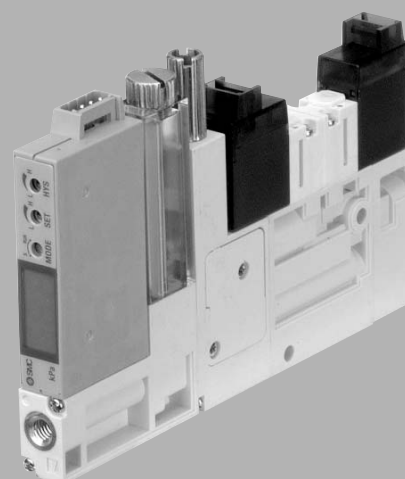
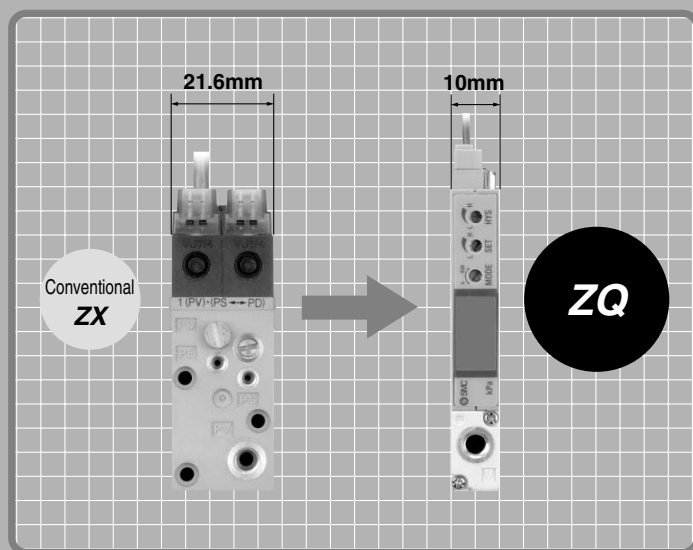


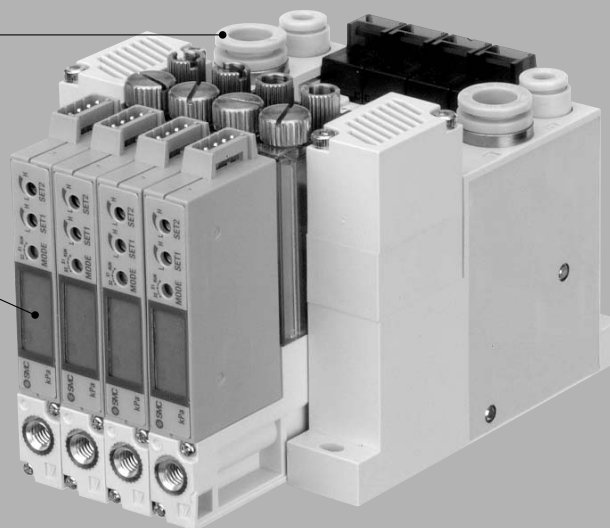
Compact Vacuum Ejector Series ZQ

Body width **10 mm**, Weight **109 g**
(Single unit with vacuum pressure switch and suction filter)



One-touch fitting

**Digital vacuum pressure switch
With LED display**



ZX
ZR
ZM
ZH
ZU
ZL
ZY
ZQ
ZF
ZP
ZCU
AMJ
Misc.

Series Variations

Series	Nozzle diameter mm	Supply valve	Release valve	Vacuum pressure switch	Suction filter
ZQ105	ø0.5	<ul style="list-style-type: none"> • N.C. • N.O. • Latching 	<ul style="list-style-type: none"> • N.C. 	<ul style="list-style-type: none"> • 1 NPN output and analog output • 1 PNP output and analog output • 2 NPN outputs • 2 PNP outputs 	Filtration 30 µm
ZQ107	ø0.7				
ZQ110	ø1.0				

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Compact Vacuum Ejector Series ZQ

How to Order

Ejector unit ZQ1 07 1U - K1 5 L - D31 C

Nozzle nominal size

05	ø0.5
07	ø0.7
10	ø1.0

Ejector exhaust

1U	Silencer for single unit
3M	Silencer for manifold

Solenoid valve combination (Refer to Table (1).)

Symbol	Supply valve	Release valve
K1	N.C.	N.C.
K2	N.O.	N.C.
J1	N.C.	None
J2	N.O.	None
Q1	Latching positive common	N.C.
Q2	Latching positive common	None

Pilot valve (Refer to Table (1).)

Nil	Standard type (1 W for DC) ^{Note)}
Y	DC low wattage type (0.5 W)

Note) In the case of the manifold type or when single unit valves are aligned closely with each other, avoid energization lasting more than 3 days.

Voltage (Refer to Table (1).)

1	100 V AC
2	200 V AC
3	110 V AC
4	220 V AC
5	24 V DC
6	12 V DC

Electrical entry

L	L plug connector, With 0.3 m lead wire With light/surge voltage suppressor
LO	L plug connector, Without connector With light/surge voltage suppressor
G	Grommet, With 0.3 m lead wire (Not available for latching and AC types.)

Check valve

Nil	None
K	With check valve

Note) The check valve has a function to prevent the exhaust air from the silencer overflowing to the vacuum port side when a manifold is used.

Warning

- Cannot be used for vacuum retention.
- Use a release valve. (Without a release valve, the work piece may not be released.)

Vacuum switch electrical entry

C	Connector type Lead wire length: 0.6 m
CL	Connector type Lead wire length: 3 m
CN	Connector type Without connector

Vacuum pressure switch suction filter

F	Suction filter only
D31	1 NPN output and analog output, suction filter
D32	2 NPN outputs, suction filter
D51	1 PNP output and analog output, suction filter
D52	2 PNP outputs, suction filter

Manual override

Nil	Non-locking push type Latching: Push-lock type
B	Locking slotted type

Only the "Nil" type manual override is available with a latching type supply valve. In such cases, the supply valve and release valve come with a lock.

Table (1) Combination of solenoid valve, pilot valve and power supply voltage

	Solenoid valve combination symbol	Pilot valve symbol	Applicable power supply voltage					
			AC 100	AC 200	AC 110	AC 220	DC 24	DC 12
①	K1	Nil					●	●
②	K1	Y					●	●
③	K2	Nil					●	●
④	J1	Nil	●	●	●	●	●	●
⑤	J1	Y					●	●
⑥	J2	Nil					●	●
⑦	Q1	Nil					●	●
⑧	Q2	Nil	●	●	●	●	●	●

Combinations (1) to (8) in the above table are the only possible options.

How to Order

Manifold

ZZQ1 08 — B S B

Number of stations ^{Note)}

01	1 station
02	2 station
⋮	⋮
08	8 station

Note) Number of stations varies according to nozzle nominal size during simultaneous operation.

