

VACUUM PUMPS / Keyboard pumps – Mini series

VKM5 / VKX5

Features and Strengths

- Multi-stage vacuum ejector
- Integrated pleated filter with high dirt capacity & Auto-cleaning system
- Quick response time
- Long life time
- Compact size and light weight



Specifications

Description	VKM5	VKX5
Max. Vacuum level	-85 kPa	-92 kPa
Open Vacuum flow	26 NI/min	23 NI/min
Max. Feed pressure	7 bar	7 bar
Temperature	-20 ~ 80 °C	-20 ~ 80 °C
Noise level	50 ~ 65 dbA	50 ~ 65 dbA
Weight	96g	96g

Vacuum Flow

Model	Max. vacuum (-kPa)	Vacuum flow (NI/min) at different vacuum levels (-kPa)									
		0	10	20	30	40	50	60	70	80	90
VKM5	85	26	15	12	11	10	8	5.5	2.8	0.7	-
VKX5	92	23	12	8	7	6	5	4	2.7	1.2	0.45

Evacuation Time

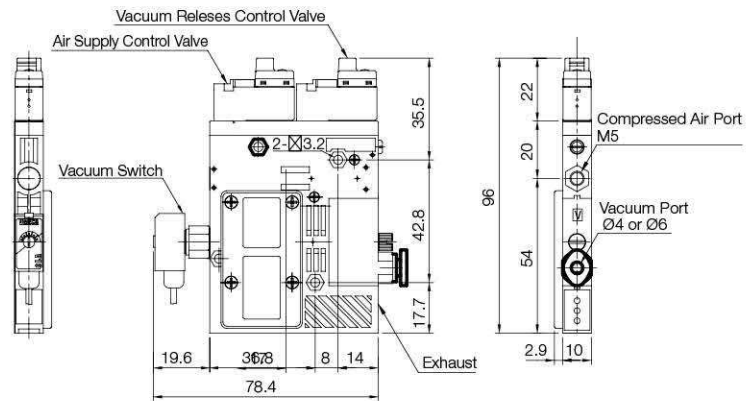
Model	Air Consumption (NI/min)	Evacuation time in sec / liter to reach different vacuum levels (-kPa)								
		10	20	30	40	50	60	70	80	90
VKM5	21	0.22	0.56	1.18	1.58	2.36	3.44	5.27	10.22	-
VKX5	22	0.26	0.80	1.52	2.4	3.38	4.91	6.89	10.16	19

I Dimensions – VKM5 / VKX5 series

[Unit : mm]

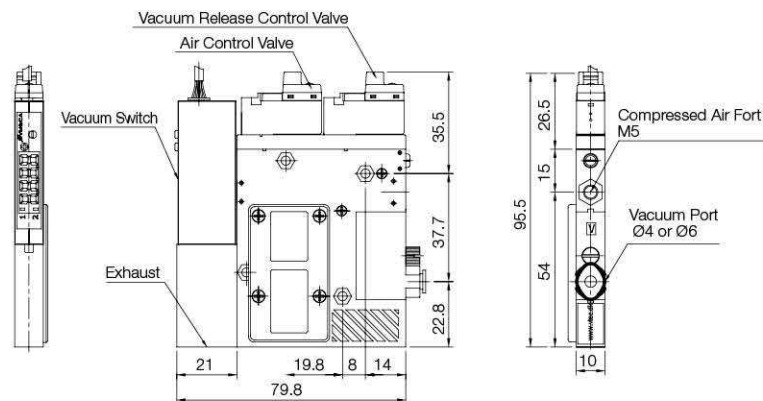
Single unit

Control valve Connector type / Flashing lamp display vacuum switch



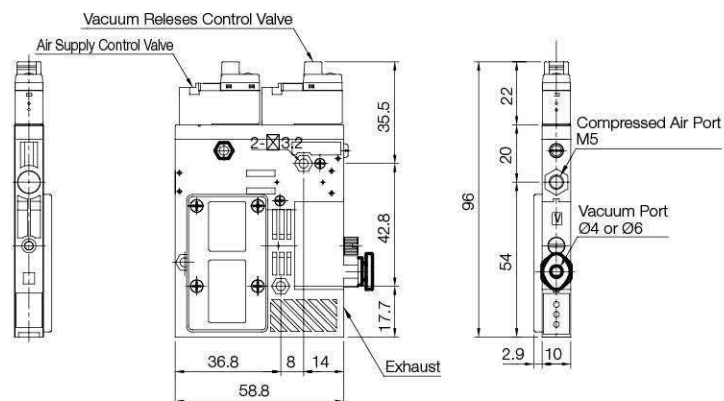
Single unit

Control valve Connector type / Digital vacuum switch



Single unit

Control valve Connector type / Basic



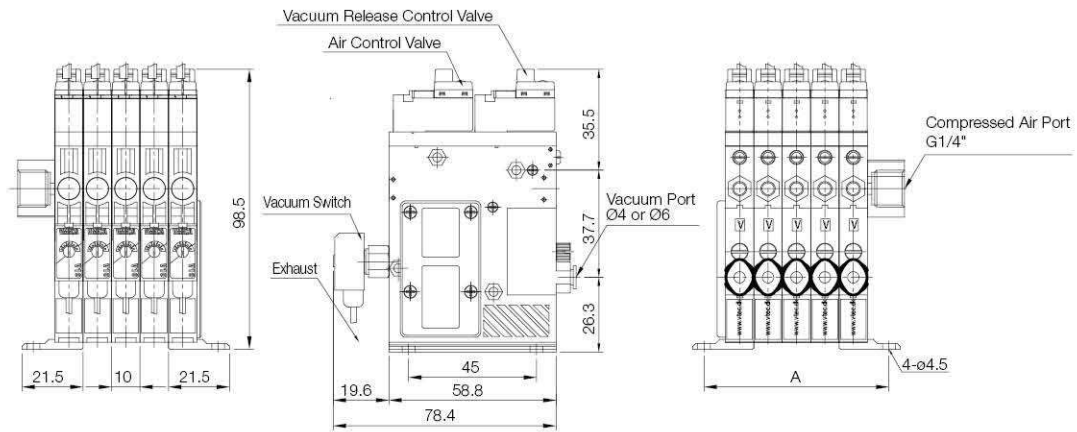
VACUUM PUMPS / Keyboard pumps – Mini series

