Vacuum Ejector

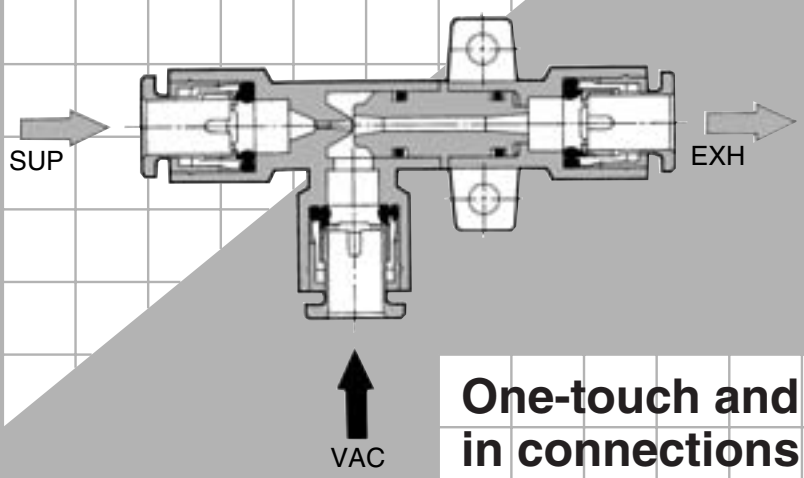
Series ZH

Box Type (Built-in Silencer)/Body Ported Type

Nozzle diameter: ø0.5, ø0.7, ø1.0, ø1.3, ø1.5, ø1.8, ø2.0
Type S: Standard type
L: Large flow type

Compact and lightweight

The nozzle and the body, which have been made into a composite resin construction, are compact and lightweight.
Nozzle diameter ø0.5···28 g



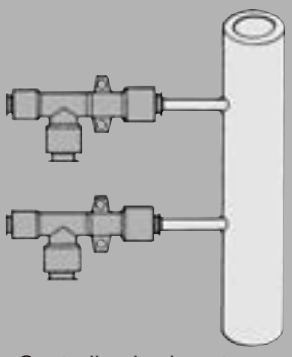
Box type (Built-in silencer) Body ported

Two types are available in the series: the box type with a silencer exhaust, and the body ported type, with an individual exhaust.

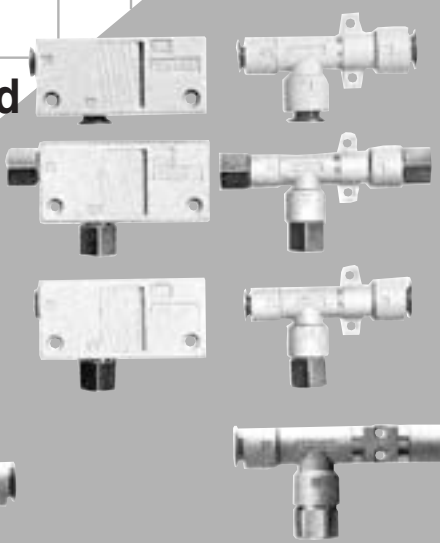
<Silencer exhaust>

One-touch and screw-in connections can be combined.

To suit the operating conditions, port connections can be combined with a choice of One-touch and screw-in connections.

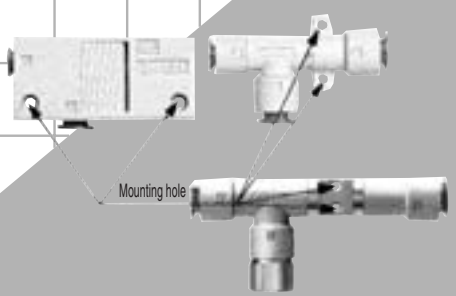


<Centralized exhaust>



Body can be mounted and secured.

The body ported type is also provided with mounting holes for securing the body.



Vacuum Ejector
Box Type (Built-in Silencer)/Body Ported Type
Series ZH

RoHS

How to Order

Note Refer to “Table (1)” and “(2)” for the combination available for SUP, VAC and EXH port connection.

Box type (Built-in silencer)

ZH 07 B S – 06 – 06

Body ported type (Without silencer)

ZH 07 D S – 01 – 01 – 01

Nozzle diameter

05	0.5 mm
07	0.7 mm
10	1.0 mm
13	1.3 mm
15	1.5 mm
18	1.8 mm
20	2.0 mm

Maximum vacuum pressure

S	–88 kPa
L	–48 kPa

SUP. port size Note)

Symbol	Size	Style
06	ø6	One-touch
08	ø8	One-touch
10	ø10	One-touch
12	ø12	One-touch
01	Rc 1/8	Screw-in
02	Rc 1/4	Screw-in
03	Rc 3/8	Screw-in
F01	G 1/8	Screw-in
F02	G 1/4	Screw-in
F03	G 3/8	Screw-in

VAC. port size Note)

Symbol	Size	Style
06	ø6	One-touch
10	ø10	One-touch
12	ø12	One-touch
16	ø16	One-touch
01	Rc 1/8	Screw-in
02	Rc 1/4	Screw-in
03	Rc 3/8	Screw-in
04	Rc 1/2	Screw-in
F01	G 1/8	Screw-in
F02	G 1/4	Screw-in
F03	G 3/8	Screw-in
F04	G 1/2	Screw-in

∗ The thread ridge shape is conforming to G thread standard (JIS B0202), but other shapes are not conforming to ISO16030 and ISO1179.

EXH. port size Note)

Symbol	Size	Style
06	ø6	One-touch
08	ø8	One-touch
10	ø10	One-touch
12	ø12	One-touch
16	ø16	One-touch
01	Rc 1/8	Screw-in
02	Rc 1/4	Screw-in
03	Rc 3/8	Screw-in
04	Rc 1/2	Screw-in
F01	G 1/8	Screw-in
F02	G 1/4	Screw-in
F03	G 3/8	Screw-in
F04	G 1/2	Screw-in

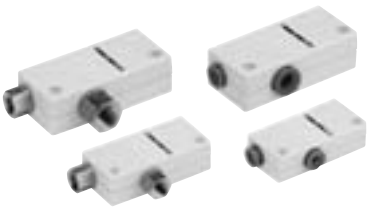
Note) Do not make the piping diameter smaller, such as by connecting a reducer to the exhaust port, etc., since it may lower the performance.

