

MULTISTAGE MICRO EJECTORS

HMEDT07, HMEDT10,
HMEDT12, HMEDT14



Specifications

Item		Basic model	HMEDT07	HMEDT10	HMEDT12	HMEDT14
Media		Air ^{Note 2}				
Operating pressure range		MPa [psi.]	0.2~0.6 [29~87]			
Proof pressure		MPa [psi.]	1.03 [149]			
Operating temperature range (atmosphere and media)		°C [°F]	5~50 [41~122]			
Nozzle diameter		mm [in.]	0.7 [0.028]	1.0 [0.039]	1.2 [0.047]	1.4 [0.055]
Vacuum ^{Note 1}		kPa [in.Hg]	-84 [-24.8]			
Vacuum flow rate ^{Note 1}		ℓ /min [ft. ³ /min.] (ANR)	25 [0.88]	50 [1.77]	85 [3.00]	95 [3.35]
Compressed air consumption ^{Note 1}		ℓ /min [ft. ³ /min.] (ANR)	23 [0.81]	46 [1.62]	72 [2.54]	96 [3.39]
Lubrication		Prohibited				
Filtration		μm	30			
Port size	Vacuum generation port	NPT1/8			NPT1/4	
	Compressed air supply port	NPT1/8			NPT1/4	
Mounting direction		Any				

Notes: 1. Value (approximate) is measured at an air pressure of 0.5MPa [73psi].
2. Assumes use of pure air from which oil mist and dust, etc., have been removed.

Electronic Vacuum Switch Specifications

Item		Model	PS310
Media		Air or non-corrosive gas	
Operating temperature range		°C [°F]	-10~60 [14~140] (No freezing)
Operating humidity range		%RH	35~95
Operating pressure range		kPa [in.Hg]	-101.3~0 [-29.92~0]
Proof pressure		MPa [psi.]	0.2 [29]
Pressure setting range		kPa [in.Hg]	-101.3~-10.1 [-29.92~2.98]
Hysteresis ^{Note}		%	2~9
Repeatability		Within ±3% FS (0~50°C [32~122°F])	
Electrical specifications	Operation type	NPN open collector output, NO type (Output ON when falls below set pressure)	
	Operating voltage range	DCV	12~24 ±10% (ripple Vp-p 10% or less)
	Switching capacity	DC30V, 100mA or less (Internal voltage drop: 1V or less at load current 100mA, 0.4V or less at load current 16mA.)	
	Consumption current	mA MAX.	20
	Insulation resistance	MΩ	100 or more (DC500V megger, between charging part and case)
Surge suppression		Zener diode (As standard)	
Mechanical characteristics	Shock resistance	m/s ² [G]	490.3 [50]
	Vibration resistance	10~55Hz (total amplitude 1.5mm [0.06in.]) or 98.1m/s ² [10G] (2 hours Max. at each XYZ-axis)	
Operations indicator		When ON, LED indicator lights up	
Lead wire		Vinyl cabtyre: 0.14SQ×3-lead×500mm (Overall length)	
Mounting direction		Any	
Materials (body cover)		Plastic	

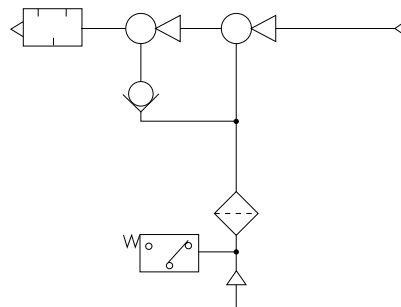
Note: Value is at set pressure of -86.7kPa [-25.61in.Hg].

Mass

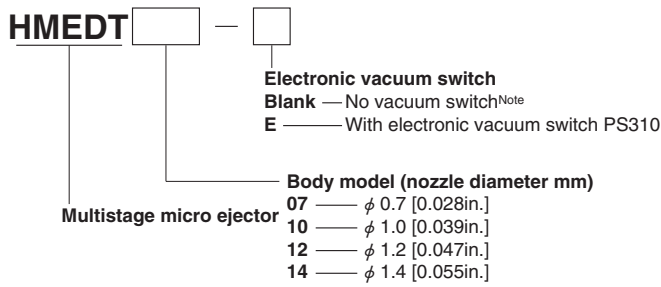
● Multistage micro ejector		g [oz.]	
Model	Mass	Model (With electronic vacuum switch)	Mass
HMEDT07	75	HMEDT07-E	105
HMEDT10	[2.65]	HMEDT10-E	[3.70]
HMEDT12	150	HMEDT12-E	190
HMEDT14	[5.29]	HMEDT14-E	[6.70]

Symbol

- HMEDT07-E
- HMEDT10-E
- HMEDT12-E
- HMEDT14-E

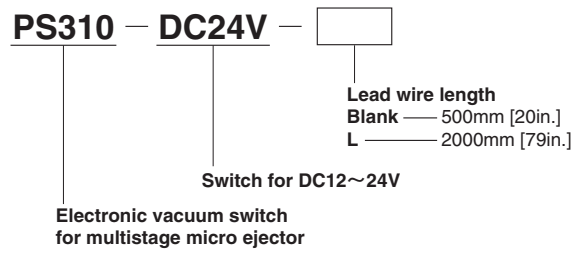


Multistage Micro Ejector Order Codes



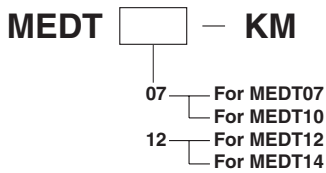
Note: If “no vacuum switch” is selected at time of order, the vacuum switch cannot be mounted to the unit later on.