Maximum number of stations in simultaneous operation

Nozzle nominal size	Maximum number of stations in simultaneous operation
ø0.5	8 Stations
ø0.7	6 Stations
ø1.0	4 Stations

Pilot exhaust port location

B Both sides

Exhaust

S Silencer (Both sides)

Supply port location

B Both sides

Manifold Ordering Example

ZZQ108-BSB

→ 1 pc.

*ZQ1053M-K1Y5L-D31C

→ 4 pcs. (Stations 1 to 4)

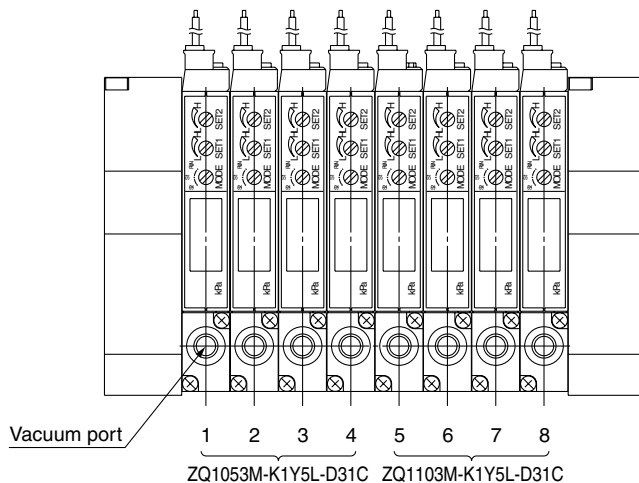
*ZQ1103M-K1Y5L-D31C

→ 4 pcs. (Stations 5 to 8)

The stations are sequentially numbered. When viewed from the side of the vacuum ports, the far left station is designated as station 1.

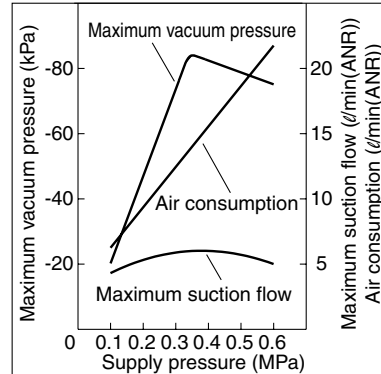
Left

Right

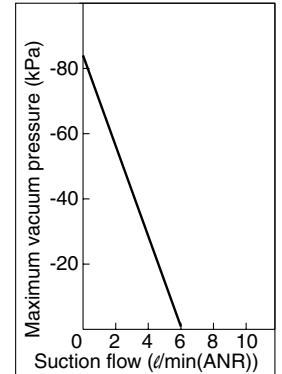


Flow Characteristics/Exhaust Characteristics

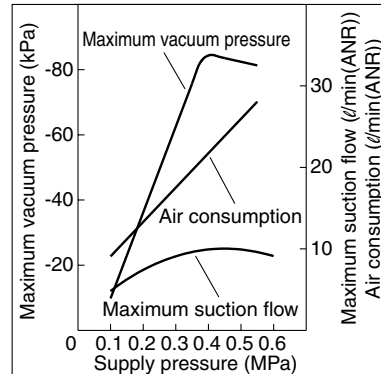
ZQ105 Exhaust Characteristics



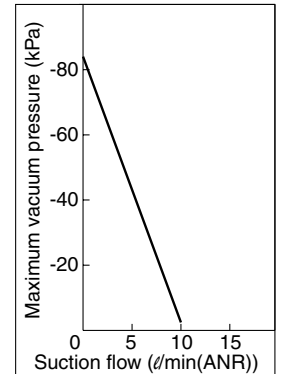
ZQ105 Flow Characteristics



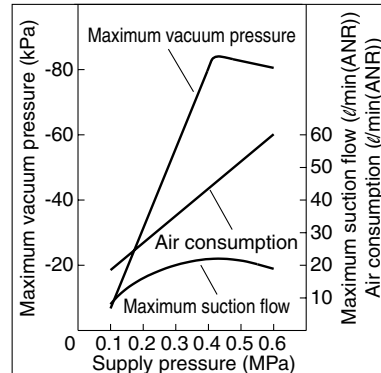
ZQ107 Exhaust Characteristics



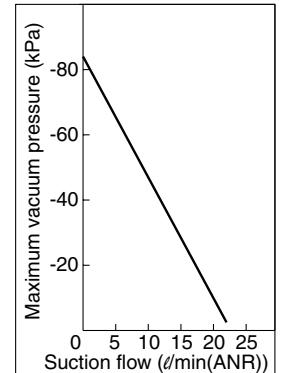
ZQ107 Flow Characteristics



ZQ110 Exhaust Characteristics



ZQ110 Flow Characteristics



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

Specifications

Ejector

Model	ZQ105	ZQ107	ZQ110
Nozzle nominal diameter mm ϕ	0.5	0.7	1.0
Maximum suction flow $\ell/\text{min}(\text{ANR})$	5	10	22
Air consumption $\ell/\text{min}(\text{ANR})$	14	23	46
Maximum vacuum pressure	-80 kPa		
Supply pressure range	0.3 MPa to 0.6 MPa		
Supply pressure	0.35 MPa	0.43 MPa	
Operating temperature range	5 to 50°C		

Weight

Single unit	Suction filter ^{Note 1)}	95 g
	Switch and suction filter ^{Note 2)}	109 g
End plate assembly for manifold		122 g

Note 1) Including a 0.3 m connector for the supply and release valves.

Note 2) Including a 0.3 m connector for the supply and release valves and a 0.6 m connector for the switch.

◎ Calculation of weight for the manifold type

(Single unit weight) x (Number of stations) + (Weight of end plate assembly for manifold)