Dimension

[Unit : mm]

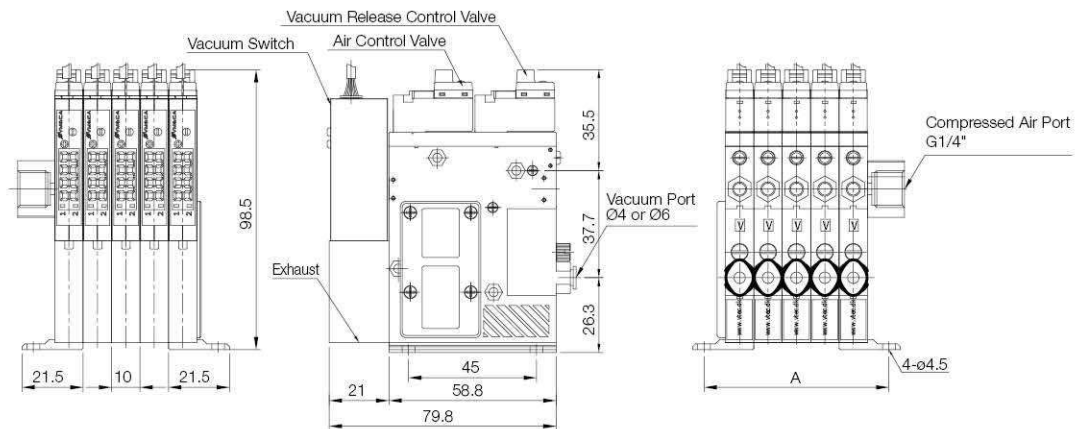
Manifold unit

Control valve Connector type / Flashing lamp display vacuum switch



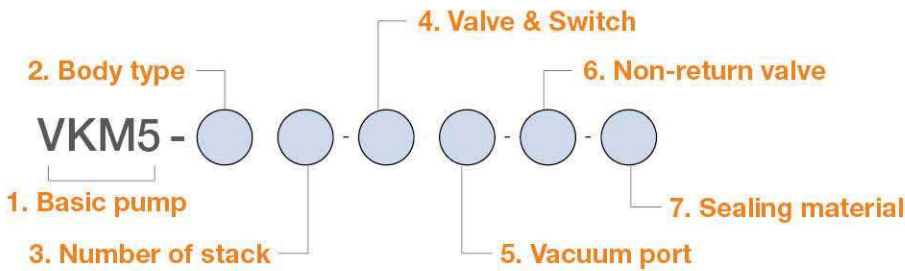
Manifold Unit with central exhaust unit

Control valve Connector type / Digital vacuum switch



VACUUM PUMPS / Keyboard pumps – Mini series

I Build an Ordering No.



1. Basic pump	Description	Symbol
	Mini Keyboard pump – “X” type	VKX5
	Mini Keyboard pump – “M” type	VKM5

2. Body type	Description	Symbol
	Single unit	S
	Manifold unit	M
	Manifold unit with central exhaust type	E

3. Number of stack	Description	Symbol
	Single stack	1
	2 stacks	2
	3 stacks	3
	4 stacks	4
	5 stacks	5
	6 stacks	6
	7 stacks	7
	8 stacks	8
	9 stacks	9
	10 stacks	10

4. Valve & Switch	Description	Symbol
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed), Digital Vacuum switch, NPN	A
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed), Digital Vacuum switch, PNP	AP
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed), LED Vacuum switch, NPN	AL
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed), LED vacuum switch, PNP	ALP
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed), Digital Vacuum switch, NPN	B
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed), Digital Vacuum switch, PNP	BP
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed), LED Vacuum switch, NPN	BL
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed), LED Vacuum switch, PNP	BLP
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed)	C
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed)	D
	Air control valve : N.C (Normal Closed), Digital Vacuum switch, NPN	E
	Air control valve : N.C (Normal Closed), Digital Vacuum switch, PNP	EP
	Air control valve : N.C (Normal Closed), LED Vacuum switch, NPN	EL
	Air control valve : N.C (Normal Closed), LED Vacuum switch, PNP	ELP
	Air control valve : N.O (Normal Open), Digital Vacuum switch, NPN	F
	Air control valve : N.O (Normal Open), Digital vacuum switch, PNP	FP
	Air control valve : N.O (Normal Open), LED Vacuum switch, NPN	FL
	Air control valve : N.O (Normal Open), LED vacuum switch, PNP	FLP
	Air control valve : N.C (Normal Closed)	G
	Air control valve : N.O (Normal Open)	H
	Vacuum release valve : N.C (Normal Closed), Digital Vacuum switch, NPN	I
	Vacuum release valve : N.C (Normal Closed), Digital vacuum switch, PNP	IP
	Vacuum release valve : N.C (Normal Closed), LED Vacuum switch, NPN	IL
	Vacuum release valve : N.C (Normal Closed), LED vacuum switch, PNP	ILP
	Digital Vacuum switch, NPN	J
	Digital vacuum switch, PNP	JP
	LED Vacuum switch, NPN	JL
	LED vacuum switch, PNP	JLP
	Vacuum release valve : N.C (Normal Closed)	K
	- The valves are available only with DC24V	
	- The valves are connector type with 0.3m lead wire & lamp	

I Build an Ordering No.

