

Series 04.3 Valve Series 05.3 Insert

Main applications

Transfer and process chamber isolation in semiconductor production systems for 200, 300 and 450 mm wafers

Corrosive processes such as etching and CVD

HB-LED manufacturing



Ordering information

Series 04.3
Valve with pneumatic actuator
double acting
with position indicator

SEMI E21.1-1296

DN (D1 × D)		Ordering numbers (* specify control voltage)			
mm	inch	aluminum		aluminum, hard anodized	
		without solenoid valve	with impulse solenoid valve	without solenoid valve	with impulse solenoid valve
50 × 336	1.97 × 13.23	04312-BA24	04312-BA44 *	04312-BH24	04312-BH44 *
50 × 480	1.97 × 18.90	on request	on request	on request	on request
56 × 496	2.20 × 19.53	04313-BA24	04313-BA44 *	04313-BH24	04313-BH44 *
80 × 500	3.15 × 19.69	04331-BA24	04331-BA44 *	04331-BH24	04331-BH44 *
100 × 800	3.94 × 31.50	04344-BA24	04344-BA44 *	04344-BH24	04344-BH44 *
Other sizes on request					

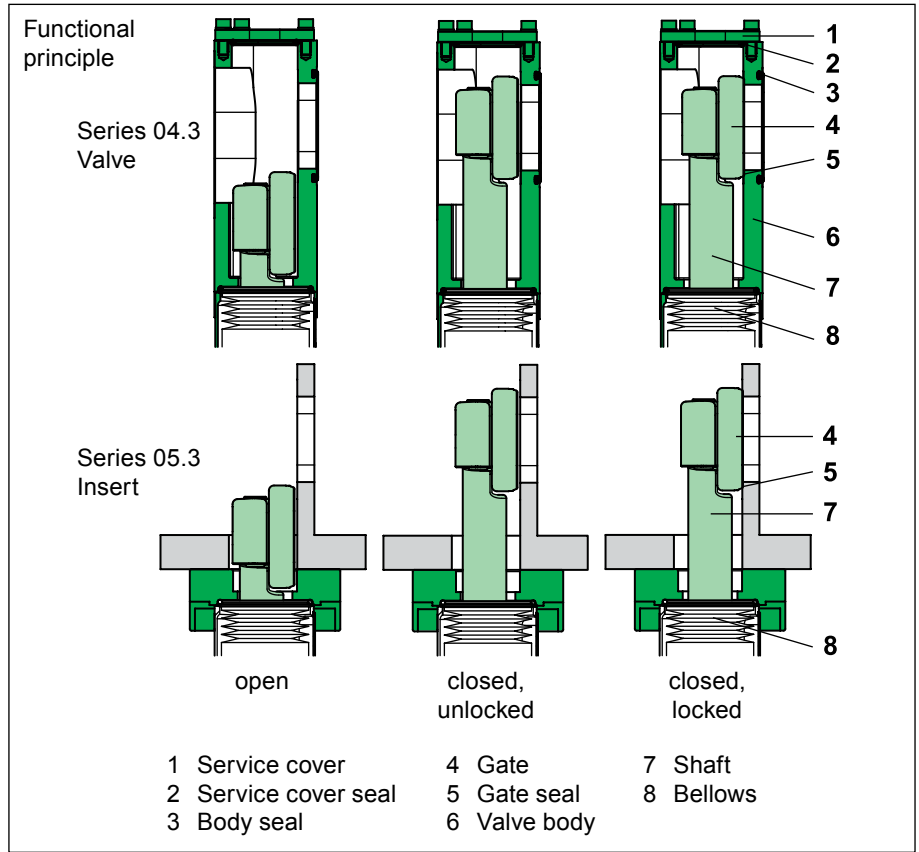
Series 05.3
Insert with pneumatic actuator
double acting
with position indicator

SEMI E21.1-1296

DN (D1 × D)		Ordering numbers (* specify control voltage)			
mm	inch	aluminum		aluminum, hard anodized	
		without solenoid valve	with impulse solenoid valve	without solenoid valve	with impulse solenoid valve
50 × 336	1.97 × 13.23	05312-LA24	05312-LA44 *	05312-LH24	05312-LH44 *
50 × 480	1.97 × 18.90	on request	on request	on request	on request
56 × 496	2.20 × 19.53	05313-LA24	05313-LA44 *	05313-LH24	05313-LH44 *
80 × 500	3.15 × 19.69	05331-LA24	05331-LA44 *	05331-LH24	05331-LH44 *
100 × 800	3.94 × 31.50	05344-LA24	05344-LA44 *	05344-LH24	05344-LH44 *
Other sizes on request					

