-1}$

**Mounting position**

Actuator downwards

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#### MATERIAL

- valve body and gate: aluminum EN AW-6082 \*)
- gate: stainless steel AISI 316L (1.4435, 1.4404)
- bellows end pieces, rod AISI 316L (1.4435, 1.4404)
- bellows AISI 633 (AM 350)
- seal: gate, bonnet, valve body flange FKM \*)

#### WEIGHT

- 04210-BA24-0001 17kg
- 04212-BA24-0001 18kg
- 05210-LA24-0001 (insert with actuator, bonnet flange and gate) 13kg
- 05212-LA24-0001 (insert with actuator, bonnet flange and gate) 14kg
- Insert with actuator and gate 10kg

#### ACTUATOR DATA

- Volume of the air cylinder 0.1l
- Vertical stroke 59mm

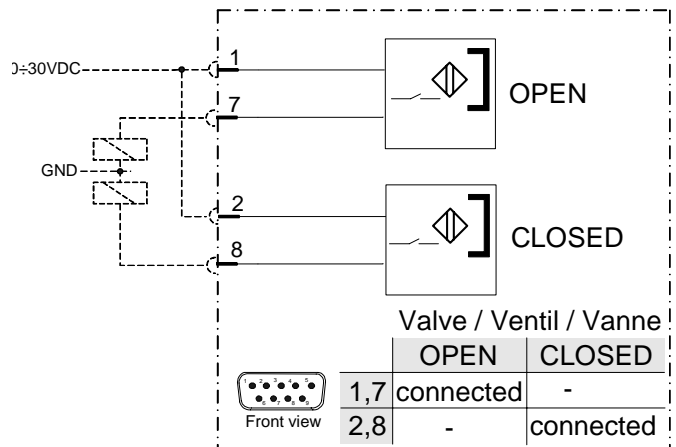
#### ELECTRICAL CONNECTION

- Type of connector D-Sub; 9 PIN male
- Position indicator contact rating see table below
- Action at power failure depends on type of solenoid
- Valve equipped with impulse solenoid
  - valve closed valve remains closed
  - valve open valve remains open
  - valve in operation a started movement will be completed

Standard: magnetic GMR, 2 wire

Operating voltage	[V]	10...30 DC **)
Operating temperature	[°C]	< 85
Current rating	[mA]	100
Minimum load current	[mA]	5
Short-circuit protection		yes (non-latching)
Reverse polarity protection		yes
Overload protection		yes
Voltage drop	[V]	< 3.5
Leakage current	[mA]	< 0.8
Hysteresis		< 0.5 [mm]
Repeatability		< 0.2 [mm]
Power-on delay time	[ms]	30
Switching frequency	[Hz]	4000

\*\*\*) operating voltage "supply class 2" to cULus.  
Load can also be in the lead wire (NPN)



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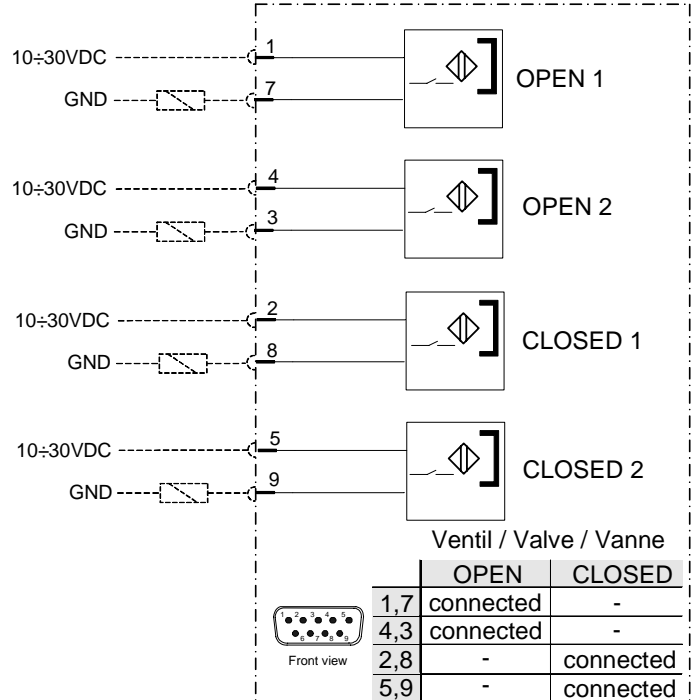
### Series 042 / 052

#### Option 1: magnetic GMR, 2 wire

Operating voltage	[V]	10...30 DC **)
Operating temperature	[°C]	< 85
Current rating	[mA]	100
Minimum load current	[mA]	5
Short-circuit protection		yes (non-latching)
Reverse polarity protection		yes
Overload protection		yes
Voltage drop	[V]	< 3.5
Leakage current	[mA]	< 0.8
Hysteresis		< 0.5 [mm]
Repeatability		< 0.2 [mm]
Power-on delay time	[ms]	30
Switching frequency	[Hz]	4000

\*\*\*) operating voltage "supply class 2" to cULus.