Example) Switch + 8 stations with suction filter

$$109 \text{ g} \times 8 + 122 \text{ g} = 994 \text{ g}$$

Supply Valve and Release Valve

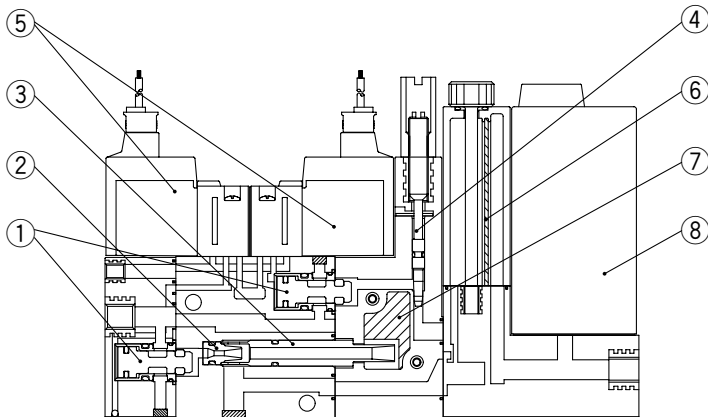
Type		Normally closed type		Latching type	Normally open type
		Standard type	Low wattage type (0.5 W)		
Model <small>(Refer to How to Order for solenoid valves on page 13-9-5.)</small>		VQ110-□	VQ110Y-□	VQ110L-□	ZQ1-VQ120-□
Fluid		Air, Inert gas			
Maximum operating pressure		0.6 MPa			
Minimum operating pressure		0.3 MPa			
Ambient and fluid temperature		5 to 50°C			
Lubrication		Not required			
Manual override		Non-locking push type / Lock type (tool type)		Push-lock type	Non-locking push type / Lock type (tool type)
Rated coil voltage		12, 24 VDC, 100, 110, 200, 220 VAC			
Power consumption (current value)	DC	1 W	0.5 W	1 W	
	100 VAC	0.5 VA (5 mA)	—	0.6 VA (6 mA)	—
	110 VAC	0.55 VA (5 mA)	—	0.65 VA (5.9 mA)	—
	200 VAC	1.0 VA (5 mA)	—	1.2 VA (6 mA)	—
	220 VAC	1.1 VA (5 mA)	—	1.3 VA (5.9 mA)	—
Electrical entry		Grommet		L plug connector	Grommet
		L plug connector (With light/surge voltage suppressor)		With light/surge voltage suppressor	L plug connector (With light/surge voltage suppressor)

Vacuum Pressure Switch

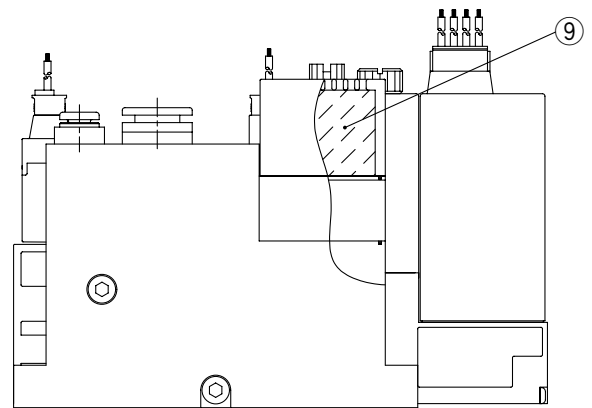
Model (Refer to How to Order for vacuum pressure switches on page 13-9-5.)	ZQ1S-D31□-□-AS	ZQ1S-D51□-□-AS	ZQ1S-D32□-□-AS	ZQ1S-D52□-□-AS
Rated pressure range	0 to -100 kPa			
Set pressure range	0 to -99 kPa			
Withstand pressure	0.2 MPa			
Fluid	Air/Non-corrosive metal/Non-combustible gas			
Power supply voltage	12 to 24 VDC ±10%			
Current consumption	35 mA or less [with power supply voltage of 24 VDC and switch output ON (with no load)]			
Ambient temperature range	5 to 50 °C (with no freezing or condensation)			
Ambient humidity range	35 to 85 %RH in operation and saving (with no condensation)			
Withstand voltage	500 VAC for 1 min			
Insulation resistance	50 MΩ or more (between live parts and pressure port at 500 VDC)			
Switch output	1 NPN output and analog output	1 PNP output and analog output	2 NPN outputs	2 PNP outputs
Maximum load current	80 mA (per output)			
Maximum applied voltage	30 V (for NPN output)			
Residual voltage	NPN output: 0.8 V or less (at 80 mA inrush), PNP output: 1.2 V or less (at 80 mA discharge)			
Response time	2 ms or less			
Hysteresis	0 to 15% F.S. or less (adjustable)	2% F.S. or less (fixed)	0 to 15% F.S. or less (adjustable)	2% F.S. or less (fixed)
Display	2-digit red LED			
Display accuracy	±3 %F.S. ±2 digits			
Output indicator light	Lights up when output is ON (red LED).		Lights up when output is ON (red for OUT1 and green for OUT2)	
Analog output ^{Note)}	(Only applicable to D31 and D5.1)			
Output voltage	1 to 5 V ±2.5% F.S. or less			
Linearity	±0.5 F.S. or less			

Construction

Single unit



Manifold



Component Parts

No.	Description	Material
①	Poppet valve assembly	—
②	Nozzle	Aluminum
③	Diffuser	Aluminum
④	Release flow adjustment needle	Aluminum

Replacement Parts

No.	Description	Material	Part no.
⑤	Solenoid valve	—	Refer to How to Order below
⑥	Filter element	PVF	XT534-5-001-AS
⑦	Sound absorbing material 1 (single unit)	PVF	XT534-5-004
⑧	Vacuum pressure switch	—	Refer to "How to Order" below
⑨	Sound absorbing material 2 (manifold)	PVF	XT534-5-003

ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

ZP

ZCU

AMJ

Misc.

How to Order

Pilot valve

Nil	Standard type (1W)
Y	DC low wattage type (0.5 W) Not available for AC type
L	Latching positive common

Actuation

1	Normally closed
---	-----------------

Rated coil voltage

1	100V AC
2	200V AC
3	110V AC
4	220V AC
5	24V DC
6	12V DC

Check valve

Nil	None
K	With check valve

Note) The check valve has a function to prevent the exhaust air from the silencer overflowing to the vacuum port side when a manifold is used.

Warning

① Cannot be used for vacuum retention.
② Use a release valve. (Without a release valve, the workpiece may not be released.)

Electrical entry

L	L plug connector With 0.3 m lead wire
LO	L plug connector Without connector
G	Grommet With 0.3 m lead wire (Not available for latching and AC types.)

Note) Mounting screws are attached.

Manual override

Nil	Non-locking push type
	Latching: Push-lock type
B	Locking: Slotted type

Note) Only the "Nil" type is available with a latching type.

