

Quick Exhaust Valve

AQ Series



Excellent exhaust characteristics

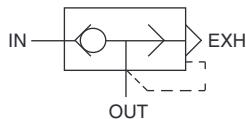
High flow capacity

Compact and light weight

A wide selection of models



Symbol



Model

Model	Port size	Sonic conductance dm ³ /(s-bar)		Critical pressure ratio		Q [l/min (ANR)] ^{*1}		Weight [g]
		IN→OUT	OUT→EXH	IN→OUT	OUT→EXH	IN→OUT	OUT→EXH	
AQ1500-M5	M5 X 0.8	0.4	0.56	0.35	0.35	105	142	25
AQ1510-01	1/8	0.8	1.16			210	295	45
AQ2000-01	1/8	5	5			1412	1314	110
AQ2000-02	1/4	7	8			1977	2102	105
AQ3000-02	1/4	8	8.4			2259	2207	215
AQ3000-03	3/8	12	14			3388	3678	205
AQ5000-04	1/2	21	23			5930	6042	690
AQ5000-06	3/4	27	36			7624	9458	650

^{*1} These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

Specifications

Fluid	Air	
Proof pressure	1.5 MPa	
Max. operating pressure	AQ15□0	0.7 MPa
	AQ2000 to 5000	1 MPa
Min. operating pressure	AQ15□0	0.1 MPa
	AQ2000 to 5000	0.05 MPa
Ambient and fluid temperature	- 5 to 60 °C (No freezing)	

How to Order

AQ **2** **0** **0** **0** - **02** -

Standard size
1 1/8
2 1/4
3 3/8
5 3/4

Symbol	Style	Model
0	Diaphragm	AQ2 to AQ5
5	Lip	AQ1 Only

Standard

0	M5 x 0.8
1	1/8

Note) "AQ15□0" only

Option
— Standard (-5 to 60 °C)
H High temperature (-5 to 80 °C)
L Low temperature (-30 to 60 °C)

Note) AQ1500 and AQ1510 are not available.

Port size

Port size	Applicable series
M5	M5 AQ1500
01	1/8 AQ1510, 2000
02	1/4 AQ2000, 3000
03	3/8 AQ3000
04	1/2 AQ5000
06	3/4

Thread

Metric thread (M5)
Rc(PT)
NPT
G(PF)

AQ Series

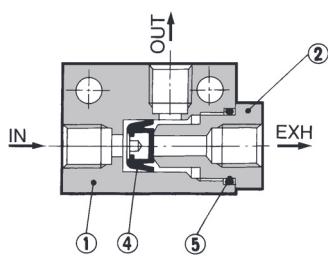


EMC-AQ-01A-UK

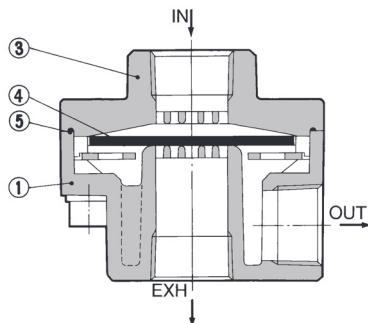
AQ Series

Construction

AQ1500/1510



AQ2000/3000/5000



Component Parts

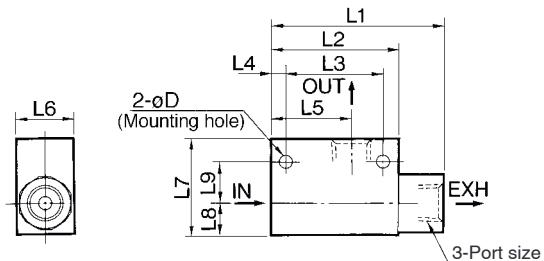
No.	Description	Material/Model		
		AQ1500	AQ1510	AQ2000, 3000, 5000
1	Body	Zinc die-casted	Zinc die-casted	Aluminium die-casted
2	Guide	Brass	Brass	—
3	Cover	—	—	Aluminium die-casted

Replacement Parts

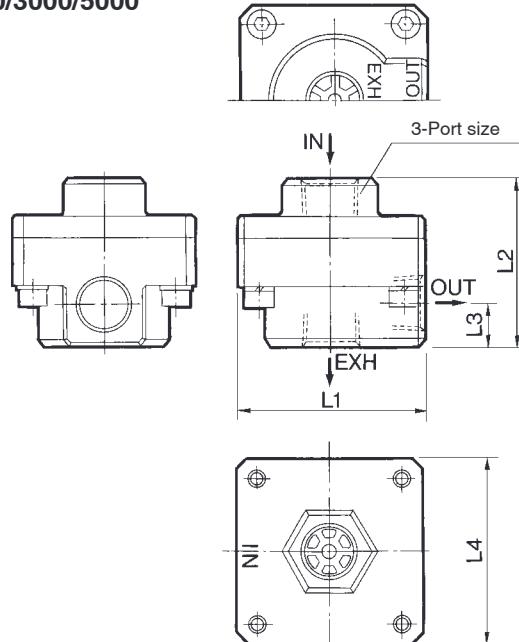
No.	Description	Material	Part no.				
			AQ1500	AQ1510	AQ2000	AQ3000	AQ5000
4	Valve	NBR	30083	30093	30073	30053	30063
5	O-ring	NBR	KA00327 9 x 7 x 1	KA00476 JISB2401P-7	CA40-1601	CA50-1602	30066