5. Vacuum port	Description	Symbol
	Ø4 hose fitting	4
	Ø6 hose fitting	6
6. Non-return valve	Description	Symbol
	No non-return valve	Blank
	Non-return valve	N
7. Sealing material	Description	Symbol
	NBR	Blank
	VITON	V
	EPDM	E

I Spare Parts – Filter

Part No.	Description
FCK05-A3-4-N	Filter cover case for Ø4 hose fitting, Fix bolt, Gasket
FCK05-A3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket
FCK05-F3-4-N	Filter cover case for Ø4 hose fitting, Fix bolt, Gasket, Filter element
FCK05-F3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket, Filter element
VTFE-K05	Vacuum filter element

VACUUM PUMPS / Keyboard pumps – Midi series

VKM61 / VKX61

Features and Strengths

- Multi-stage vacuum ejector
- Integrated pleated filter with high dirt capacity & Auto-cleaning system
- Quick response time
- Long life time
- Compact size and light weight



Specifications

Description	VKM61	VKX61
Max. Vacuum level	-85 kPa	-92 kPa
Open Vacuum flow	37 NI/min	31 NI/min
Max. Feed pressure	7 bar	7 bar
Temperature	-20 ~ 80 °C	-20 ~ 80 °C
Noise level	50 ~ 65 dbA	50 ~ 65 dbA
Weight	213.5 g	213.5 g

Vacuum Flow

Model	Max. vacuum (-kPa)	Vacuum flow (NI/min) at different vacuum levels (-kPa)									
		0	10	20	30	40	50	60	70	80	90
VKM61	85	37	26	16	14	10	8	6	2.7	0.66	-
VKX61	92	31	18	9	8	7	5	4	2.7	1.2	0.46

Evacuation Time

Model	Air Consumption (NI/min)	Evacuation time in sec / liter to reach different vacuum levels (-kPa)								
		10	20	30	40	50	60	70	80	90
VKM61	15 ~ 21	0.218	0.556	1	1.576	2.356	3.44	5.27	10.216	-
VKX61	21 ~ 24	0.258	0.796	1.516	2.4	3.56	4.91	6.896	10.16	19.19

VKM62 / VKX62

Features and Strengths

- Multi-stage vacuum ejector
- Integrated pleated filter with high dirt capacity & Auto-cleaning system
- Quick response time
- Long life time
- Compact size and light weight



Specifications

Description	VKM62	VKX62
Max. Vacuum level	-85 kPa	-92 kPa
Open Vacuum flow	74 NI/min	62 NI/min
Max. Feed pressure	7 bar	7 bar
Temperature	-20 ~ 80 °C	-20 ~ 80 °C
Noise level	50 ~ 65 dbA	50 ~ 65 dbA
Weight	213.5 g	213.5 g

Vacuum Flow

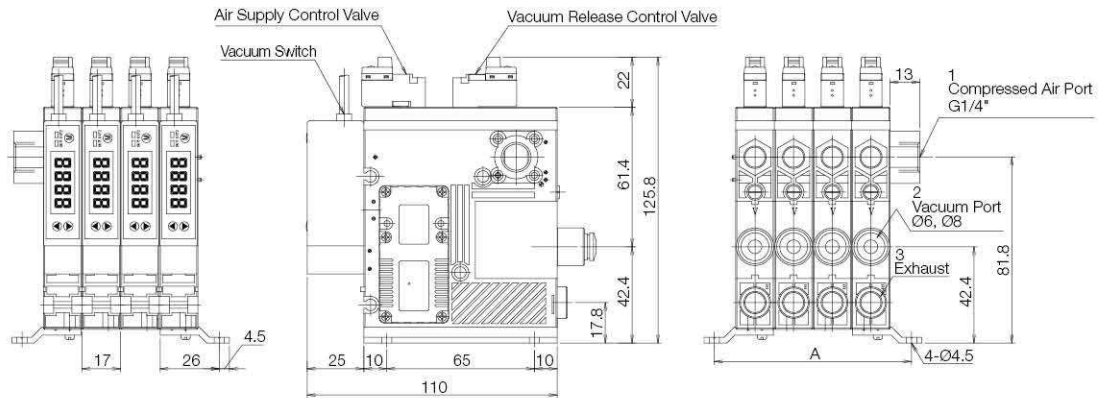
Model	Max. vacuum (-kPa)	Vacuum flow (NI/min) at different vacuum levels (-kPa)									
		0	10	20	30	40	50	60	70	80	90
VKM62	85	74	52	31	28	20	16	12	4.8	1.32	-
VKX62	92	62	36	18	16	13	11	9.0	5.4	2.4	0.9

Evacuation Time

Model	Air Consumption (NI/min)	Evacuation time in sec / liter to reach different vacuum levels (-kPa)								
		10	20	30	40	50	60	70	80	90
VKM62	30 ~ 42	0.109	0.278	0.5	0.788	1.178	1.72	2.635	5.158	-
VKX62	43 ~ 48	0.129	0.398	0.758	1.2	1.78	2.455	3.445	5.08	9.549