Table (1) Combination of Connection

Body type		SUP	VAC	EXH
Box type (Built-in silencer)	1	One-touch	One-touch	–
	2	One-touch	Screw-in	–
	3	Screw-in	Screw-in	–
Body ported type (Without silencer)	4	One-touch	One-touch	One-touch
	5	One-touch	Screw-in	One-touch
	6	Screw-in	Screw-in	Screw-in

Table (2) Port Size

Model	Connection (One-touch/Screw-in)		
	SUP	VAC	EXH
ZH05B	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	–
ZH07B			
ZH10B			
ZH13B	ø8, Rc 1/8 G 1/8	ø10, Rc 1/4 G 1/4	
ZH05D	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8
ZH07D			
ZH10D	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	ø8, Rc 1/8 G 1/8
ZH13D	ø8, Rc 1/8 G 1/8	ø10, Rc 1/4 G 1/4	ø10, Rc 1/4 G 1/4
ZH15D	ø10, Rc 1/4 G 1/4	ø12, Rc 3/8 G 3/8	ø12, Rc 3/8 G 3/8
ZH18D	ø12, Rc 3/8 G 3/8		
ZH20D	ø12, Rc 3/8 G 3/8	ø16, Rc 1/2 G 1/2	ø16, Rc 1/2 G 1/2



Box type: Type B

Body ported type: Type D

Ejector JIS Symbol

Body ported type
(Without silencer)
ZH□□B

Box type
(Built-in silencer)
ZH□□D

Model

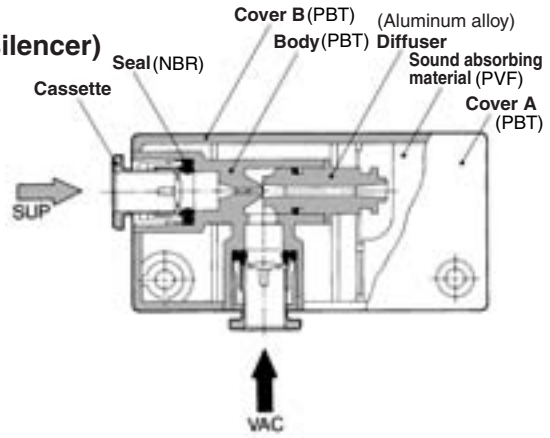
Model	Nozzle diameter (mm)	Body type	Max. vacuum pressure * (kPa)		Maximum suction flow rate (ℓ/min (ANR))		Air consumption (ℓ/min (ANR))	Connection (One-touch/Screw-in)			Mass (g)
			Type S	Type L	Type S	Type L	Type S/Type L	SUP	VAC	EXH	
ZH05B□	0.5	Box type (Built-in silencer)	–88	–48	5	8	13	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	–	28
ZH07B□	0.7				12	20	23				28
ZH10B□	1.0				24	34	46				33
ZH13B□	1.3				40	70	78	ø8, Rc 1/8 G 1/8	ø10, Rc 1/4 G 1/4		66
ZH05D□	0.5	Body ported type (Without silencer)	–88	–48	5	8	13	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	11
ZH07D□	0.7				12	20	23				12
ZH10D□	1.0				24	34	46	ø6, Rc 1/8 G 1/8	ø6, Rc 1/8 G 1/8	ø8, Rc 1/8 G 1/8	16
ZH13D□	1.3				40	70	78	ø8, Rc 1/8 G 1/8	ø10, Rc 1/4 G 1/4	ø10, Rc 1/4 G 1/4	27
ZH15D□	1.5	Body ported type (Without silencer)	–88	–53	55	75	95	ø10, Rc 1/4 G 1/4	ø12, Rc 3/8 G 3/8	ø12, Rc 3/8 G 3/8	43
ZH18D□	1.8				65	110	150	ø12, Rc 3/8 G 3/8			55
ZH20D□	2.0				85	135	185	ø12, Rc 3/8 G 3/8	ø16, Rc 1/2 G 1/2	ø16, Rc 1/2 G 1/2	95

Fiuid: Air, Operating temperature: 5 to 50°C, Max. operating pressure: 0.6 MPa. Standard supply pressure: 0.45 MPa

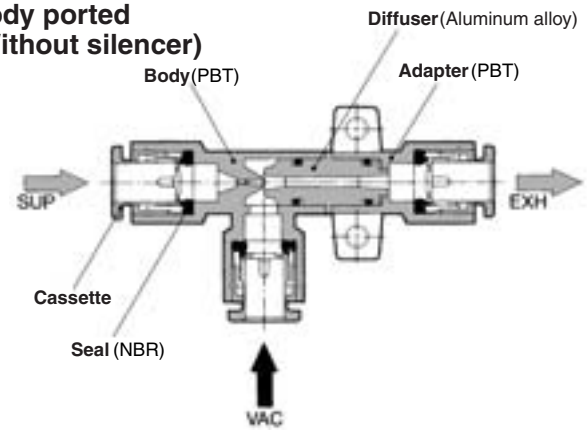
* Supply pressure: 0.45 MPa.

Construction

Box type (Built-in silencer)



Body ported (Without silencer)



⚠ Precautions

Be sure to read before handling.
Refer to front matters 38 and 39 for Safety Instructions and pages 844 to 846 for Vacuum Equipment Precautions.

⚠Caution

Mounting

Make sure that an excessive amount of load or moment is not applied to the ejector body due to pipe connections or installation.

Exhaust piping

On the ZH□□B□ models, keep exhaust ports open on at least one side. Make sure that the back pressure of the exhaust pipe on the ZH□□D□ models is 0.005 MPa or less. (Reference: Using tubing with an applicable diameter, its length must be 0.5 m or less.)
(Port indication: P: supply port; V: vacuum port; E: exhaust port.)

Selection and sizing

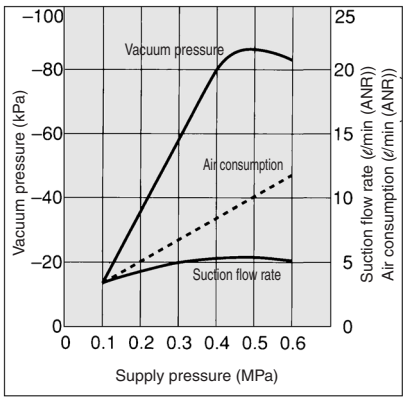
Refer to the vacuum equipment model selection on pages 825 to 843.

Exhaust Characteristics/Flow Characteristics

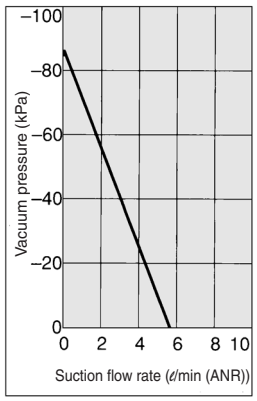
The flow characteristics correspond to a supply pressure of 0.45 MPa.