Solenoid valve

VQ1 1 0 [] 5 L []

ZQ1-VQ1 2 0 [] 5 L []

Actuation

2	Normally open
---	---------------

Pilot valve

Nil	Standard type (1W)
-----	--------------------

Rated coil voltage

5	24V DC
6	12V DC

Vacuum pressure switch

ZQ1S-D 31 C [] AS

Switch specifications

31	1 NPN output and analog output
32	2 NPN outputs
51	1 PNP output and analog output
52	2 PNP outputs

Electrical entry

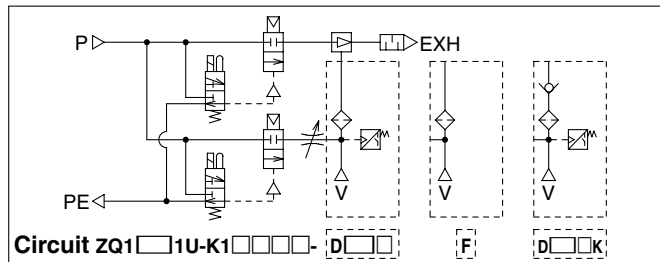
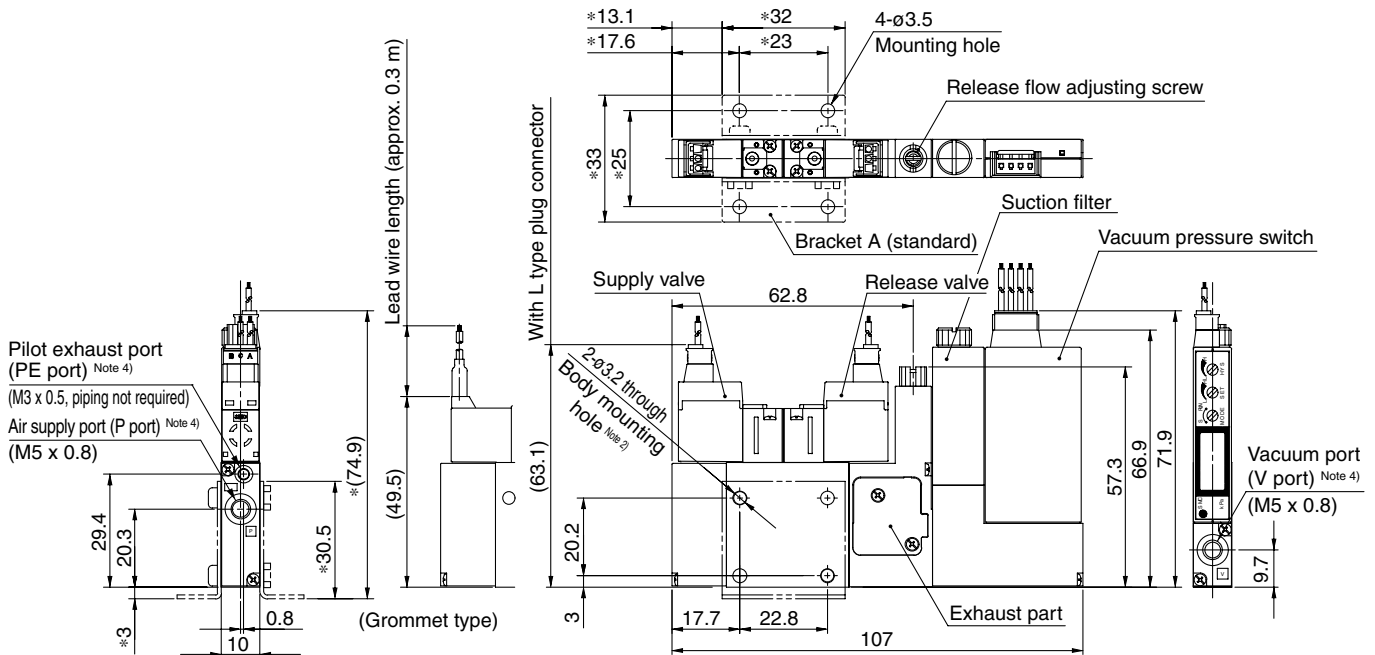
C	Connector type Lead wire length: 0.6 m
CL	Connector type Lead wire length: 3 m
CN	Without connector

Note) Mounting screws are attached.

Dimensions

Type K1

ZQ1□1U-K1□□□□-□□□□



Note 1) The above dimensions are for ZQ1□1U-K1□□□□-□□□□.

In the case of ZQ1□1U-K1□□□□-□□□□, the overall length is 87.2.

Note 2) Dimensions marked with "*" are those after bracket A is mounted.

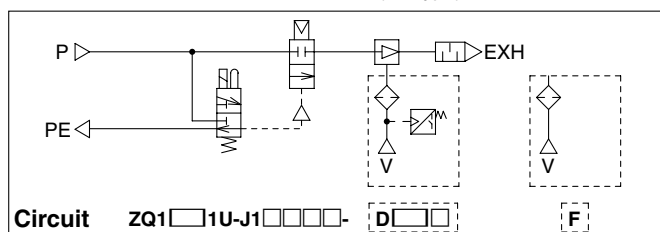
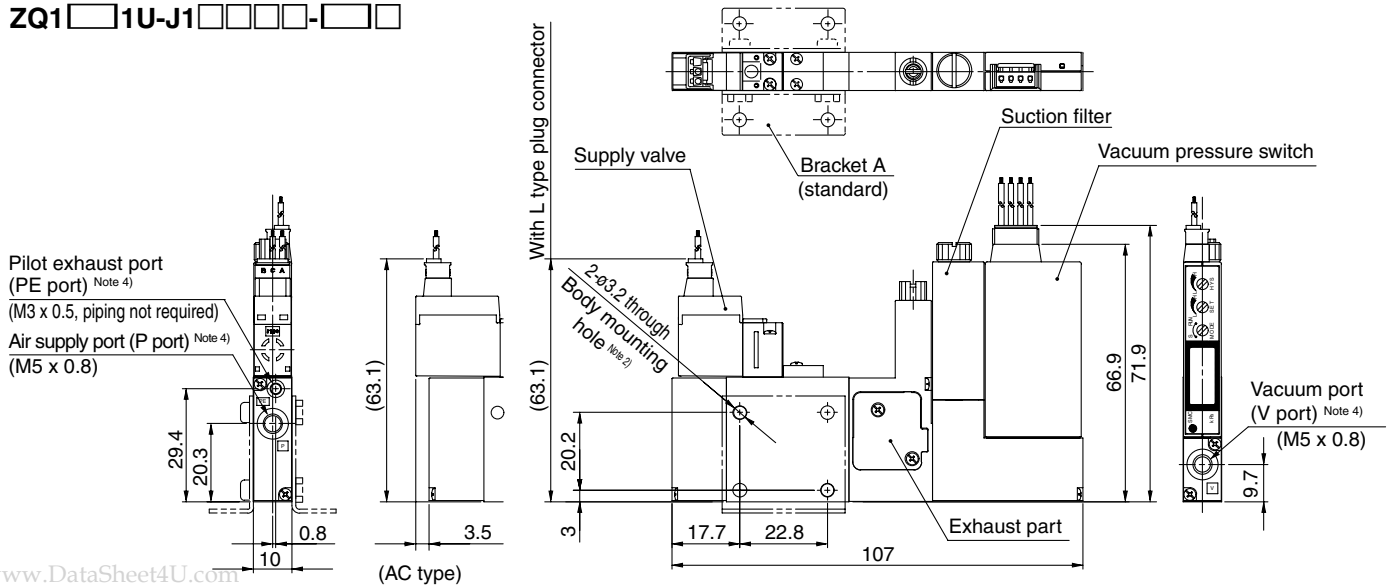
Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm.