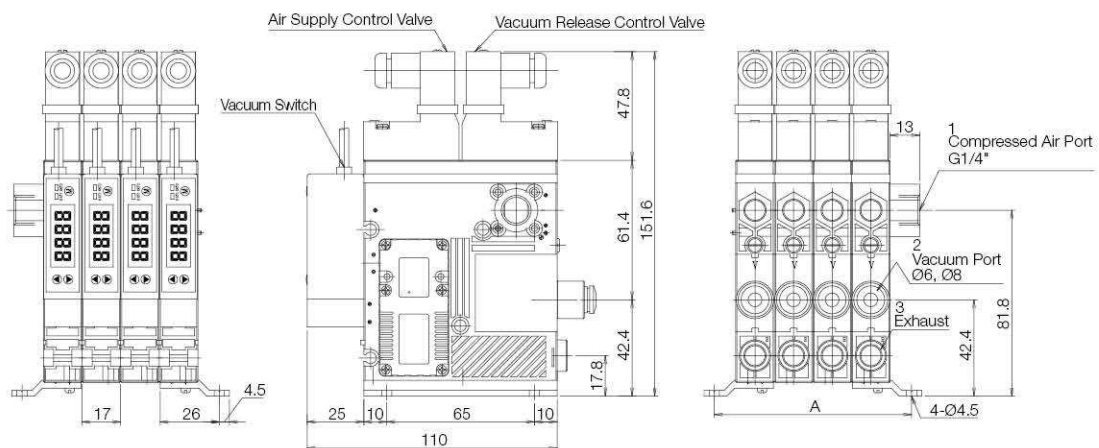
Manifold unit

Control valve Connector type / Digital vacuum switch



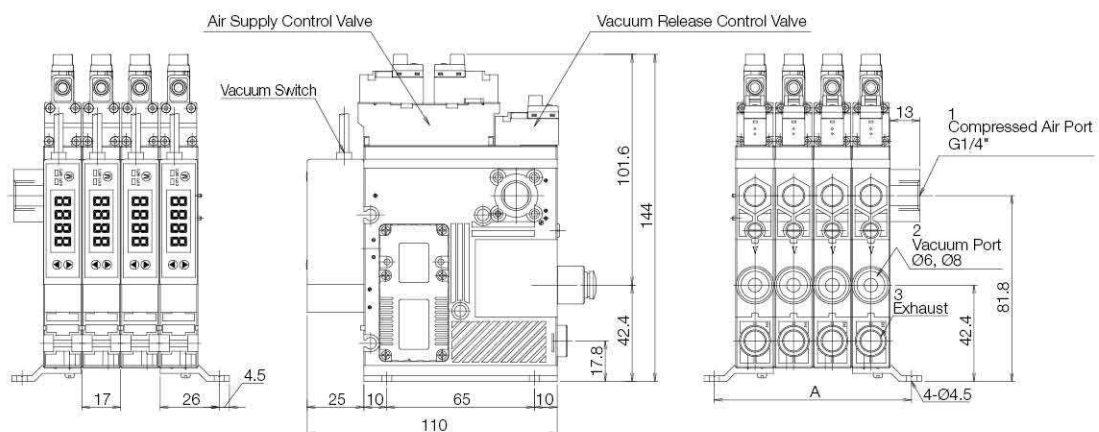
Manifold unit

Control valve DIN type / Digital vacuum switch



Manifold unit

Control valve double solenoid type / Digital vacuum switch



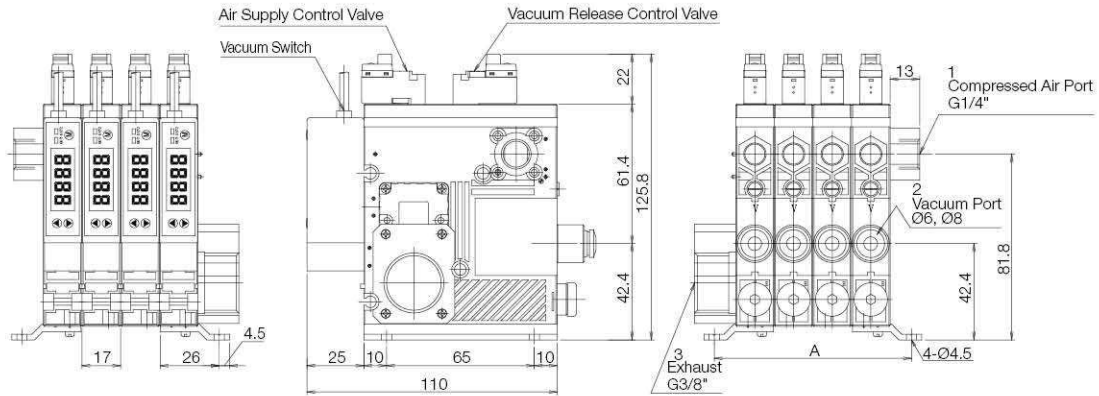
VACUUM PUMPS / Keyboard pumps – Midi series

Dimension

[Unit : mm]