Load can also be in the lead wire (NPN)

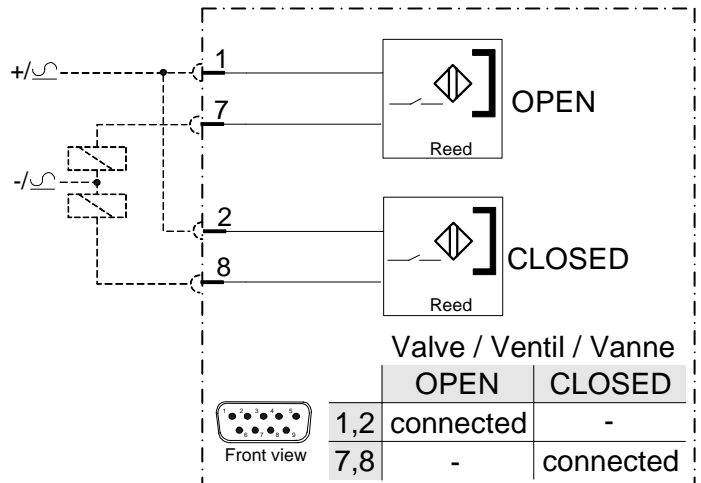


#### Option 2: magnetic Reed, 2 wire

Operating voltage	[V]	4...30 AC/DC
Operating temperature	[°C]	-20...80
Current rating	[mA]	100
Turn off time	[ms]	0.2
Turn on time	[ms]	0.7
Switching output		Reed

#### Additional information:

Miniature fuse according IEC60127-2 Sheet 1, ≤ 2 A (quick/acting). Fuse must be in load line.



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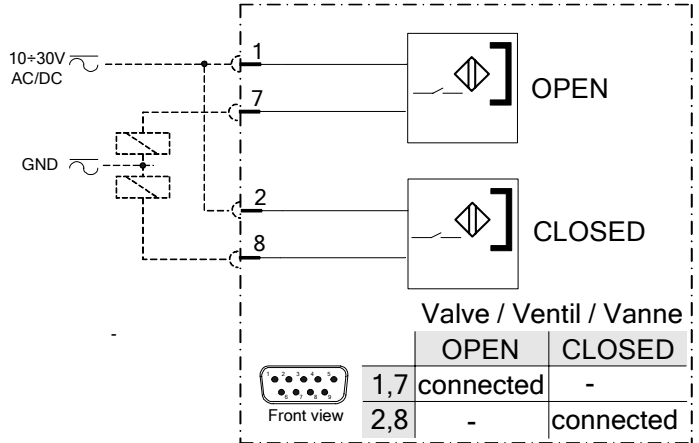
Option 3: magnetic Reed 150°C, 2 wire

Operating voltage	[V]	10...30 AC/DC
Voltage drop	[V]	- 2.7
Switching current	[A]	0.18 max.
Contact rating	[W/VA]	10 max.

**Caution:**

Exceeding of specified max. values for contact rating, switching current and - voltage might cause reduced life time. Avoid voltage spikes!

Circuit time	[ms]	1,8
Operating temperature	[°C]	-20...150
Protection class		IP 66 (DIN 40050)
Shock resistance	[g]	50 (for 11 ms)
Dynamic strength	[g]	35 (at 2000 Hz)



**COMPRESSED AIR SUPPLY**

- Compressed air pressure
- Compressed air connections
  - without solenoid
  - with solenoid

use only clean, dry or slightly oiled air  
5 – 7 bar / 75 – 100 psi \*)  
connections „open“ and „closed“  
internal threads 1/8" (ISO /NPT) \*)  
internal thread M5 \*)

Action at compressed air failure

- valve closed
- valve open

undefined \*)  
valve remains closed if non-return valve installed (>6h)  
undefined \*)  
valve remains open if non-return valve installed (>6h)

**ACTUATION TIME**

- closing time ≤ 1 s
- opening time ≤ 1 s

Valid for flow rate min. 300 SLPM, tube length <2m, operational pressure >5 bar

\*) *Standard specification. Specifications for optional features are provided on the dimensional drawing of the product.*

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