Using excessive torque may cause damage to the body.

Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Type J1

ZQ1□1U-J1□□□□-□□□□



Note 1) The above dimensions are for ZQ1□1U-J1□□□□-□□□□.

In the case of ZQ1□1U-J1□□□□-□□□□, the overall length is 87.2.

Note 2) The dimensions after bracket A is mounted are the same as those of the K1 type.

Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm.

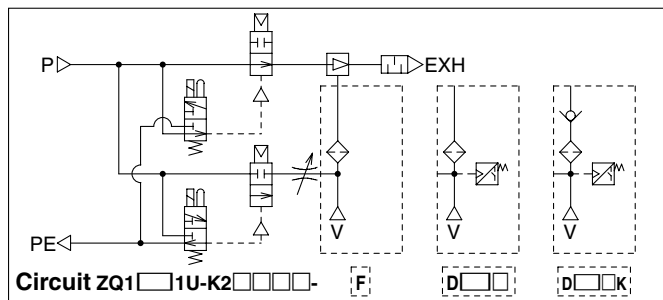
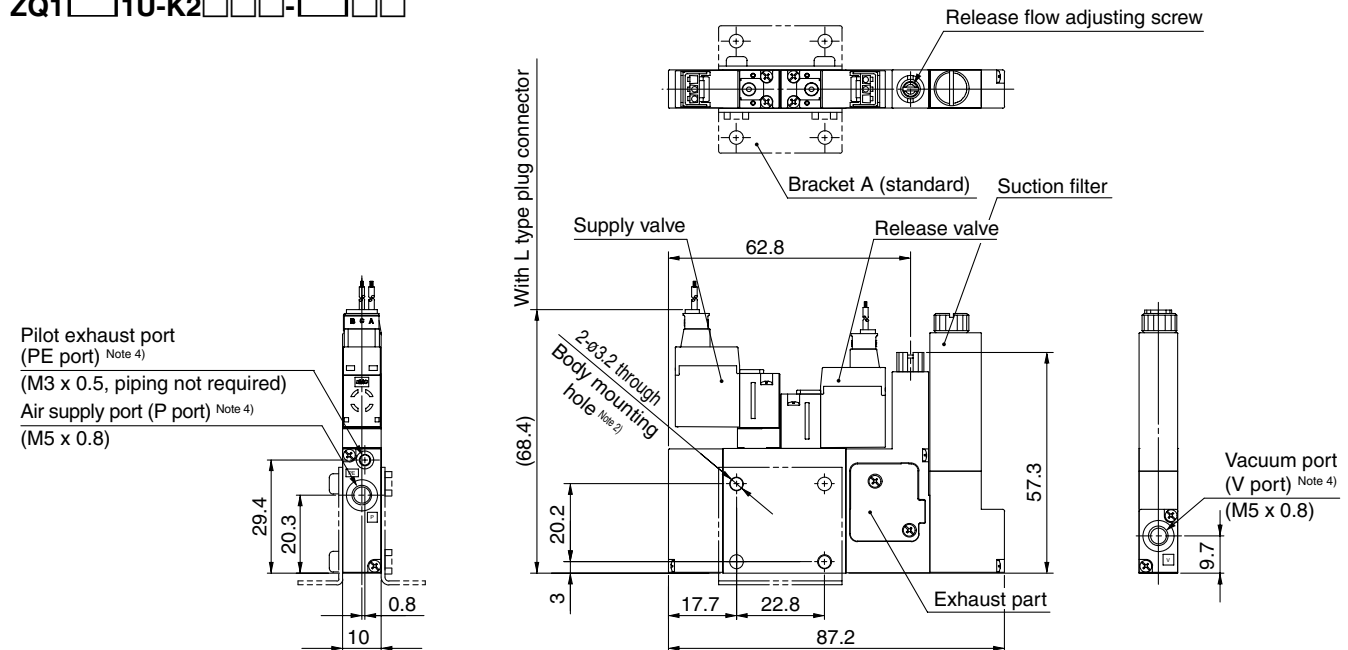
Using excessive torque may cause damage to the body.

Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Dimensions

Type K2

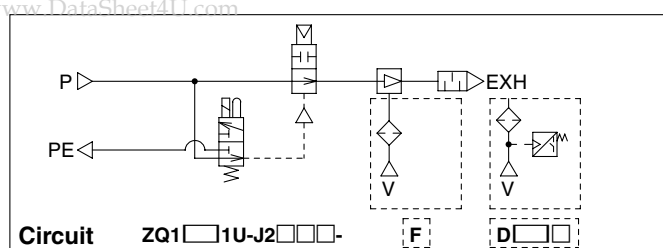
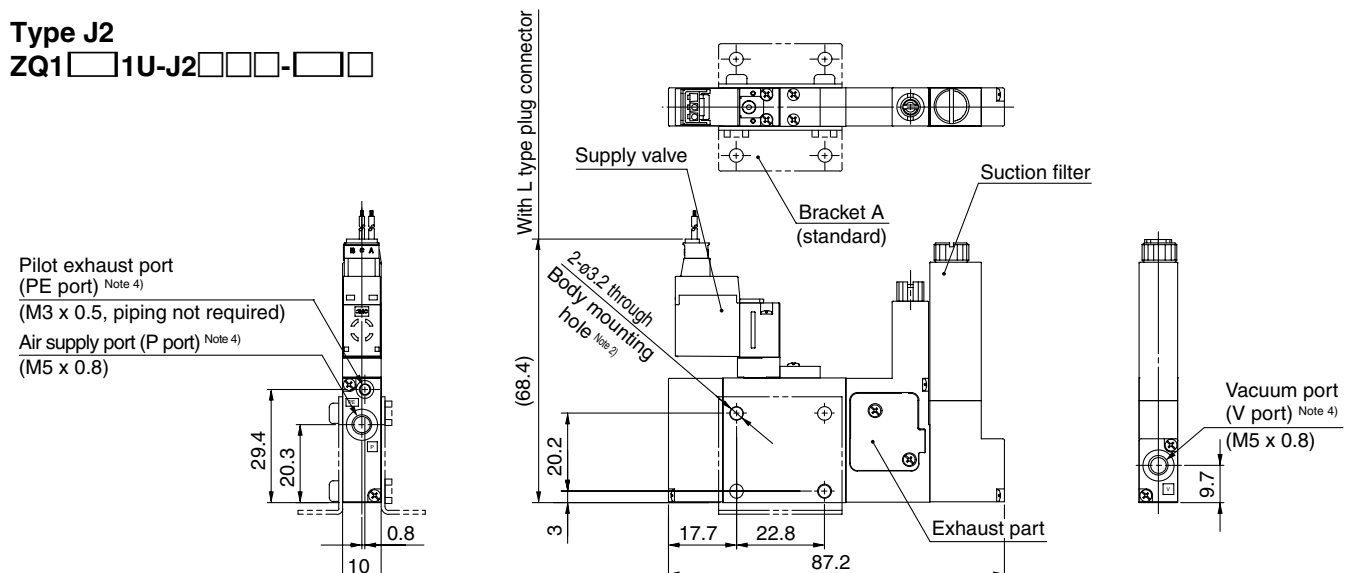
ZQ1□1U-K2□□□-□□□