Electronic Vacuum Switch Order Codes

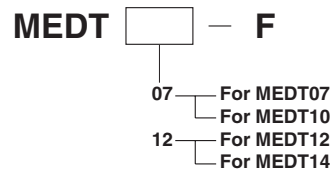


Additional parts (to be ordered separately)

● Replacement muffler

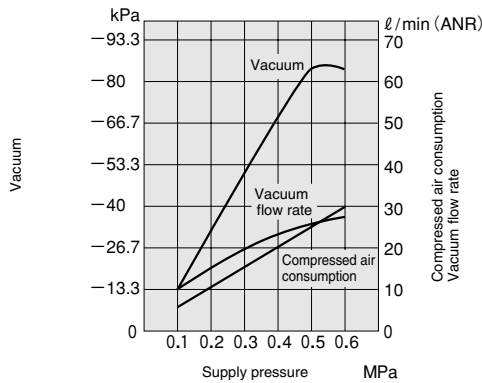


● Replacement filter

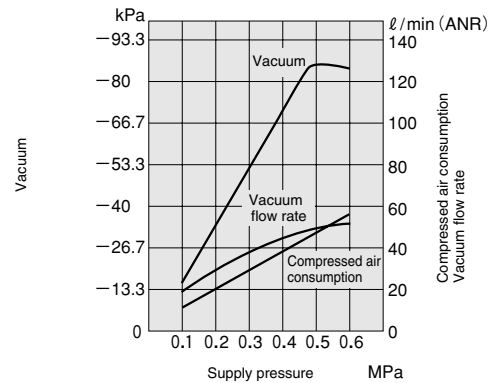


Air Consumption, Vacuum and Vacuum Flow Rate

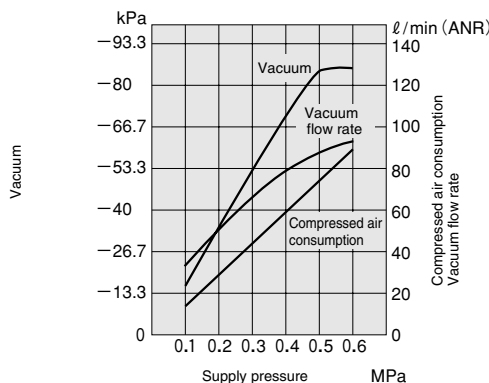
● HMEDT07



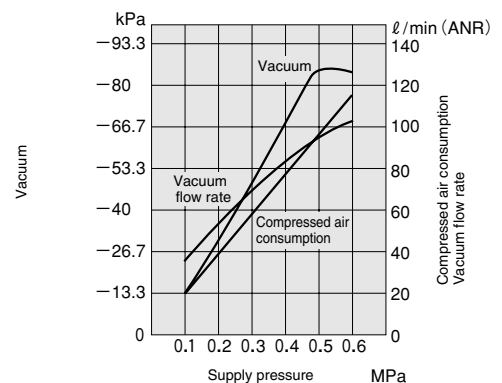
● HMEDT10



● HMEDT12



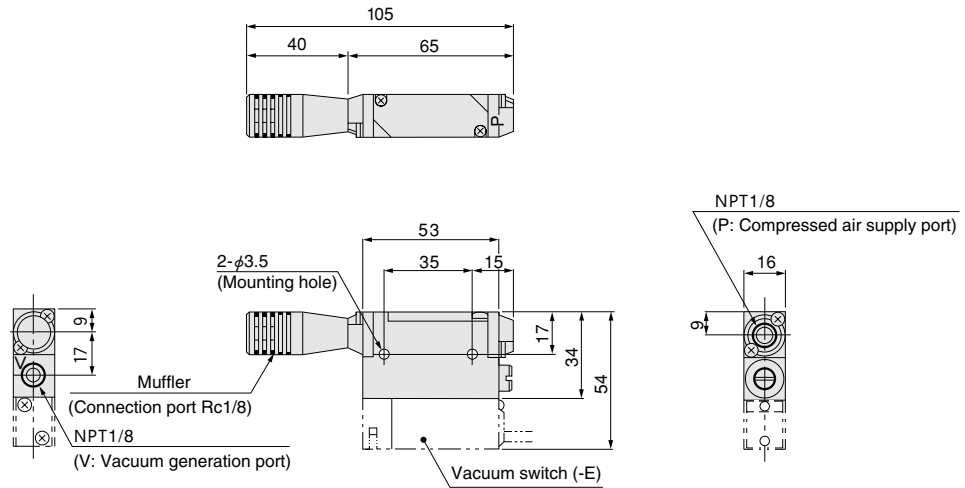
● HMEDT14



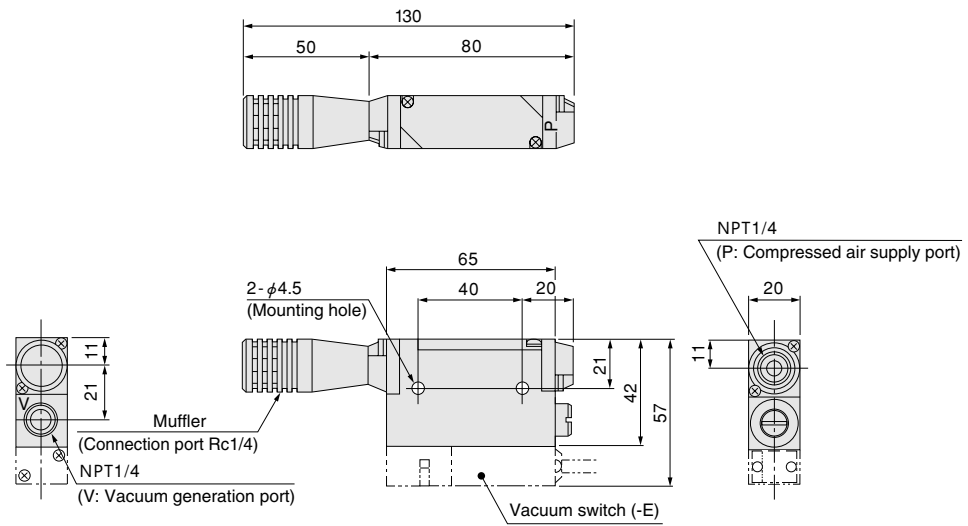