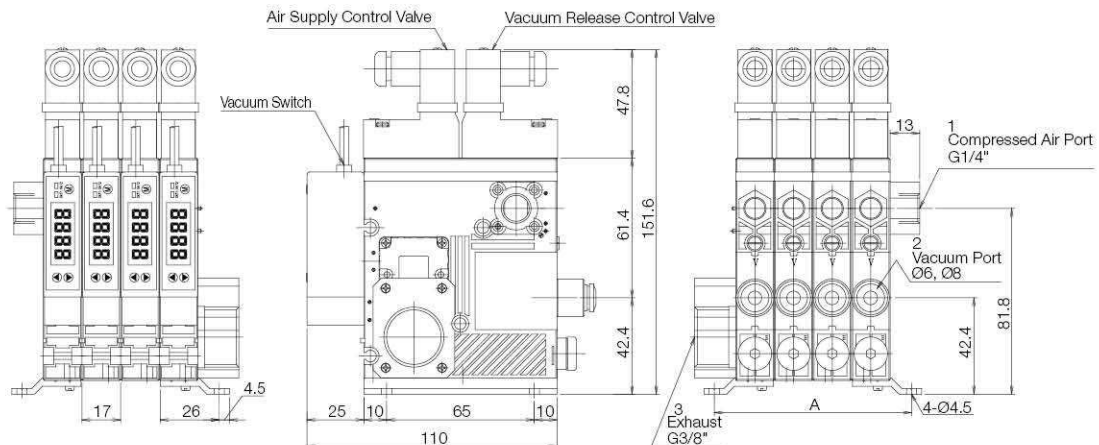
Manifold unit with central exhaust

Control valve Connector type / Digital vacuum switch



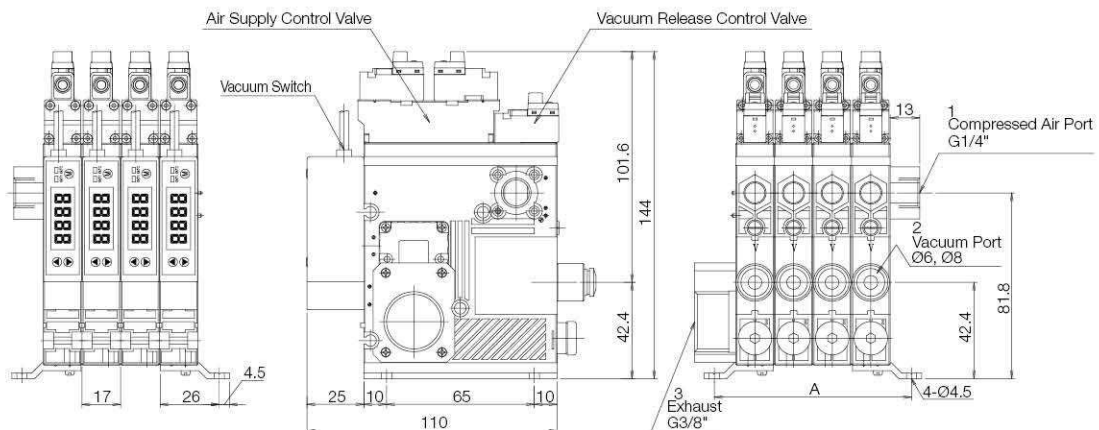
Manifold unit with central exhaust

Control valve DIN type / Digital vacuum switch



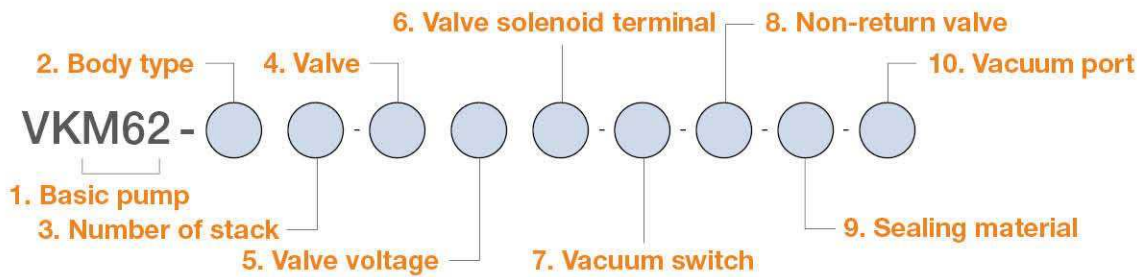
Manifold unit with central exhaust

Control valve double solenoid type / Digital vacuum switch



VACUUM PUMPS / Keyboard pumps – Midi series

I Build an Ordering No.



1. Basic pump	Description	Symbol
	Midi Keyboard pump – “X” type	VKX61
	Midi Keyboard pump – “M” type	VKM61
	Midi Keyboard pump – “X” type	VKX62
	Midi Keyboard pump – “M” type	VKM62

2. Body type	Description	Symbol
	Single unit	S
	Manifold unit	M
	Manifold unit with central exhaust type	E

3. Number of stack	Description	Symbol
	Single stack	1
	2 stacks	2
	3 stacks	3
	4 stacks	4
	5 stacks	5
	6 stacks	6
	7 stacks	7
	8 stacks	8

4. Valve	Description	Symbol
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed)	A
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed)	B
	Air control valve : N.C (Normal Closed)	C
	Air control valve : N.O (Normal Open)	D
	Vacuum release valve : N.C (Normal Closed)	E
	Air control valve : Double solenoid valve / Vacuum release valve : N.C (Normal Closed)	W
	- Double solenoid valve “W” is available only with DC24V and Connector type valve terminal	

5. Valve voltage	Description	Symbol
	AC110V	1
	AC220V	2
	DC24V	3

6. Valve terminal	Description	Symbol
	Solenoid Terminal, DIN, No LW	1
	Solenoid Terminal, DIN, Lamp, No LW	2
	Solenoid Terminal, Conn, Lamp & 0.3m LW: Only available with DC24V	3
	Solenoid Terminal, DIN, 2 in 1 BUS cable: Not available with Double Solenoid Valve	2B
	Solenoid Terminal, DIN, 3 in 1 BUS cable: Not available with Double Solenoid Valve	3B
	Solenoid Terminal, DIN, 4 in 1 BUS cable: Available with Double Solenoid Valve	4B
	- 3B and 4B are available only with DC24V and C or PC vacuum switch	

I Build an Ordering No.

7. Vacuum switch	Description	Symbol
	No vacuum switch	Blank
	Digital switch, No analog supply, M8-4pins, NPN	C
	Digital switch, No analog supply, M8-4pins, PNP	PC
	Digital switch, No analog supply, Grommet, NPN	G
	Digital switch, No analog supply, Grommet, PNP	PG
	Digital switch, Analog supply, Grommet, NPN	GA
	Digital switch, Analog supply, Grommet, PNP	PGA
8. Non-return valve	Description	Symbol
	No non-return valve	Blank
	Non-return valve	N
9. Sealing material	Description	Symbol
	NBR	Blank
	VITON	V
	EPDM	E
10. Vacuum port	Description	Symbol
	Ø6 hose fitting	6
	Ø8 hose fitting	8

I Spare Parts – Filter

Part No.	Description
FCK62-A3-6	Filter cover case for Ø6 hose fitting, Fix bolt
FCK62-A3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket
FCK62-F3-6	Filter cover case for Ø6 hose fitting, Fix bolt, Filter element
FCK62-F3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket, Filter element
FCK62-A3-8	Filter cover case for Ø8 hose fitting, Fix bolt
FCK62-A3-8-N	Filter cover case for Ø8 hose fitting, Fix bolt, Gasket
FCK62-F3-8	Filter cover case for Ø8 hose fitting, Fix bolt, Filter element
FCK62-F3-8-N	Filter cover case for Ø8 hose fitting, Fix bolt, Gasket, Filter element
VTFE-K62	Filter element

VACUUM PUMPS / Keyboard pumps – Mega series

VKM73 / VKX73

Features and Strengths

- Multi-stage vacuum ejector
- Integrated pleated filter with high dirt capacity & Auto-cleaning system
- Quick response time
- Long life time
- Compact size and light weight



Specifications

Description	VKM73	VKX73
Max. Vacuum level	-85 kPa	-92 kPa
Open Vacuum flow	111 NI/min	94 NI/min
Max. Feed pressure	7 bar	7 bar
Temperature	-20 ~ 80 °C	-20 ~ 80 °C
Noise level	50 ~ 65 dbA	50 ~ 65 dbA
Weight	212 g	212 g

Vacuum Flow

Model	Max. vacuum (-kPa)	Vacuum flow (NI/min) at different vacuum levels (-kPa)									
		0	10	20	30	40	50	60	70	80	90
VKM73	85	111	78	47	42	30	24	18	7.2	1.98	-
VKX73	92	94	54	27	24	21	17	13.5	9	3.6	1.35

Evacuation Time

Model	Air Consumption (NI/min)	Evacuation time in sec / liter to reach different vacuum levels (-kPa)								
		10	20	30	40	50	60	70	80	90
VKM73	40 ~ 58	0.08	0.21	0.38	0.59	0.88	1.29	1.98	3.87	-
VKX73	49 ~ 66	0.1	0.3	0.57	0.9	1.34	1.84	2.58	3.81	7.2

VKM74 / VKX74

Features and Strengths

- Multi-stage vacuum ejector
- Integrated pleated filter with high dirt capacity & Auto-cleaning system
- Quick response time
- Long life time
- Compact size and light weight