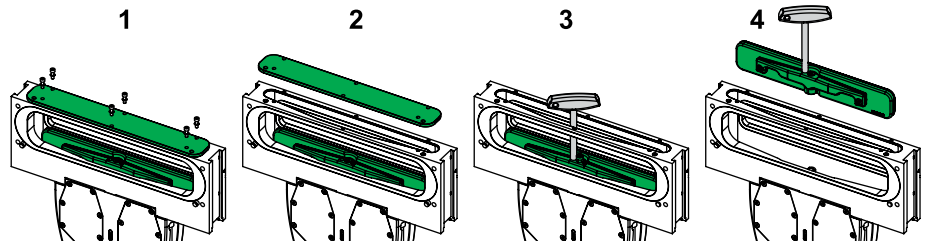
Features

- Body material:
aluminium or
aluminum, hard anodized
- Uniform compression and long lifetime
of the gate seal due to a real L-motion
- Virtually particle-free
- Vulcanized gate seal: see glossary
- Protected bellows
- Fast and smooth operation
- Adjustable sealing force for different
sealing materials
- Pneumatically locked in closed and open
position
- Service cover for easy maintenance



Easy maintenance

- 1 Remove screws
- 2 Remove service cover
- 3 Insert service tool
(see accessories)
- 4 Withdraw gate



Technical data

Leak rate ^{1) 2)} at valve body and valve seat in mbar ls⁻¹

Sealing surface	FKM (Viton®) seal		FFKM seal		metal seal
	body	seat	body	seat	body
Metal, blank (milled / ball polished)	< 1 · 10 ⁻⁹	< 1 · 10 ⁻⁹	< 1 · 10 ⁻⁸	< 1 · 10 ⁻⁷	< 5 · 10 ⁻¹⁰
Aluminum, hard anodized	< 1 · 10 ⁻⁵	< 1 · 10 ⁻⁴	< 1 · 10 ⁻⁵	< 1 · 10 ⁻⁴	(stainless steel only)
Aluminum, nickel-plated	< 1 · 10 ⁻⁹	< 1 · 10 ⁻⁹	< 1 · 10 ⁻⁸	< 1 · 10 ⁻⁷	

Pressure range

- Metal, blank or nickel-plated 1 · 10⁻⁹ mbar to 1.1 bar (abs)
- Aluminum, hard anodized 1 · 10⁻⁶ mbar to 1.1 bar (abs)
- Metal seal 5 · 10⁻¹⁰ mbar to 1.1 bar (abs)

Differential pressure on the gate

1.1 bar

Differential pressure at opening

- DN 50 × 336 up to 80 × 500 ≤ 30 mbar
- DN 100 × 800 ≤ 10 mbar

¹⁾ At room temperature (25 °C) and in a clean environment

²⁾ Measuring conditions:
 • body: 30 s, He concentration ≥ 20%
 • seat: 15 s, He concentration ≥ 30%
 Automatic leak rate supervision, dp = 1 bar

Further technical data on next page →

Continued Technical data

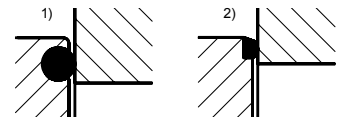
Cycles until first service	
– DN 50×336 up to 56×496	≥ 3 million
– DN 80×500 up to 100×800	≥ 2 million
Temperature ³⁾	
– Gate, valve body	≤ 120 °C
– Actuator	≤ 80 °C
Heating and cooling rate	≤ 40 °C h ⁻¹
Material	
– Valve body, gate, service cover	EN AW-6082 (3.2315), EN AW-5083 (3.3547), EN AW-6061 (3.3211)
– aluminum	
– stainless steel	AISI 316L (1.4404, 1.4435)
– Bellows end pieces, shaft	AISI 316L (1.4404)
– Bellows	AISI 633 (AM350)
Seal: gate, service cover	FKM (Viton®)
Mounting position	actuator up or down
Impulse solenoid valve	24 VDC, 2.5 W (others on request)
Position indicator: contact rating	
– Voltage	≤ 50 VAC/DC
– Current	≤ 0.1 A, > 5 mA
– Connection	9 pin subminiature D
Compressed air connection	
– DN 50×336 up to 80×500	quick connector O.D. 6 mm
– DN 100×800	quick connector O.D. 8 mm