ZH05□S

Exhaust Characteristics

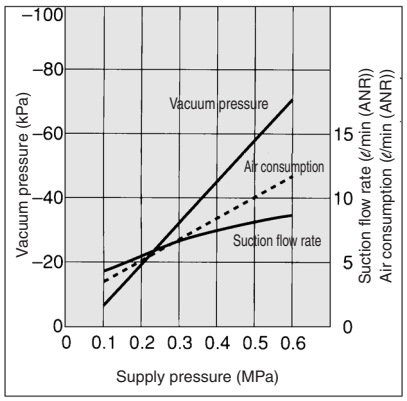


Flow Characteristics

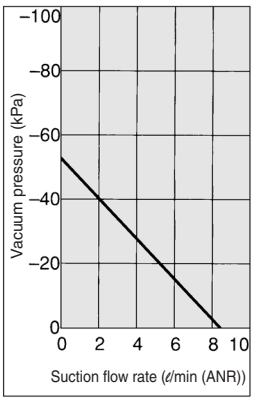


ZH05□L

Exhaust Characteristics

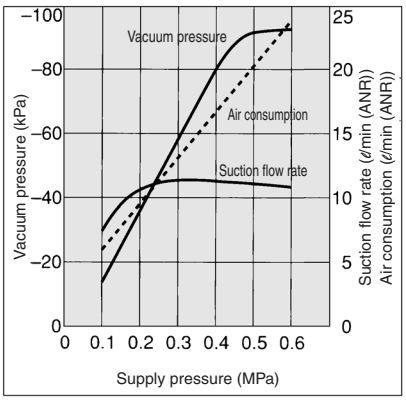


Flow Characteristics

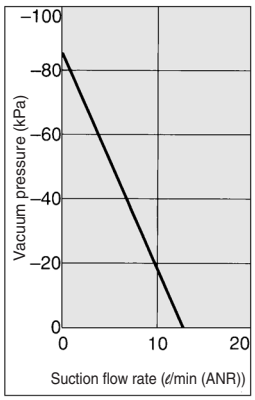


ZH07□S

Exhaust Characteristics

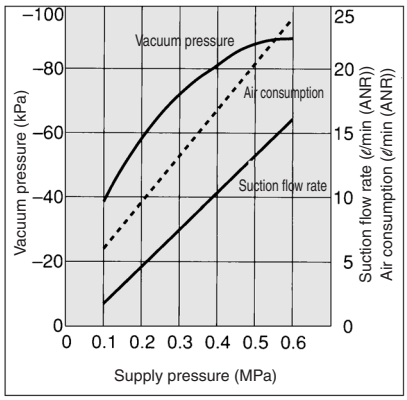


Flow Characteristics

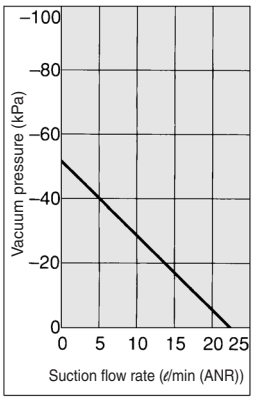


ZH07□L

Exhaust Characteristics

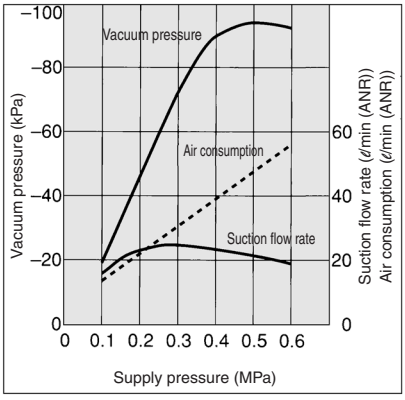


Flow Characteristics

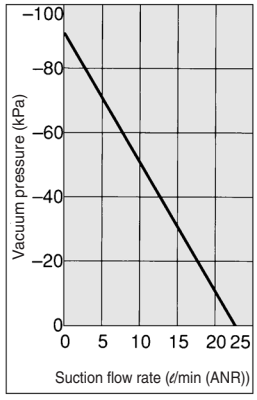


ZH10□S

Exhaust Characteristics

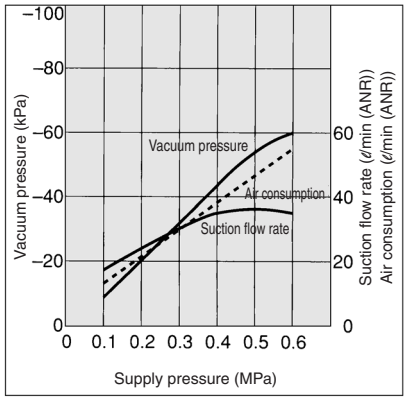


Flow Characteristics

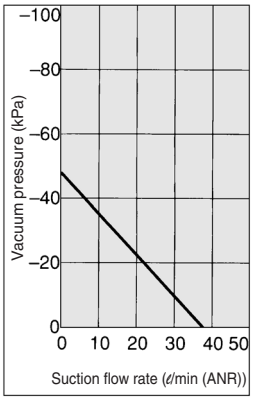


ZH10□L

Exhaust Characteristics

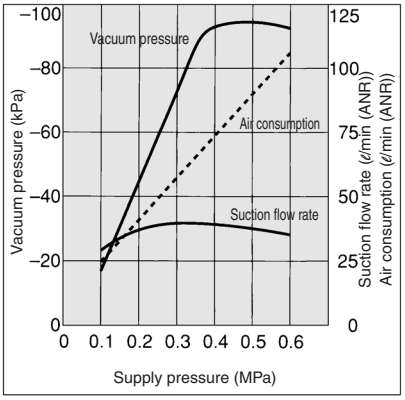


Flow Characteristics

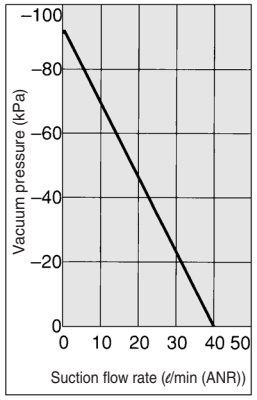


ZH13□S

Exhaust Characteristics

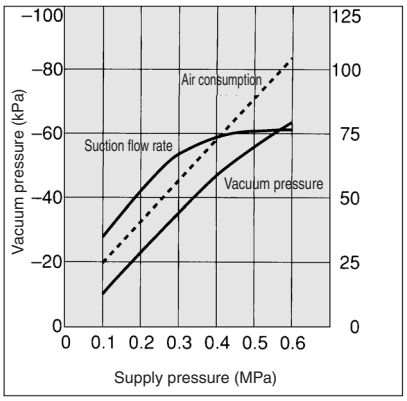


Flow Characteristics

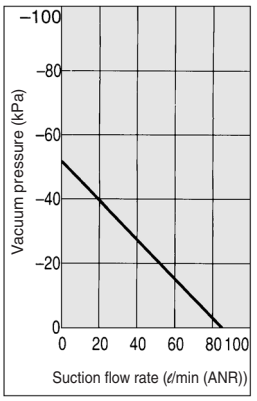


ZH13□L

Exhaust Characteristics



Flow Characteristics

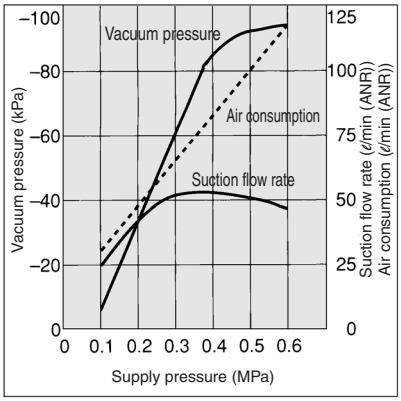


Exhaust Characteristics/Flow Characteristics

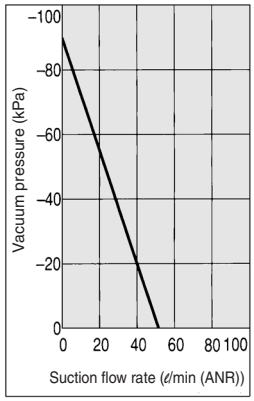
The flow characteristics correspond to a supply pressure of 0.45 MPa.