Specifications

Description	VKM74	VKX74
Max. Vacuum level	-85 kPa	-92 kPa
Open Vacuum flow	135 NI/min	109 NI/min
Max. Feed pressure	7 bar	7 bar
Temperature	-20 ~ 80 °C	-20 ~ 80 °C
Noise level	50 ~ 65 dbA	50 ~ 65 dbA
Weight	212 g	212 g

Vacuum Flow

Model	Max. vacuum (-kPa)	Vacuum flow (NI/min) at different vacuum levels (-kPa)									
		0	10	20	30	40	50	60	70	80	90
VKM74	85	135	99	62	54	40	32	24	9.6	2.64	-
VKX74	92	109	72	35	32	27	22	18	12	4.8	1.8

Evacuation Time

Model	Air Consumption (NI/min)	Evacuation time in sec / liter to reach different vacuum levels (-kPa)								
		10	20	30	40	50	60	70	80	90
VKM74	54 ~ 78	0.05	0.14	0.25	0.39	0.59	0.86	1.32	2.58	-
VKX74	66 ~ 88	0.06	0.2	0.38	0.6	0.89	1.23	1.72	2.54	4.8

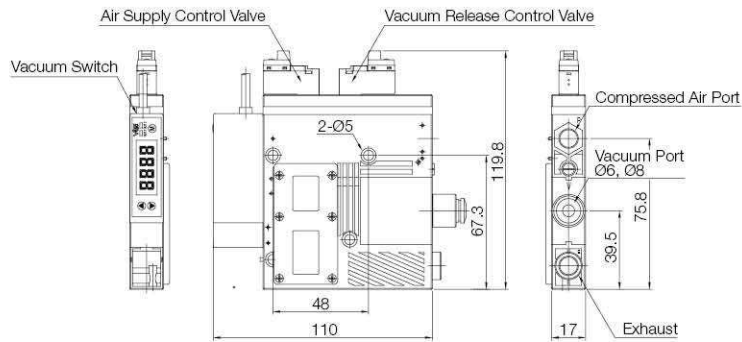
VACUUM PUMPS / Keyboard pumps – Mega series

I Dimensions – VKM73 / VKX73 series

[Unit : mm]