- Note 1) The above dimensions are for ZQ1□1U-K2□□□L-F□. In the case of ZQ1□1U-K2□□□-D□□□, the overall length is 107.
 Note 2) The dimensions after bracket A is mounted are the same as those of the K1 type.
 Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm. Using excessive torque may cause damage to the body.
 Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Type J2

ZQ1□1U-J2□□□-□□□

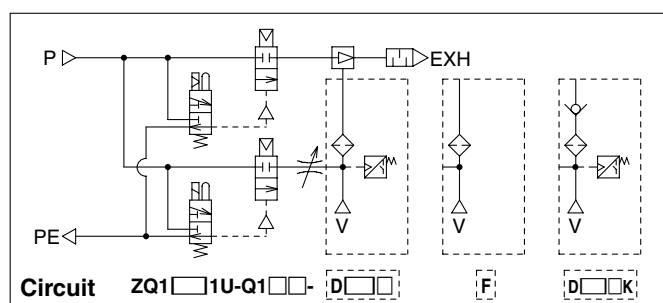
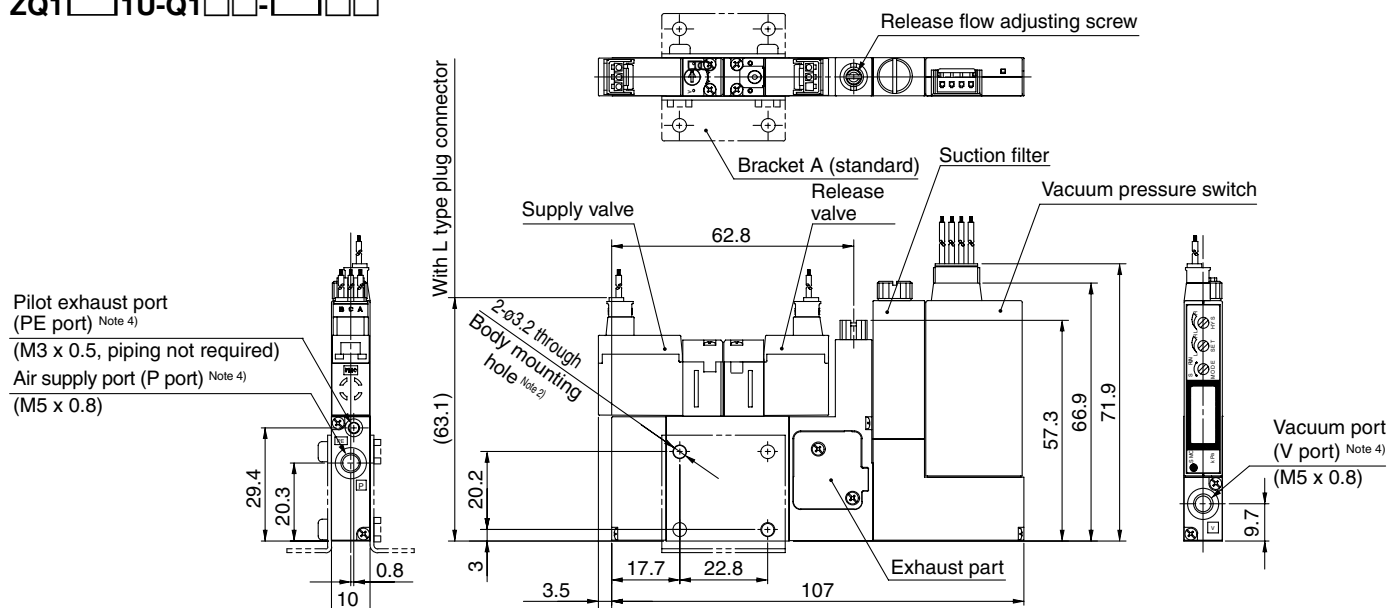


- Note 1) The above dimensions are for ZQ1□1U-J2□□□L-F□. In the case of ZQ1□1U-J2□□□-D□□□, the overall length is 107.
 Note 2) The dimensions after bracket A is mounted are the same as those of the K1 type.
 Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm. Using excessive torque may cause damage to the body.
 Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Dimensions

Type Q1

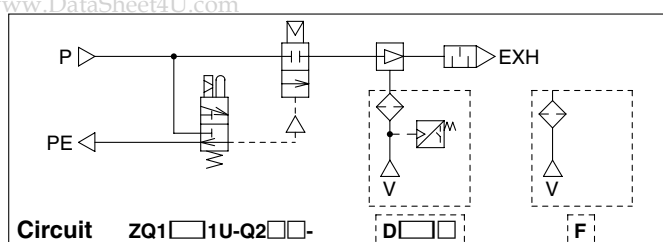
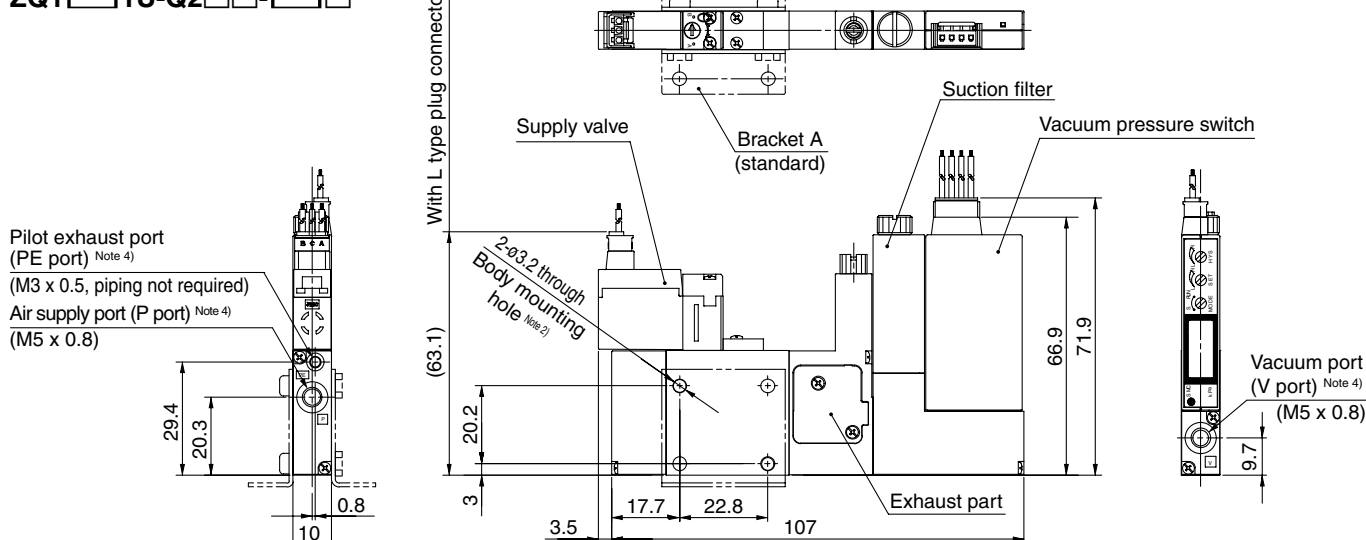
ZQ1□□1U-Q1□□-□□□□