Dimensions

AQ1500/1510



AQ2000/3000/5000



Model	Port size	L1	L2	L3	L4	L5	L6	L7	L8	L9	D
AQ1500	M5 x 0.8	23	20	14	3	12.5	12	15	5.5	6.5	3.1
AQ1510	1/8	45	33	25	4	21	15	25	8	11	4.3

Model	Port size	L1	L2	L3	L4
AQ2000	1/8, 1/4	45	40	10	45
AQ3000	1/4, 3/8	56	50	12.5	56
AQ5000	1/2, 3/4	85	75	18	85

Specific Product Precautions

Be sure to read this before handling the products.

Design/Selection

Caution

- In the following cases, insufficient exhaust or vibration may cause noise.
 - With residual pressure or back pressure on the IN side.
 - When the differential pressure between the IN and OUT sides is smaller than the minimum operating pressure.
 - When the effective area of the IN side piping of AQ, or the solenoid valve, is smaller than AQ.
- In the case of applications where the IN side is constantly pressurized, there is a risk of exhaust failure.

Compared to the state where the IN side is open to the atmosphere (no pressurisation), the differential pressure that operate the valve become larger, which may cause exhaust failure.

Quick Exhaust Valve with One-touch Fittings

RoHS

AQ240F/340F Series

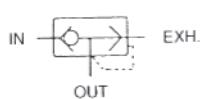


With exhaust port fitting

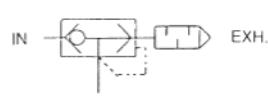


With silencer

Symbol



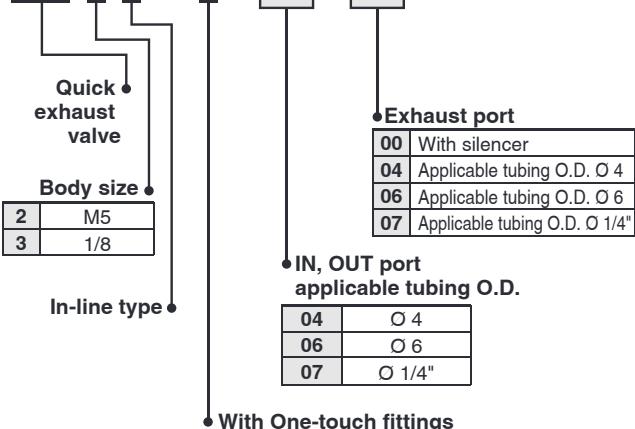
With exhaust port fitting



With silencer

How to Order

AQ 2 4 0 F - **06** - **06**



Note) Brass parts are all electroless nickel plated.

⚠ Specific Product Precautions

Be sure to read this before handling the products.

Design/Selection

⚠ Caution

1. In the following cases, insufficient exhaust or vibration may cause noise.
 - (a) With residual pressure or back pressure on the IN side.
 - (b) When the differential pressure between the IN and OUT sides is smaller than the minimum operating pressure.
 - (c) When the effective area of the IN side piping of AQ, or the solenoid valve, is smaller than AQ.
2. In the case of applications where the IN side is constantly pressurized, there is a risk of exhaust failure.

Compared to the state where the IN side is open to the atmosphere (no pressurisation), the differential pressure that operate the valve become larger, which may cause exhaust failure.

Space-saving

Rectilinear IN-OUT tubing connections

- With One-touch fittings and silencer
- With silencer
- Lightweight (Resin body)

Specifications

Fluid	Air	
Proof pressure	1.5 MPa	
Max. operating pressure	1 MPa	
Min. operating pressure	0.1 MPa	
Ambient and fluid temperature	-5 to 60 °C (No freezing)	
Applicable tubing material ⁽¹⁾	Nylon, Soft nylon, Polyurethane	

Note 1) Use caution regarding the max. operating pressure when soft nylon or polyurethane tubing is used.

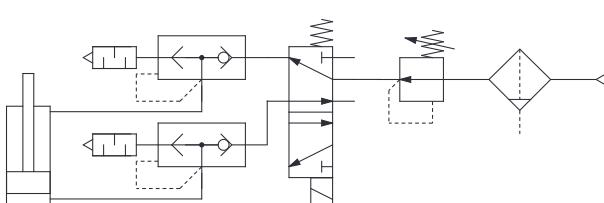
Model

Model	Applicable tubing O.D.	Sonic conductance dm ³ /(s-bar)		Q [l/min (ANR)] ^{*1}		Critical pressure ratio	
		4	6 1/4"	IN→OUT	OUT→EXH	IN→OUT	OUT→EXH
AQ240F-04-□	●			0.34	0.5	79	117
AQ240F-06-□	●			0.48	0.54	112	126
AQ340F-06-□	●			0.8	0.8	186	186
AQ240F-07-□		●		0.48	0.54	112	126
AQ340F-07-□		●	0.8	0.8	186	186	0.15
							0.15