ZH15□S

Exhaust Characteristics

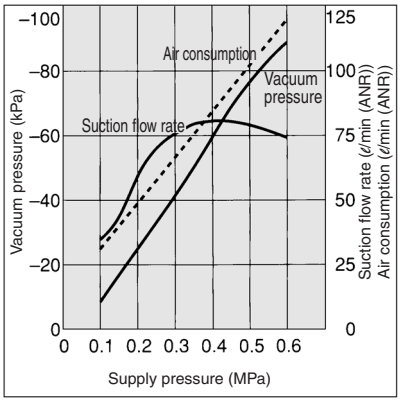


Flow Characteristics

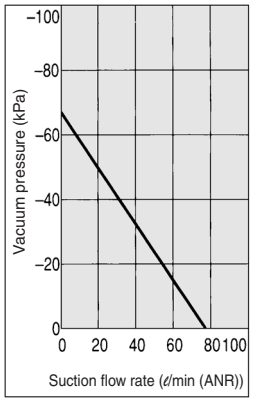


ZH15□L

Exhaust Characteristics

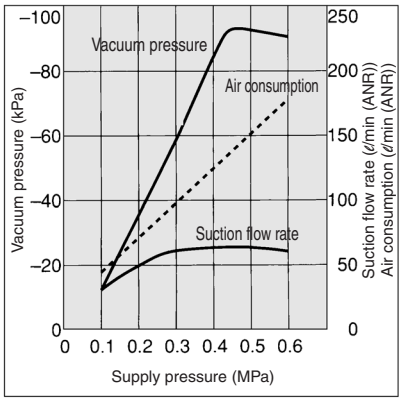


Flow Characteristics

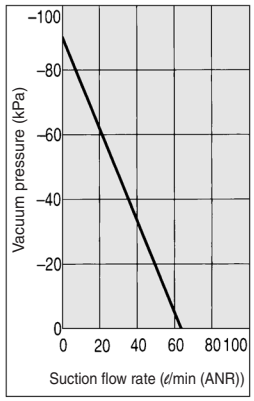


ZH18□S

Exhaust Characteristics

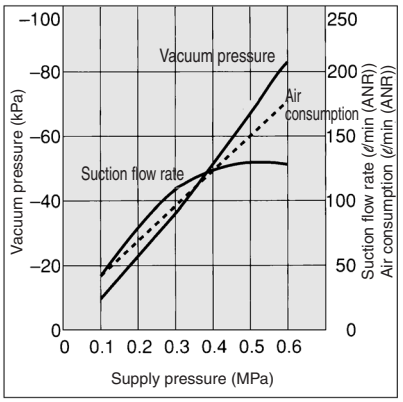


Flow Characteristics

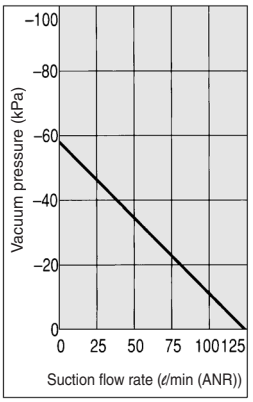


ZH18□L

Exhaust Characteristics

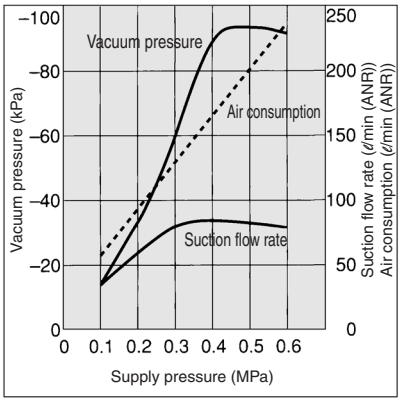


Flow Characteristics

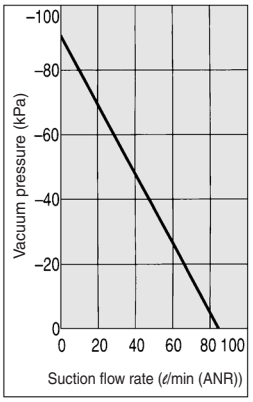


ZH20□S

Exhaust Characteristics

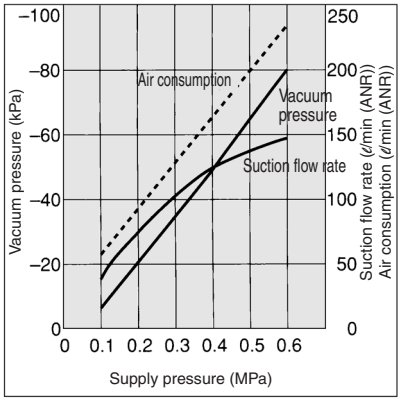


Flow Characteristics

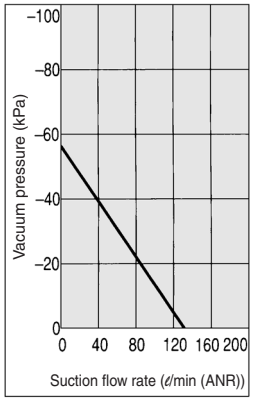


ZH20□L

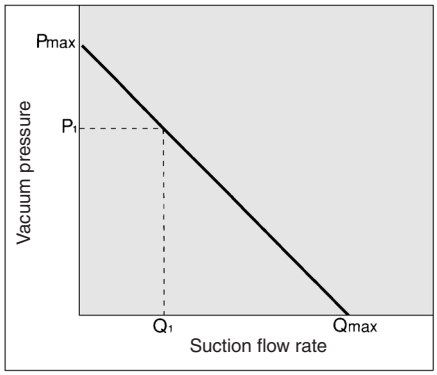
Exhaust Characteristics



Flow Characteristics



How to Read Flow Characteristics Graph



Flow characteristics are expressed in ejector vacuum pressure and suction flow. If suction flow rate changes, a change in vacuum pressure will also be expressed. Normally this relationship is expressed in ejector standard use.

In graph, Pmax is max. vacuum pressure and Qmax is max. suction flow. The valves are specified according to catalog use.

Changes in vacuum pressure are expressed in the order below.

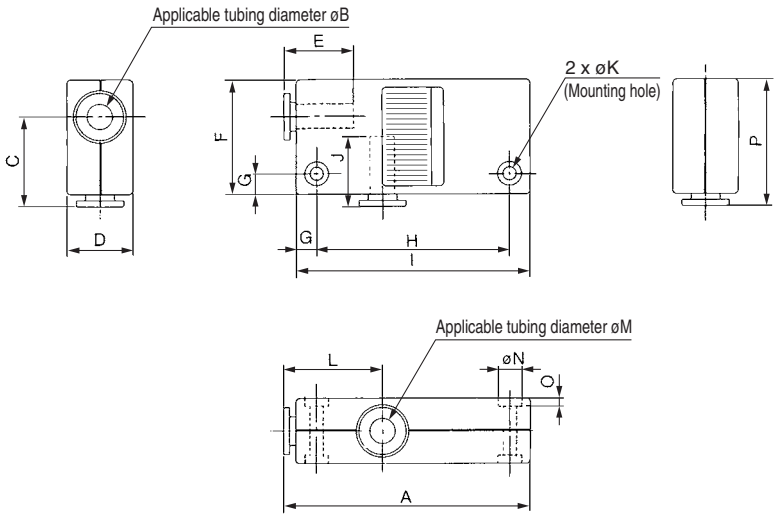
1. When ejector suction port is covered and made airtight, suction flow becomes 0 and vacuum pressure is at maximum value (Pmax).
2. When suction port is opened gradually, air can flow through, (air leakage), suction flow increases, but vacuum pressure decreases. (condition P1 and Q1)
3. When suction port is opened further, suction flow moves to maximum value (Qmax), but vacuum pressure is near 0. (atmospheric pressure).