³⁾ Maximum values: depending on operating conditions and sealing materials

DN (D1×D) D1 slit height D slit length		Compressed air min. – max. overpressure (integrated pressure controller)		Volume of pneumatic actuator		Closing or opening time	Weight			
							Valve		Insert	
mm	inch	bar	psi	l	ft ³	s	kg	lbs	kg	lbs
50×336	1.97×13.23	4–7	58–102	0.12	0.004	<1	15	33	11	24
50×480	1.97×18.90	5–7	73–102	0.12	0.004	<1	20.5	45	13	29
56×496	2.20×19.53	4–7	58–102	0.24	0.008	<1	30.5	67	28	62
80×500	3.15×19.69	5–7	73–102	0.36	0.012	<2	52	115	35	77
100×800	3.94×31.50	5–6	73–87	1.00	0.035	<3	92.5	204	78	172

Options

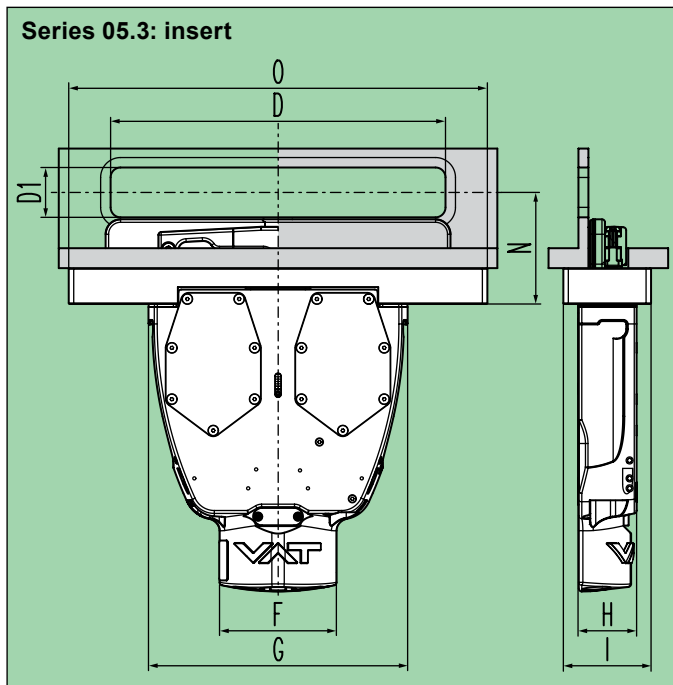
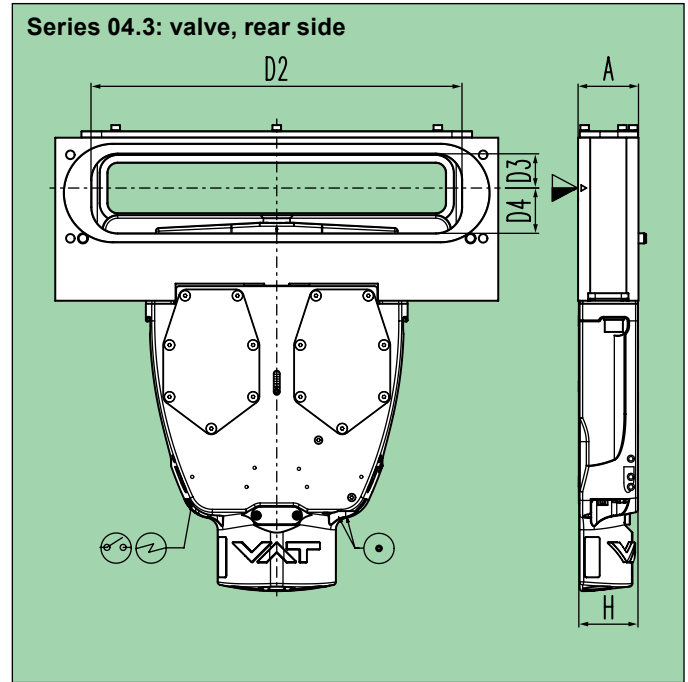
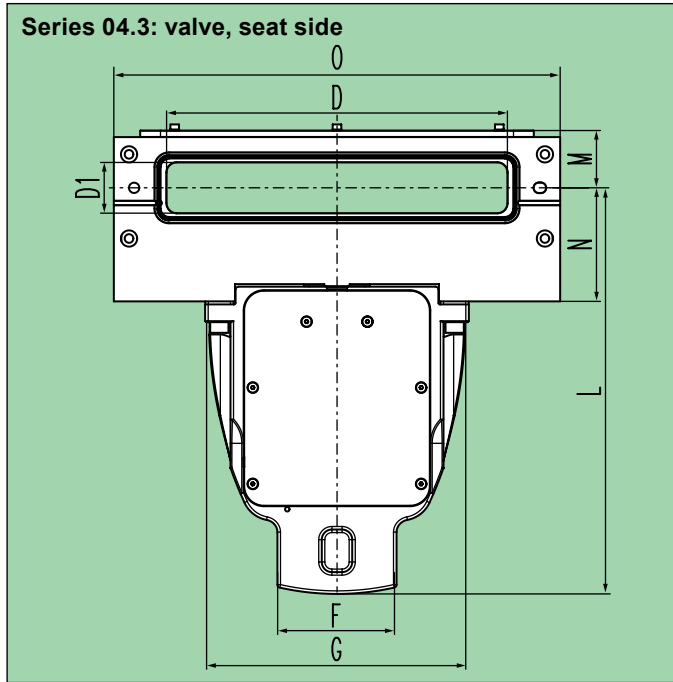
- Other solenoid valve voltage (standard: 24 VDC)
- Surface: aluminum, nickel-plated
- Other sealing materials:
e.g. perfluoro elastomer (FFKM), silicone (VMQ, FVMQ)
- O-ring seal ¹⁾ in gate (standard: vulcanized seal ²⁾)
- Heating and cooling equipment
- Double position indicator
- Stainless steel valve body and gate



