



VAT Vakuumventile AG
CH-9469 Haag, Schweiz

Product data sheet

Transfer valve L-VAT Series 042 / 052

Description

Intended use	transfer valve / insert for load lock & process module isolation
Valve body	type A & B
Insert bonnet flange	type L
Interface	see dimensional drawing
Actuator	single-shaft double acting J-motion actuator
Feedthrough	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 (FKM Zalak® 5100)	
Metallic blank (milled / ball polished)	Body <math><1\cdot10^{-9}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-9}</math> mbar l s ⁻¹	Body <math><1\cdot10^{-8}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-7}</math> mbar l s ⁻¹	
Alu, hard anodized	Body <math><1\cdot10^{-5}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-4}</math> mbar l s ⁻¹	Body <math><1\cdot10^{-5}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-4}</math> mbar l s ⁻¹	Measuring conditions: Body: 30s, He-Conc. ≥ 20% Seat: 15s, He-Conc. ≥ 30% Automatic leak rate supervision dp = 1bar
Alu, Ni plated	Body <math><1\cdot10^{-9}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-9}</math> mbar l s ⁻¹	Body <math><1\cdot10^{-8}</math> mbar l s ⁻¹ Seat <math><1\cdot10^{-7}</math> mbar l s ⁻¹	

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)

Differential pressure on the gate	1.2 bar *) in either direction
Differential pressure at opening	≤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 / gate aluminum	<math><150^{\circ}\text{C}</math> (recommended <math><120^{\circ}\text{C}</math>)
- pneumatic actuator	<math><80^{\circ}\text{C}</math> *)
- position indicator	<math><80^{\circ}\text{C}</math> *)
Temperature difference between seat and gate	≤40°C
Heating and cooling rate	≤40°C h ⁻¹

Created by: PRA	Release date: 31.03.2020	1/4
Modified by:	Release date:	1031145EA



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MOUNTING POSITION

Actuator downwards

MATERIAL

- valve body / gate aluminum	EN AW-6061
- bellows end pieces, rod	AISI 316L (1.4435, 1.4404)
- bellows	AISI 633 (AM 350)
- gate seal vulcanized	FKM Viton® *)
- bonnet flange seal	FKM Viton® *)
- valve body seal	FKM Viton® *)
- bellows seal	FKM Viton® *)

WEIGHTS TYPICALLY

- 04210-BA24-000x (valve)	≈14.2kg
- 04212-BA24-000x (valve)	≈15.6kg
- 05210-LA24-000x (insert)	≈11.1kg
- 05212-LA24-000x (insert)	≈11.6kg
- actuator with gate w/o bonnet flange	≈10.7kg

ACTUATOR DATA

- volume of air cylinder	0.1l
- stroke vertically	59mm

COMPRESSED AIR SUPPLY

- standard w/o check valve	use only clean, dry or slightly oiled air 5.0 – 7.0 bar / 72.5 – 101.5 psi *)
- incl. check valve (option)	5.5 – 7.0 bar / 79.8 – 101.5 psi *)

COMPRESSED AIR CONNECTIONS

- without solenoid	connections for „open“ and „close“ internal threads 1/8" (ISO /NPT) *)
- with solenoid	internal thread M5 *)

ACTION AT COMPRESSED AIR FAILURE

- valve closed	undefined *) valve remains closed if non-return valve installed (>6h)
- valve open	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 >5.0 bar.

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ELECTRICAL CONNECTION

Type of connector	D-Sub; 9 PIN male
Position indicator contact rating	see tables below
Action during power failure	depends on type of solenoid valve
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 (single, 1x open / 1x close)

<p>Operating voltage [V] 10...30 DC ¹⁾</p> <p>Operating temperature [°C] < 85</p> <p>Current rating [mA] 100</p> <p>Minimum load current [mA] 5</p> <p>Short-circuit protection yes (non-latching)</p> <p>Reverse polarity protection yes</p> <p>Overload protection yes</p> <p>Voltage drop [V] < 3.5</p> <p>Leakage current [mA] < 0.8</p> <p>Hysteresis < 0.5 [mm]</p> <p>Repeatability < 0.2 [mm]</p> <p>Power-on delay time [ms] 30</p> <p>Switching frequency [Hz] 4000</p> <p>1) Operating voltage "supply class 2" to cULus. Load can also be in the lead wire (NPN).</p>	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Valve/Ventil/Vanne</th> </tr> <tr> <th colspan="2"></th> <th>OPEN</th> <th>CLOSED</th> </tr> </thead> <tbody> <tr> <td>Front view</td> <td>1,7</td> <td>connected</td> <td>-</td> </tr> <tr> <td></td> <td>2,8</td> <td>-</td> <td>connected</td> </tr> </tbody> </table>			Valve/Ventil/Vanne				OPEN	CLOSED	Front view	1,7	connected	-		2,8	-	connected
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		OPEN	CLOSED														
Front view	1,7	connected	-														
	2,8	-	connected														

Option 1: Magnetic REED, 2-wire (single, 1x open / 1x close)

<p>Operating voltage [V] 4...30 AC/DC</p> <p>Operating temperature [°C] -20...80</p> <p>Current rating [mA] 100</p> <p>Turn off time [ms] 0.2</p> <p>Turn on time [ms] 0.7</p> <p>Switching output Reed</p> <p><u>Additional information:</u> Miniature fuse according IEC60127-2 Sheet 1, ≤ 2 A (quick/acting). Fuse must be in load line.</p>	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Valve/Ventil/Vanne</th> </tr> <tr> <th colspan="2"></th> <th>OPEN</th> <th>CLOSED</th> </tr> </thead> <tbody> <tr> <td>Front view</td> <td>1,7</td> <td>connected</td> <td>-</td> </tr> <tr> <td></td> <td>2,8</td> <td>-</td> <td>connected</td> </tr> </tbody> </table>			Valve/Ventil/Vanne				OPEN	CLOSED	Front view	1,7	connected	-		2,8	-	connected
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Option 2: Magnetic REED, 2-wire 150°C (single, 1x open / 1x close)

Operating voltage	[V]	10...30 AC/DC	<table border="1"> <thead> <tr> <th colspan="2"></th> <th>Valve/Ventil/Vanne OPEN</th> <th>CLOSED</th> </tr> </thead> <tbody> <tr> <td>1,7</td> <td>connected</td> <td>-</td> <td></td> </tr> <tr> <td>2,8</td> <td>-</td> <td></td> <td>connected</td> </tr> </tbody> </table>			Valve/Ventil/Vanne OPEN	CLOSED	1,7	connected	-		2,8	-		connected
		Valve/Ventil/Vanne OPEN		CLOSED											
1,7	connected	-													
2,8	-			connected											
Voltage drop	[V]	- 2.7													
Switching current	[A]	0.18 max.													
Contact rating	[W/VA]	10 max.													
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)													
Caution: Exceeding of specified max. values for contact rating, switching current and - voltage might cause reduced life time. Avoid voltage spikes!															

- Other options like double PI for open and close on request

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

Created by: PRA	Release date: 31.03.2020	4/4
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