When vacuum port (vacuum piping) has no leakage, vacuum pressure becomes maximum, and vacuum pressure decreases as leakage increases. When leakage value is the same as max. suction flow, vacuum pressure is near 0.

When ventirative or leaky work must be adsorbed, please note that vacuum pressure will not be high.

Box Type (Built-in silencer): ZH□B$^{S}_{L}$-□-□

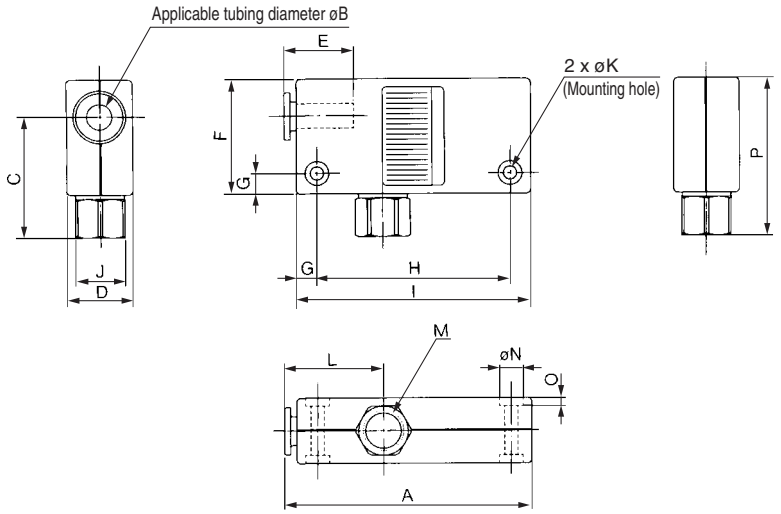
One-touch connection



Model	A	øB	C	D	E	F	G	H
ZH05BS-06-06	60	6	22	16	16.8	28	5	47
ZH05BL-06-06								
ZH07BS-06-06								
ZH07BL-06-06								
ZH10BS-06-06	63	6	23	18	16.8	29	5	50
ZH10BL-06-06								
ZH13BS-08-10	78	8	27.5	23	18.7	35	7	61
ZH13BL-08-10								

Model	I	J	øK	L	øM	øN	O	P
ZH05BS-06-06	57	16.8	3.2	24	6	5.8	2	31
ZH05BL-06-06								
ZH07BS-06-06								
ZH07BL-06-06								
ZH10BS-06-06	60	16.8	3.2	26	6	5.8	2	32
ZH10BL-06-06								
ZH13BS-08-10	75	18.7	4.2	28	10	7.5	3	38.5
ZH13BL-08-10								

One-touch and screw-in connection



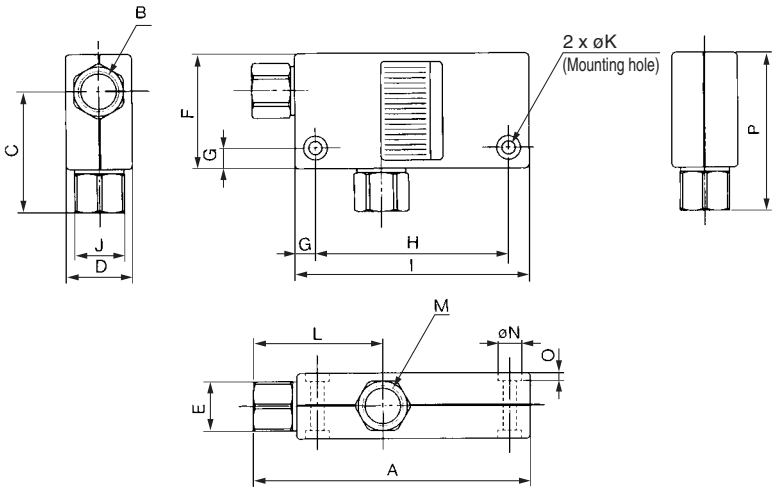
Model	A	øB	C	D	E	F	G	H
ZH05BS-06-01	60	6	29.5	16	16.8	28	5	47
ZH05BL-06-01								
ZH07BS-06-01								
ZH07BL-06-01								
ZH10BS-06-01	63	6	30.5	18	16.8	29	5	50
ZH10BL-06-01								
ZH13BS-08-02	78	8	39	23	18.7	35	7	61
ZH13BL-08-02								
ZH05BS-06-F01	60	6	29.5	16	16.8	28	5	47
ZH05BL-06-F01								
ZH07BS-06-F01								
ZH07BL-06-F01								
ZH10BS-06-F01	63	6	30.5	18	16.8	29	5	50
ZH10BL-06-F01								
ZH13BS-08-F02	78	8	39	23	18.7	35	7	61
ZH13BL-08-F02								

Model	I	J	øK	L	M	øN	O	P
ZH05BS-06-01	57	12	3.2	24	Rc 1/8	5.8	2	38.5
ZH05BL-06-01								
ZH07BS-06-01								
ZH07BL-06-01								
ZH10BS-06-01	60	12	3.2	26	Rc 1/8	5.8	2	39.5
ZH10BL-06-01								
ZH13BS-08-02	75	17	4.2	28	Rc 1/4	7.5	3	50
ZH13BL-08-02								
ZH05BS-06-F01	57	12	3.2	24	G 1/8	5.8	2	38.5
ZH05BL-06-F01								
ZH07BS-06-F01								
ZH07BL-06-F01								
ZH10BS-06-F01	60	12	3.2	26	G 1/8	5.8	2	39.5
ZH10BL-06-F01								
ZH13BS-08-F02	75	17	4.2	28	G 1/4	7.5	3	50
ZH13BL-08-F02								

∗ Contact SMC for combinations other than listed above.

Box Type (Built-in silencer): ZH□B$^{S}_{L}$-□-□

Screw-in connection



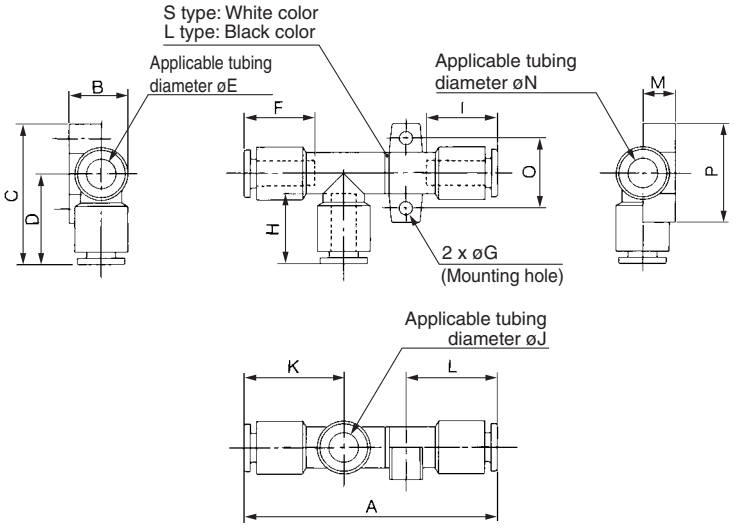
Model	A	B	C	D	E	F	G	H
ZH05BS-01-01	67.5	Rc 1/8	29.5	16	12	28	5	47
ZH05BL-01-01								
ZH07BS-01-01								
ZH07BL-01-01								
ZH10BS-01-01	70.5	Rc 1/8	30.5	18	12	29	5	50
ZH10BL-01-01								
ZH13BS-01-02	86.5	Rc 1/8	39	23	14	35	7	61
ZH13BL-01-02								
ZH05BS-F01-F01	67.5	G 1/2	29.5	16	12	28	5	47
ZH05BL-F01-F01								
ZH07BS-F01-F01								
ZH07BL-F01-F01								
ZH10BS-F01-F01	70.5	G 1/2	30.5	18	12	29	5	50
ZH10BL-F01-F01								
ZH13BS-F01-F02	86.5	G 1/2	39	23	14	35	7	61
ZH13BL-F01-F02								