Accessories

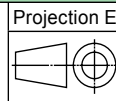
- **Service tool** for gate exchange
Ordering number on request

Dimensions



D1xD	50x336	50x480	56x496	80x500	100x800
mm	50x336	50x480	56x496	80x500	100x800
inch	1.97x13.23	1.97x18.90	2.20x19.53	3.15x19.69	3.94x31.49
A	60	60	70	85	100
mm	60	60	70	85	100
inch	2.36	2.36	2.75	3.35	3.94
D	336	480	496	500	800
mm	336	480	496	500	800
inch	13.23	18.90	19.53	19.69	31.50
D1	50	50	56	80	100
mm	50	50	56	80	100
inch	1.97	1.97	2.20	3.15	3.94
D2	368.50	532	532	565	860
mm	368.50	532	532	565	860
inch	14.50	20.94	20.95	22.24	33.86
D3	34	39	34	60	70.50
mm	34	39	34	60	70.50
inch	1.39	1.54	1.39	2.36	2.78
D4	45	45	45	120	149
mm	45	45	45	120	149
inch	1.77	1.77	1.77	4.72	5.87
F	120	120	270	256	326
mm	120	120	270	256	326
inch	4.72	4.72	10.63	10.08	12.83
G	260	260	360	310	558
mm	260	260	360	310	558
inch	10.24	10.24	14.17	12.20	21.97
H	58.80	58.80	68	79	97
mm	58.80	58.80	68	79	97
inch	2.30	2.30	2.67	3.11	3.82
I	88	88	98	1)	1)
mm	88	88	98	1)	1)
inch	3.46	3.46	3.85		
L	400.50	400.50	473	586.70	704.20
mm	400.50	400.50	473	586.70	704.20
inch	15.77	15.77	18.62	23.10	27.72
M	56.50	70	70	110	122.50
mm	56.50	70	70	110	122.50
inch	2.23	2.75	2.75	4.33	4.82
N	112	112	128.50	183.70	226.70
mm	112	112	128.50	183.70	226.70
inch	4.41	4.41	5.06	7.23	8.93
O ²⁾	440	600	600	650	926
mm	440	600	600	650	926
inch	17.32	23.62	23.62	25.60	36.46
O ³⁾	420	540	570	-	-
mm	420	540	570	-	-
inch	16.54	21.26	22.40	-	-

- ▼ Valve seat side
- ⊕ Electrical connection
- ⊙ Compressed air connection
- ⊖ Position indicator



1) On request
 2) Valve
 3) Insert