- Note 1) The above dimensions are for ZQ1□□1U-G1□□L-D□□C□. In the case of ZQ1□□1U-Q1□□-F□, the overall length is 87.2.
- Note 2) The dimensions after bracket A is mounted are the same as those of the K1 type.
- Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm. Using excessive torque may cause damage to the body.
- Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Type Q2

ZQ1□□1U-Q2□□-□□□□



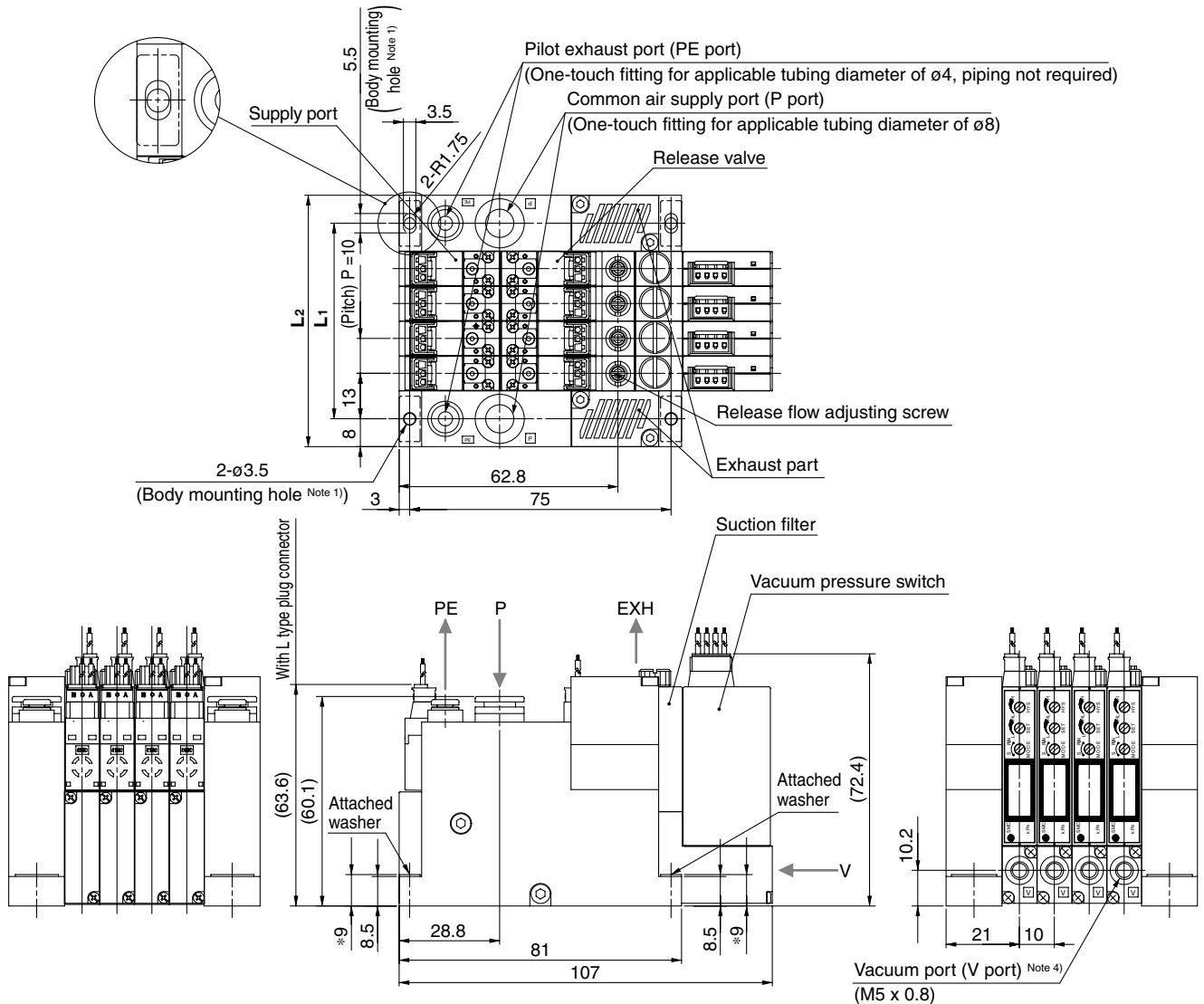
- Note 1) The above dimensions are for ZQ1□□1U-G2□□L-D□□C□. In the case of ZQ1□□1U-Q2□□-F□, the overall length is 87.2.
- Note 2) The dimensions after bracket A is mounted are the same as those of the K1 type.
- Note 3) When the body is mounted, tighten with a torque of 0.6 ± 0.06 Nm. Using excessive torque may cause damage to the body.
- Note 4) The pitches of P, PE and V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.

Dimensions

Manifold type

ZZQ1□-BSB

*ZQ1□3M-□□□□-□□□□



Dimensions

n: Number of stations (mm)

n	1	2	3	4	5	6	7	8
L1	26	36	46	56	66	76	86	96
L2	52	52	62	72	82	92	102	112

Note 1) The above dimensions are for ZQ1□-BSB.

*ZQ1□3M-K10⁵L-D□C□.