Model	I	J	øK	L	M	øN	O	P
ZH05BS-01-01	57	12	3.2	31.5	Rc 1/8	5.8	2	38.5
ZH05BL-01-01								
ZH07BS-01-01								
ZH07BL-01-01								
ZH10BS-01-01	60	12	3.2	33.5	Rc 1/8	5.8	2	39.5
ZH10BL-01-01								
ZH13BS-01-02	75	17	4.2	36.5	Rc 1/4	7.5	3	50
ZH13BL-01-02								
ZH05BS-F01-F01	57	12	3.2	31.5	G 1/8	5.8	2	38.5
ZH05BL-F01-F01								
ZH07BS-F01-F01								
ZH07BL-F01-F01								
ZH10BS-F01-F01	60	12	3.2	33.5	G 1/8	5.8	2	39.5
ZH10BL-F01-F01								
ZH13BS-F01-F02	75	17	4.2	36.5	G 1/4	7.5	3	50
ZH13BL-F01-F02								

∗ Please contact SMC for combinations other than listed above.

Body Ported Type (Without silencer): ZH05D$^{S}_{L}$-□-□-□, ZH15D$^{S}_{L}$-□-□-□

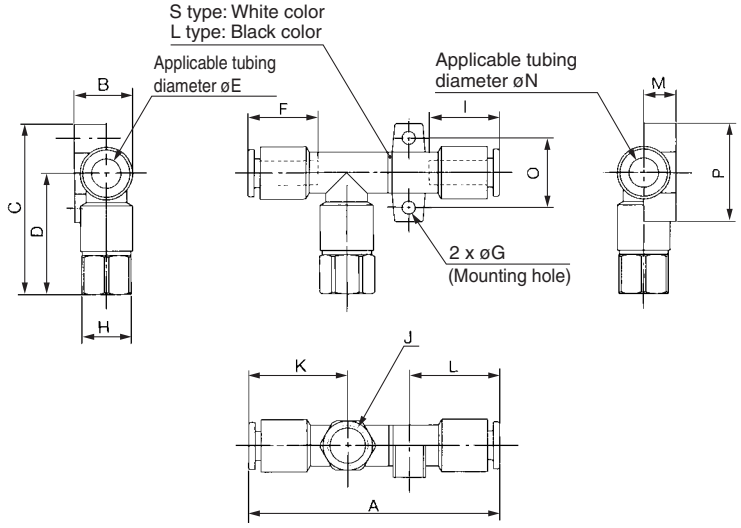
One-touch connection



Model	A	B	C	D	øE	F	øG	H
ZH05DS-06-06-06	58.5	14.2	34	22	6	16.8	3.2	16.8
ZH05DL-06-06-06								
ZH07DS-06-06-06	61							
ZH07DL-06-06-06								
ZH10DS-06-06-08	66	17.2	37	23	6	16.8	4.2	16.8
ZH10DL-06-06-08	70							
ZH13DS-08-10-10	74.5	20	42.5	27.5	8	18.7	4.2	21.6
ZH13DL-08-10-10	79.5							
ZH15DS-10-12-12	93.3	22.5	47	29.5	10	21.6	4.2	21.8
ZH15DL-10-12-12								

Model	I	øJ	K	L	M	øN	O	P
ZH05DS-06-06-06	16.8	6	24	21	7.8	6	17	24
ZH05DL-06-06-06								
ZH07DS-06-06-06				22				
ZH07DL-06-06-06								
ZH10DS-06-06-08	18.7	6	26	24.5	9.6	8	20	28
ZH10DL-06-06-08								
ZH13DS-08-10-10	21.6	10	28	27	10.7	10	22	30
ZH13DL-08-10-10								
ZH15DS-10-12-12	21.6	12	31.5	32.8	12	12	27	35
ZH15DL-10-12-12								

One-touch and screw-in connection



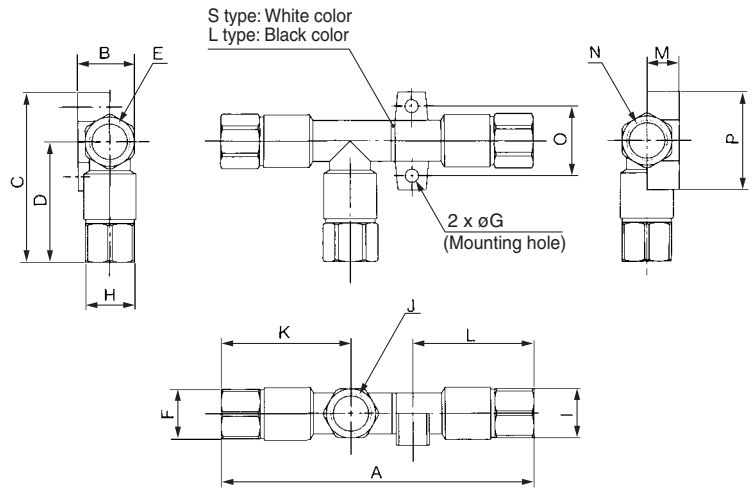
Model	A	B	C	D	øE	F	øG	H
ZH05DS-06-01-06	58.5	14.2	41.5	29.5	6	16.8	3.2	12
ZH05DL-06-01-06								
ZH07DS-06-01-06	61							
ZH07DL-06-01-06								
ZH10DS-06-01-08	66	17.2	44.5	30.5	6	16.8	4.2	12
ZH10DL-06-01-08	70							
ZH13DS-08-02-10	74.5	20	54	39	8	18.7	4.2	17
ZH13DL-08-02-10	79.5							
ZH15DS-10-03-12	93.3	22.5	58.5	41	10	21.6	4.2	19
ZH15DL-10-03-12								
ZH05DS-06-F01-06	58.5	14.2	41.5	29.5	6	16.8	3.2	12
ZH05DL-06-F01-06								
ZH07DS-06-F01-06	61							
ZH07DL-06-F01-06								
ZH10DS-06-F01-08	66	17.2	44.5	30.5	6	16.8	4.2	12
ZH10DL-06-F01-08	70							
ZH13DS-08-F02-10	74.5	20	54	39	8	18.7	4.2	17
ZH13DL-08-F02-10	79.5							
ZH15DS-10-F03-12	93.3	22.5	58.5	41	10	21.6	4.2	19
ZH15DL-10-F03-12								