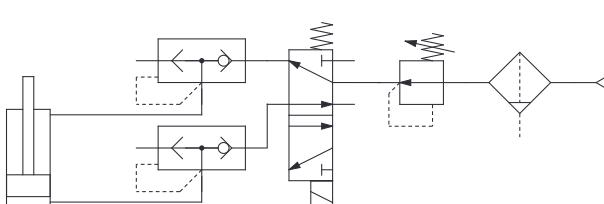
*1 These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

Circuit

With silencer



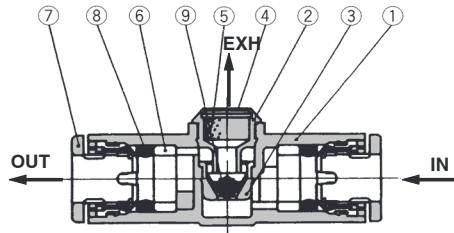
With exhaust port fitting



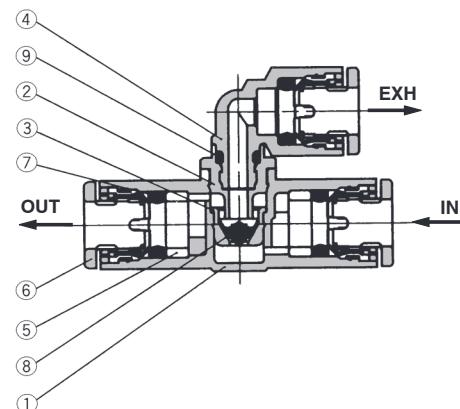
AQ240F/340F Series

Construction

With silencer



With exhaust port fitting

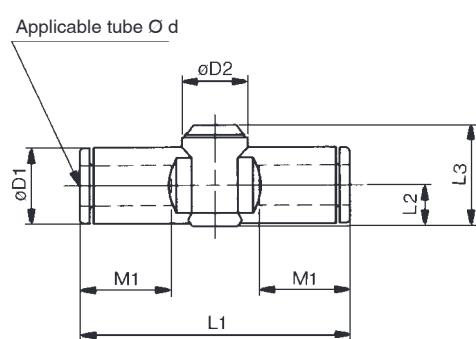


No.	Description	Material	Note
1	Body A	PBT	
2	Seat ring	Brass	Electroless nickel plated
3	Valve seat	Brass	Electroless nickel plated
4	Silencer cover	Stainless steel 304	
5	Silencer	PVA sponge	
6	Spacer	POM	
7	Cassette	—	
8	Packing	NBR	
9	Valve	NBR	

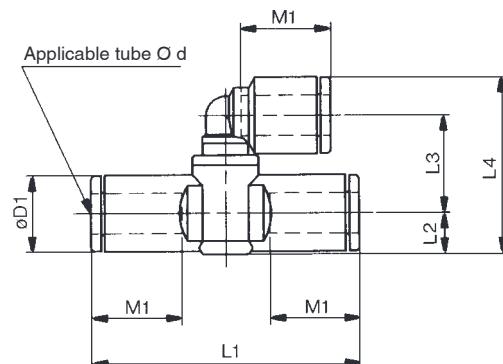
No.	Description	Material	Note
1	Body A	PBT	
2	Seat ring	Brass	Electroless nickel plated
3	Valve seat	Brass	Electroless nickel plated
4	Elbow union body	POM	
5	Spacer	POM	
6	Cassette	—	
7	Packing	NBR	
8	Valve	NBR	
9	O ring	NBR	

Dimensions

With silencer



With exhaust port fitting



Model	Tube O.D.O d	D1	D2	L1	L2	L3	M1	Weight [g]
AQ240F-04-00	4	9.3	10.0	39.2	5.2	14.3	12.9	5
AQ240F-06-00	6	11.6	10.0	40.7	6.2	15.4	13.7	6
AQ340F-06-00	6	11.6	11.8	44.8	6.3	19.5	13.7	11
AQ240F-07-00	1/4"	12	10.0	40.7	6.2	15.4	13.7	6
AQ340F-07-00	1/4"	13.2	11.8	52.2	7.1	20.3	18.6	11

Model	Tube O.D.O d	D1	L1	L2	L3	L4	M1	Weight [g]
AQ240F-04-04	4	9.3	39.2	5.2	13.7	23.5	12.9	6
AQ240F-06-06	6	11.6	40.7	6.2	14.7	26.7	13.7	8
AQ340F-06-06	6	11.6	44.8	6.3	19.6	31.7	13.7	13
AQ240F-07-06	1/4"	12	40.7	6.2	15.1	27.3	13.7	8
AQ340F-07-06	1/4"	13.2	52.2	7.1	20.0	33.1	18.6	13

⚠ Safety Instructions

⚠ Caution:

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning:

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger:

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "**Caution**," "**Warning**" or "**Danger**." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC ¹), and other safety regulations.

1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary. If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements". Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. ²⁾ Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

⚠ Safety Instructions

Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

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