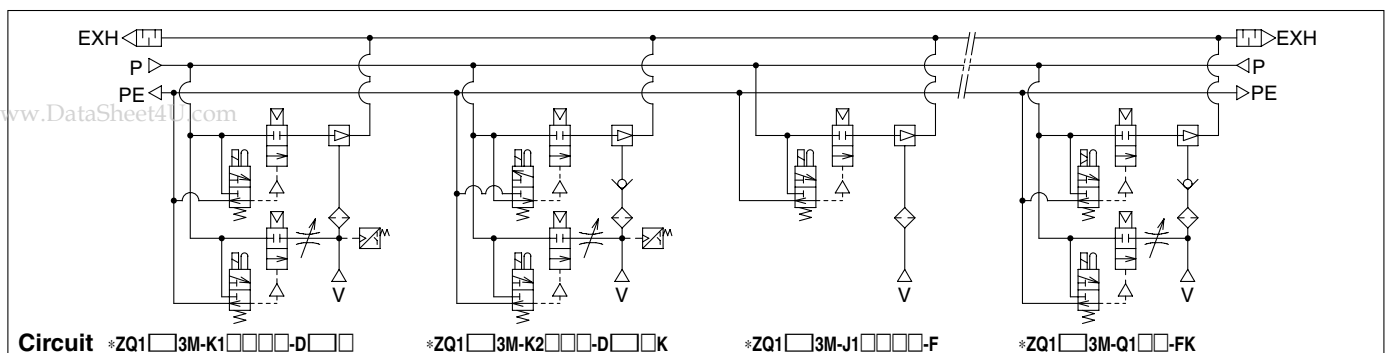
*In the case of ZQ1□3M-□□□□-F□, the overall length is 87.2.

Note 2) *Dimensions marked with "*" are those after the attached square bracket is mounted.

Note 3) When the body is mounted, tighten with a torque of 0.6±0.06 Nm.

Using excessive torque may cause damage to the body.

Note 4) The pitches of V ports are determined assuming the use of the Series KJ one-touch fittings. If used with other fittings, these may cause interference, dependant on their type and size. Please refer to the catalogue to confirm the sizes of the fittings to be used.



ZX

ZR

ZM

ZH

ZU

ZL

ZY

ZQ

ZF

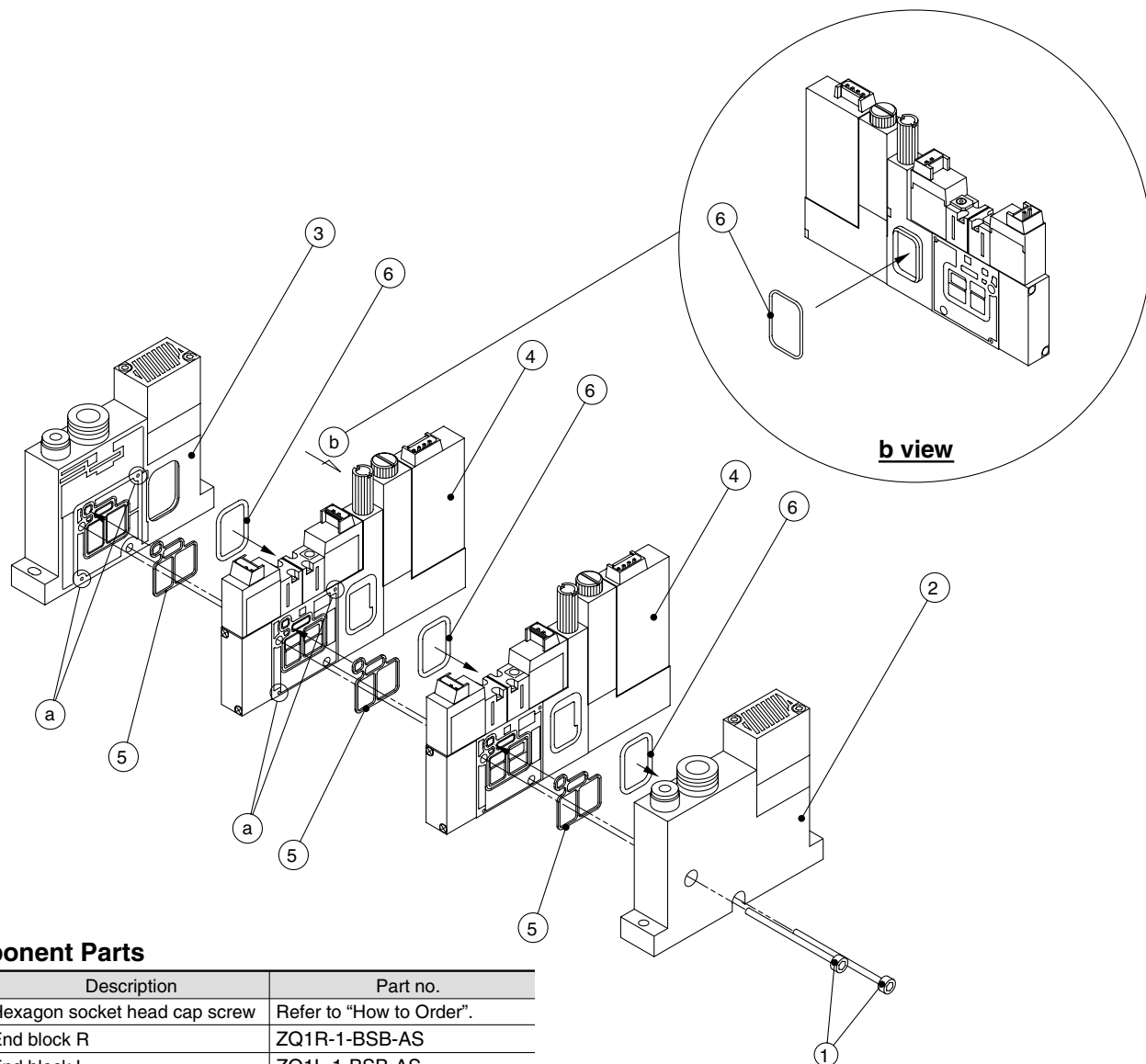
ZP

ZCU

AMJ

Misc.

Manifold Exploded View



Component Parts

No.	Description	Part no.
①	Hexagon socket head cap screw	Refer to “How to Order”.
②	End block R	ZQ1R-1-BSB-AS
③	End block L	ZQ1L-1-BSB-AS
④	Ejector assembly	ZQ1□□3M-□□□□□□-□□□□□ (Note)
⑤	Ejector body gasket for manifold	ZQ-3-005
⑥	Exhaust block gasket	ZQ-3-009

Note) Refer to page 13-9-5 for detailed description of "How to Order".

How to Order Hexagon Socket Head Cap Screw

XT534-4-0 **05**

- **Number of stations**

05	1 station
06	2 station
⋮	⋮
12	8 station

Working Procedure

Disassembly

Loosen and remove the hexagon socket head cap bolts ①.

Assembly

1. Install the ejector body gasket for manifold ⑤ into the gasket groove of each ejector assembly ④. Install the exhaust block gasket ⑥ around the projected part.
2. Install the exhaust block gasket ⑥ around the projected part of the end block R ②.
3. Install the ejector body gasket for manifold ⑤ into the gasket groove of the end block L ③.
4. Align the ejector assemblies ④, end block (R) ②, and end block (L) ③ using positioning pins (at the two "a" positions) and fasten with a hexagon socket head cap bolts ① (2 pcs.) (with a tightening torque of 0.6 Nm±0.06 Nm).