Model	I	J	K	L	M	øN	O	P
ZH05DS-06-01-06	16.8	Rc 1/8	24	21	7.8	6	17	24
ZH05DL-06-01-06								
ZH07DS-06-01-06				22				
ZH07DL-06-01-06								
ZH10DS-06-01-08	18.7	Rc 1/8	26	24.5	9.6	8	20	28
ZH10DL-06-01-08								
ZH13DS-08-02-10	21.6	Rc 1/4	28	27	10.7	10	22	30
ZH13DL-08-02-10								
ZH15DS-10-03-12	21.6	Rc 3/8	31.5	32.8	12	12	27	35
ZH15DL-10-03-12								
ZH05DS-06-F01-06	16.8	G 1/8	24	21	7.8	6	17	24
ZH05DL-06-F01-06								
ZH07DS-06-F01-06				22				
ZH07DL-06-F01-06								
ZH10DS-06-F01-08	18.7	G 1/8	26	24.5	9.6	8	20	28
ZH10DL-06-F01-08								
ZH13DS-08-F02-10	21.6	G 1/4	28	27	10.7	10	22	30
ZH13DL-08-F02-10								
ZH15DS-10-F03-12	21.6	G 3/8	31.5	32.8	12	12	27	35
ZH15DL-10-F03-12								

∗ Please contact SMC for combinations other than listed above.

Body Ported Type (Without silencer): ZH05D$^{S}_{L}$-□-□-□, ZH15D$^{S}_{L}$-□-□-□

Screw-in connection



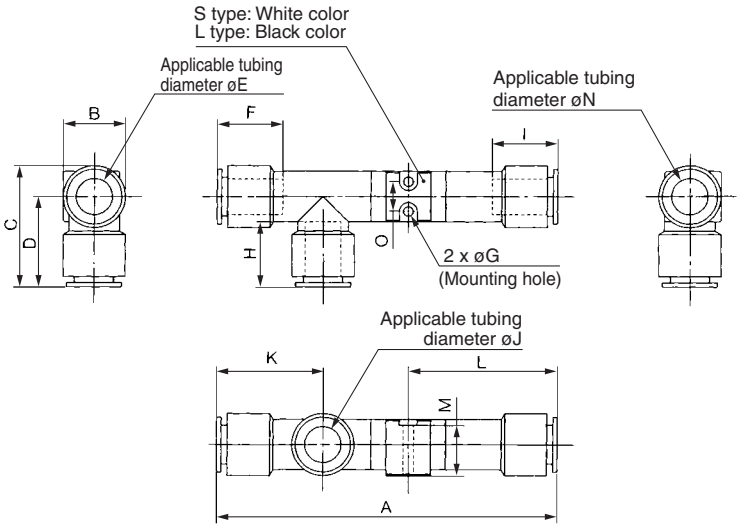
Model	A	B	C	D	E	F	øG	H
ZH05DS-01-01-01	73.5	14.2	41.5	29.5	Rc 1/8	12	3.2	12
ZH05DL-01-01-01								
ZH07DS-01-01-01	76							
ZH07DL-01-01-01								
ZH10DS-01-01-01	82	17.2	44.5	30.5	Rc 1/8	12	4.2	12
ZH10DL-01-01-01	86							
ZH13DS-01-02-02	94.5	20	54	39	Rc 1/8	14	4.2	17
ZH13DL-01-02-02	99.5							
ZH15DS-02-03-03	116.5	22.5	58.5	41	Rc 1/4	17	4.2	19
ZH15DL-02-03-03								
ZH05DS-F01-F01-F01	73.5	14.2	41.5	29.5	G 1/8	12	3.2	12
ZH05DL-F01-F01-F01								
ZH07DS-F01-F01-F01	76							
ZH07DL-F01-F01-F01								
ZH10DS-F01-F01-F01	82	17.2	44.5	30.5	G 1/8	12	4.2	12
ZH10DL-F01-F01-F01	86							
ZH13DS-F01-F02-F02	94.5	20	54	39	G 1/8	14	4.2	17
ZH13DL-F01-F02-F02	99.5							
ZH15DS-F02-F03-F03	116.5	22.5	58.5	41	G 1/4	17	4.2	19
ZH15DL-F02-F03-F03								

Model	I	J	K	L	M	N	O	P
ZH05DS-01-01-01	12	Rc 1/8	31.5	28.5	7.8	Rc 1/8	17	24
ZH05DL-01-01-01								
ZH07DS-01-01-01				29.5				
ZH07DL-01-01-01								
ZH10DS-01-01-01	14	Rc 1/8	33.5	33	9.6	Rc 1/8	20	28
ZH10DL-01-01-01								
ZH13DS-01-02-02	17	Rc 1/4	36.5	38.5	10.7	Rc 1/4	22	30
ZH13DL-01-02-02								
ZH15DS-02-03-03	19	Rc 3/8	43	44.5	12	Rc 3/8	27	35
ZH15DL-02-03-03								
ZH05DS-F01-F01-F01	12	G 1/8	31.5	28.5	7.8	G 1/8	17	24
ZH05DL-F01-F01-F01								
ZH07DS-F01-F01-F01				29.5				
ZH07DL-F01-F01-F01								
ZH10DS-F01-F01-F01	14	G 1/8	33.5	33	9.6	G 1/8	20	28
ZH10DL-F01-F01-F01								
ZH13DS-F01-F02-F02	17	G 1/4	36.5	38.5	10.7	G 1/4	22	30
ZH13DL-F01-F02-F02								
ZH15DS-F02-F03-F03	19	G 3/8	43	44.5	12	G 3/8	27	35
ZH15DL-F02-F03-F03								

∗ Please contact SMC for combinations other than listed above.

Body Ported Type (Without silencer): ZH18D$^{S}_{L}$-□-□-□, ZH20D$^{S}_{L}$-□-□-□

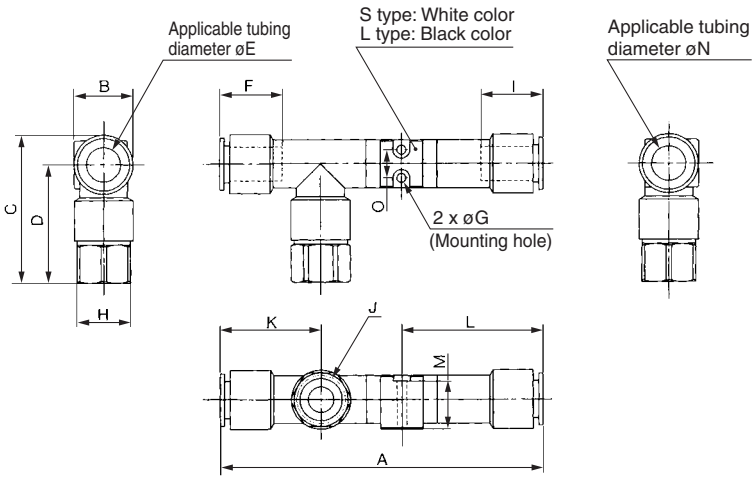
One-touch connection



Model	A	B	C	D	øE	F	øG	H
ZH18DS-12-12-12	114	21	41	30.5	ø12	21.8	ø3.5	21.8
ZH18DL-12-12-12								
ZH20DS-12-16-16	124.6	26.8	46	32.7	ø12	21.8	ø3.5	24.2
ZH20DL-12-16-16								