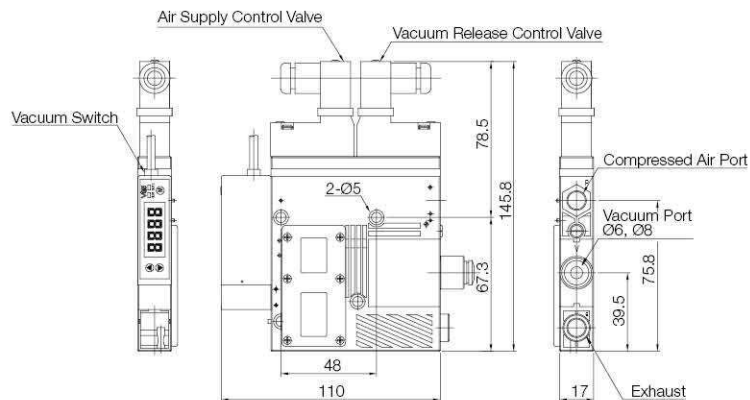
Single unit

Control valve Connector type / Digital vacuum switch



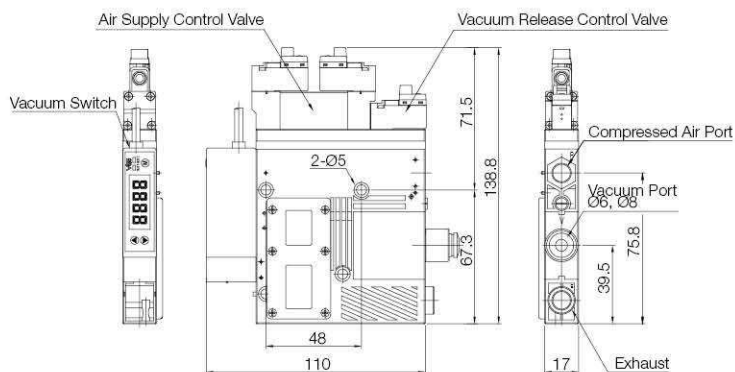
Single unit

Control valve DIN type / Digital vacuum switch



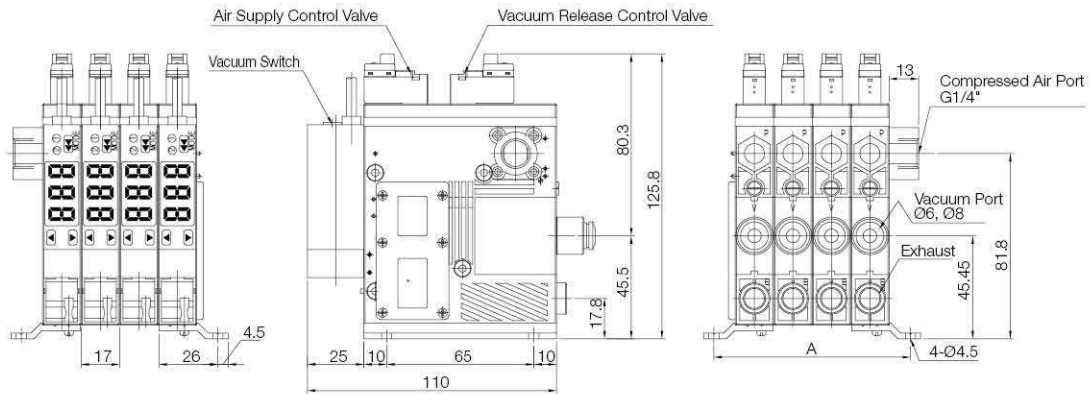
Single unit

Control valve double solenoid type / Digital vacuum switch



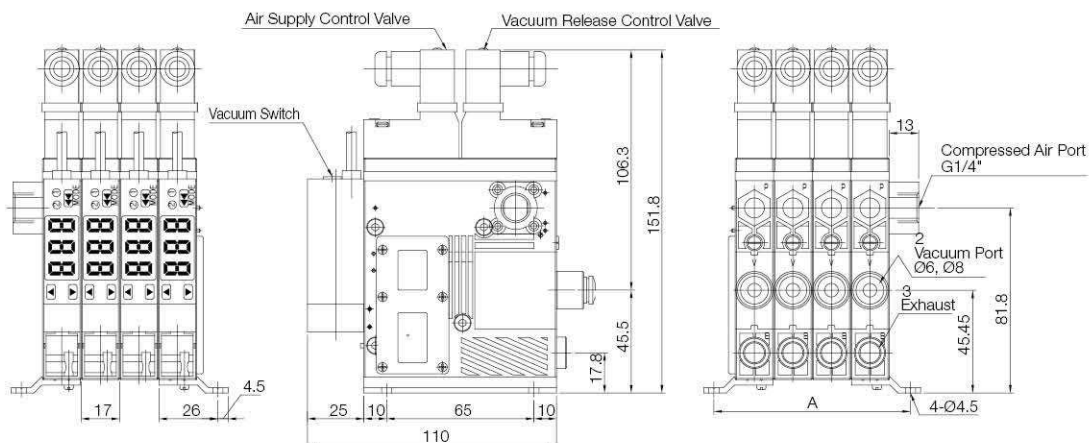
Manifold unit

Control valve Connector type / Digital vacuum switch



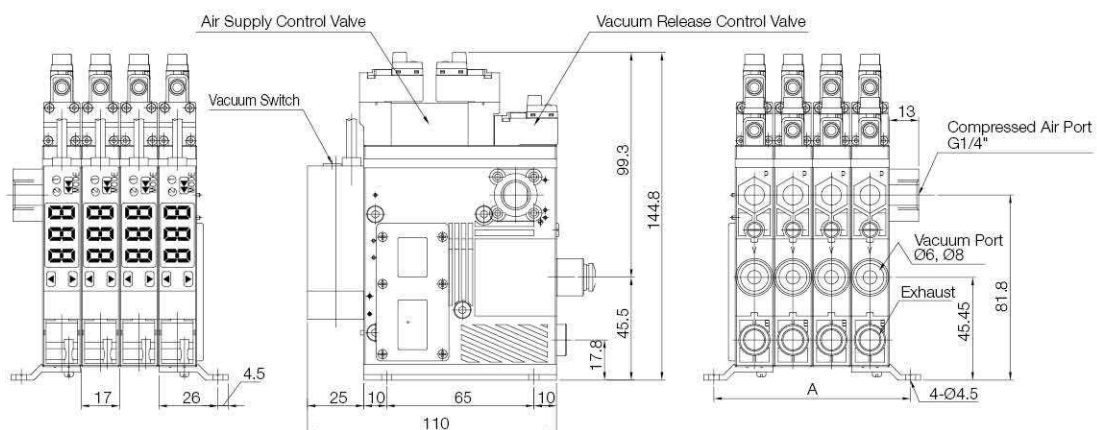
Manifold unit

Control valve DIN type / Digital vacuum switch



Manifold unit

Control valve double solenoid type / Digital vacuum switch



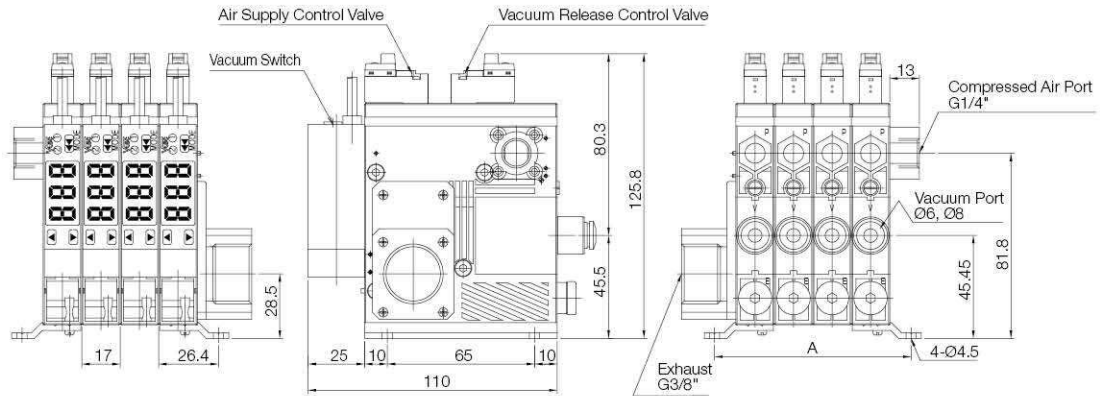
VACUUM PUMPS / Keyboard pumps – Mega series

Dimensions

[Unit : mm]