Model	I	øJ	K	L	M	øN	O
ZH18DS-12-12-12	21.8	ø12	35.5	50	17	ø12	10
ZH18DL-12-12-12							
ZH20DS-12-16-16	24.2	ø16	38.5	54.3	21.7	ø16	12
ZH20DL-12-16-16							

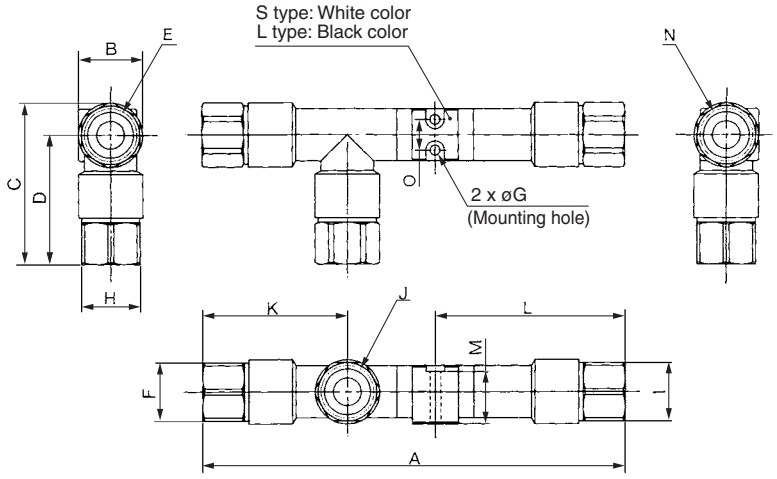
One-touch and screw-in connection



Model	A	B	C	D	øE	F	øG	H
ZH18DS-12-03-12	110	21	52.5	42	ø12	21.8	ø3.5	19
ZH18DL-12-03-12								
ZH20DS-12-04-16	124.6	26.8	61	47.7	ø12	21.8	ø3.5	24
ZH20DL-12-04-16								
ZH18DS-12-F03-12	110	21	52.5	42	ø12	21.8	ø3.5	19
ZH18DL-12-F03-12								
ZH20DS-12-F04-16	124.6	26.8	67	53.7	ø12	21.8	ø3.5	24
ZH20DL-12-F04-16								

Model	I	J	K	L	M	øN	O
ZH18DS-12-03-12	21.8	Rc 3/8	35.5	50	17	ø12	10
ZH18DL-12-03-12							
ZH20DS-12-04-16	24.2	Rc 1/2	38.5	54.3	21.7	ø16	12
ZH20DL-12-04-16							
ZH18DS-12-F03-12	21.8	G 3/8	35.5	50	17	ø12	10
ZH18DL-12-F03-12							
ZH20DS-12-F04-16	24.2	G 1/2	38.5	54.3	21.7	ø16	12
ZH20DL-12-F04-16							

Screw-in connection



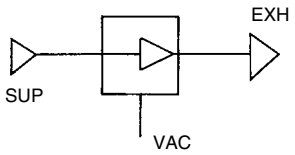
Model	A	B	C	D	E	F	øG	H
ZH18DS-03-03-03	137	21	52.5	42	Rc 3/8	19	ø3.5	19
ZH18DL-03-03-03								
ZH20DS-03-04-04	151.1	26.8	61	47.7	Rc 3/8	19	ø3.5	24
ZH20DL-03-04-04								
ZH18DS-F03-F03-F03	137	21	52.5	42	G 3/8	19	ø3.5	19
ZH18DL-F03-F03-F03								
ZH20DS-F03-F04-F04	157.1	26.8	67	53.7	G 3/8	19	ø3.5	24
ZH20DL-F03-F04-F04								

Model	I	J	K	L	M	N	O
ZH18DS-03-03-03	19	Rc 3/8	47	57.5	17	Rc 3/8	10
ZH18DL-03-03-03							
ZH20DS-03-04-04	24	Rc 1/2	50	69.3	22	Rc 1/2	12
ZH20DL-03-04-04							
ZH18DS-F03-F03-F03	19	G 3/8	47	57.5	17	G 3/8	10
ZH18DL-F03-F03-F03							
ZH20DS-F03-F04-F04	24	G 1/2	50	75.3	22	G 1/2	12
ZH20DL-F03-F04-F04							

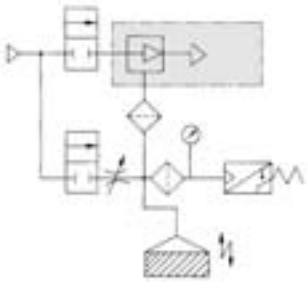
∗ Please contact SMC for combinations other than listed above.

Example of Application Circuit

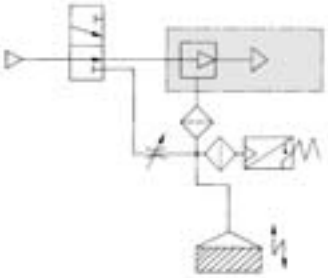
Basic Type



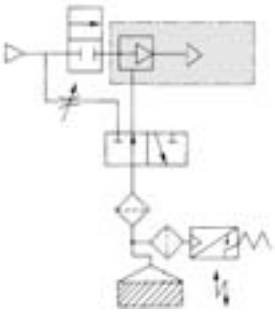
(a) Full system



(b) 3 port valve selection



(c) Switching on the vacuum side



Diagrams (a) to (c) show the combination with peripherals.

⚠Caution

Handling of application circuits

1. Countermeasures for power outages
Select a supply valve for the ejector that is normally open or one that is equipped with a self-holding function.

2. Using a small-diameter picking nozzle
For picking electronic parts or small precision parts, if the picking nozzle is approximately ø1 mm in diameter, the vacuum remains high by being restricted by the nozzle. As a result, it will not be possible to verify it with the vacuum switch. In such a case, it is necessary to use an ejector that is suited to the nozzle and to select a vacuum switch with a favorable hysteresis and precision.

3. Considerable leakage from the suction surface
If a workpiece is made of porous material or if there is air leakage from the area between the pad and the workpiece, use a nozzle with a large diameter and a large suction flow volume.
If the amount of leakage is known based on the effective sectional area of the side with the leakage, the vacuum pressure can be estimated in accordance with the ejector's flow volume characteristics.

4. Suction filter
To protect the ejectors and valves from dust, the use of a suction filter (Series ZFA, ZFB, ZFC) is recommended.

5. Use of a vacuum switch
It is recommended that verification be made with a vacuum switch as much as possible.

6. Vacuum release valve
To serve as a vacuum release valve, use a 2 port or 3 port valve. As for the performance of the valve, select a valve for a low vacuum. In addition, add a needle valve that can regulate the flow volume of the vacuum releasing air. Use the atmospheric pressure or a positive pressure for the vacuum releasing pressure.

7. Common exhaust
For common exhaust as shown below, use an exhaust pipe big enough to prevent exhaust resistance.

Exhaust pipe with enough capability