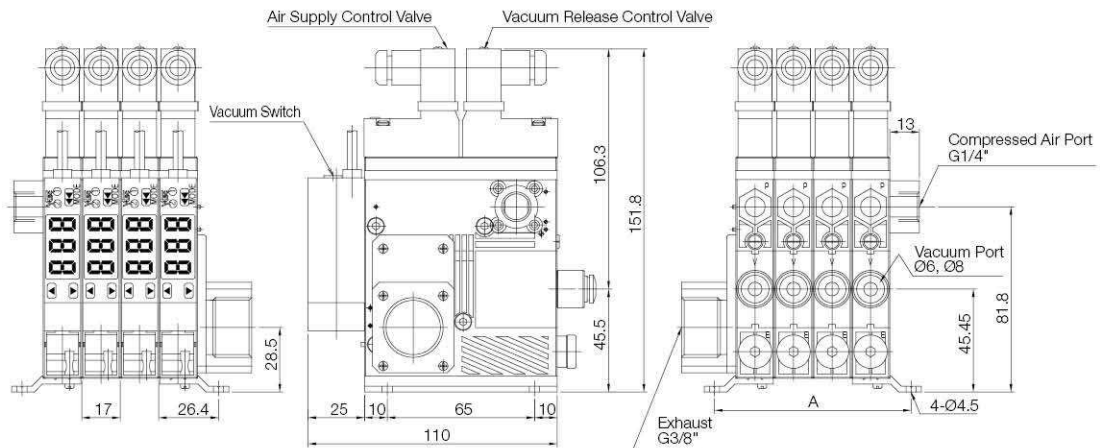
Manifold unit with central exhaust

Control valve Connector type / Digital vacuum switch



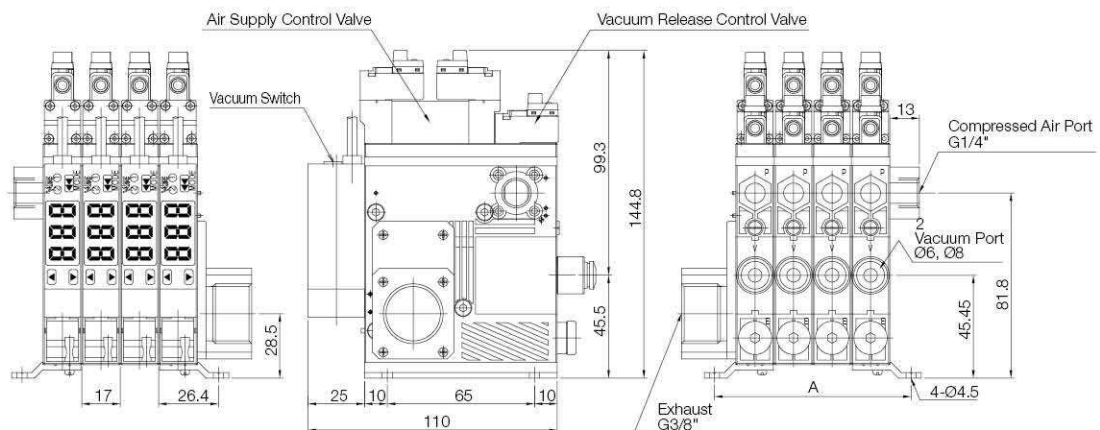
Manifold unit with central exhaust

Control valve DIN type / Digital vacuum switch



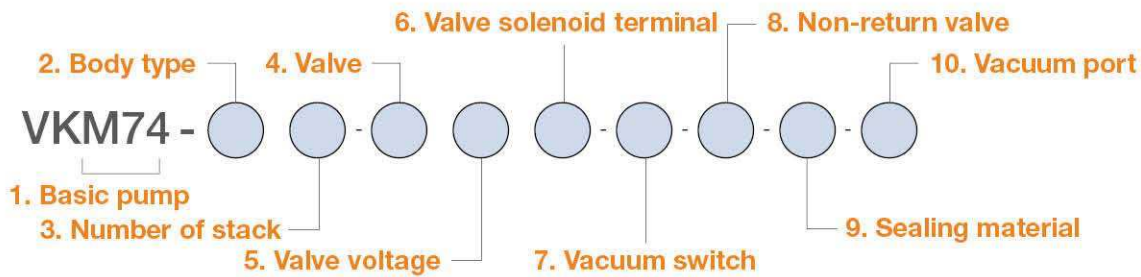
Manifold unit with central exhaust

Control valve double solenoid type / Digital vacuum switch



VACUUM PUMPS / Keyboard pumps – Mega series

I Build an Ordering No.



1. Basic pump	Description	Symbol
	Mega Keyboard pump – “X” type	VKX73
	Mega Keyboard pump – “M” type	VKM73
	Mega Keyboard pump – “X” type	VKX74
	Mega Keyboard pump – “M” type	VKM74

2. Body type	Description	Symbol
	Single unit	S
	Manifold unit	M
	Manifold unit with central exhaust type	E

3. Number of stack	Description	Symbol
	Single stack	1
	2 stacks	2
	3 stacks	3
	4 stacks	4
	5 stacks	5
	6 stacks	6
	7 stacks	7
	8 stacks	8

4. Valve	Description	Symbol
	Air control valve : N.C (Normal Closed) / Vacuum release valve : N.C (Normal Closed)	A
	Air control valve : N.O (Normal Open) / Vacuum release valve : N.C (Normal Closed)	B
	Air control valve : N.C (Normal Closed)	C
	Air control valve : N.O (Normal Open)	D
	Vacuum release valve : N.C (Normal Closed)	E
	Air control valve : Double solenoid valve / Vacuum release valve : N.C (Normal Closed)	W
	- Double solenoid valve “W” is available only with DC24V and Connector type valve terminal	

5. Valve voltage	Description	Symbol
	AC110V	1
	AC220V	2
	DC24V	3

6. Valve terminal	Description	Symbol
	Solenoid Terminal, DIN, No LW	1
	Solenoid Terminal, DIN, Lamp, No LW	2
	Solenoid Terminal, Conn, Lamp & 0.3m LW: <i>Only available with DC24V</i>	3
	Solenoid Terminal, DIN, 2 in 1 BUS cable: <i>Not available with Double Solenoid Valve</i>	2B
	Solenoid Terminal, DIN, 3 in 1 BUS cable: <i>Not available with Double Solenoid Valve</i>	3B
	Solenoid Terminal, DIN, 4 in 1 BUS cable: <i>Available with Double Solenoid Valve</i>	4B
	- 3B and 4B are available only with DC24V and C or PC vacuum switch	

I Build an Ordering No.

7. Vacuum switch	Description	Symbol
	No vacuum switch	Blank
	Digital switch, No analog supply, M8-4pins, NPN	C
	Digital switch, No analog supply, M8-4pins, PNP	PC
	Digital switch, No analog supply, Grommet, NPN	G
	Digital switch, No analog supply, Grommet, PNP	PG
	Digital switch, Analog supply, Grommet, NPN	GA
	Digital switch, Analog supply, Grommet, PNP	PGA

8. Non-return valve	Description	Symbol
	No non-return valve	Blank
	Non-return valve	N

9. Sealing material	Description	Symbol
	NBR	Blank
	VITON	V
	EPDM	E

10. Vacuum port	Description	Symbol
	Ø6 hose fitting	6
	Ø8 hose fitting	8

I Spare Parts – Filters

Part No.	Description
FCK72-A3-6	Filter cover case for Ø6 hose fitting, Fix bolt
FCK72-A3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket
FCK72-F3-6	Filter cover case for Ø6 hose fitting, Fix bolt, Filter element
FCK72-F3-6-N	Filter cover case for Ø6 hose fitting, Fix bolt, Gasket, Filter element
FCK72-A3-8	Filter cover case for Ø8 hose fitting, Fix bolt
FCK72-A3-8-N	Filter cover case for Ø8 hose fitting, Fix bolt, Gasket
FCK72-F3-8	Filter cover case for Ø8 hose fitting, Fix bolt, Filter element
FCK72-F3-8-N	Filter cover case for Ø8 hose fitting, Fix bolt, Gasket, Filter element
VTFE-K72	Filter element