1MPa = 145psi. 1kPa = 0.145psi. -100kPa = -29.54in.Hg 1ℓ/min. = 0.0353ft³/min.

Dimensions (mm)

HMEDT07-E
HMEDT10-E

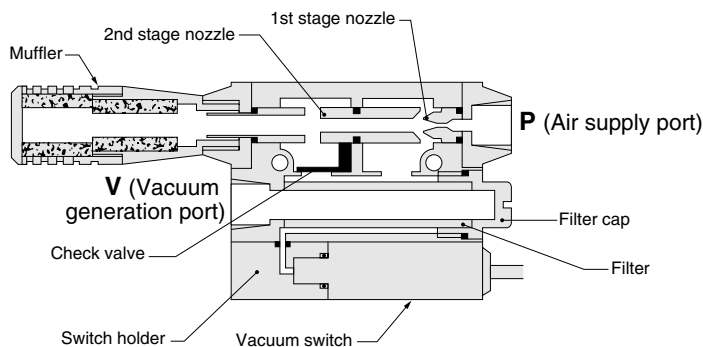


HMEDT12-E
HMEDT14-E

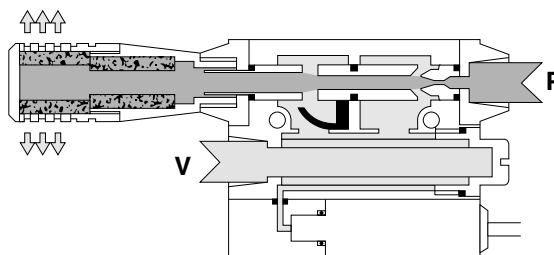


Operation Principle and Major Parts

● Unactuated



● When generates vacuum

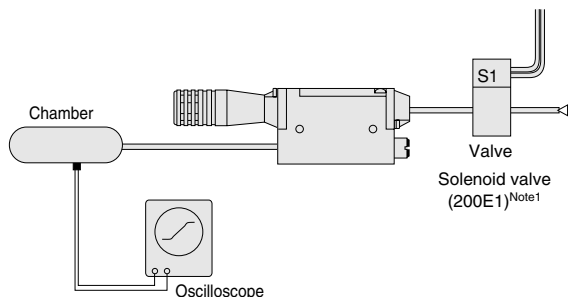


Major Parts and Materials

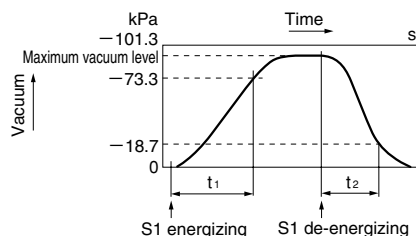
Parts	Materials
Body	Aluminum alloy (painted)
Nozzle	Brass
Filter, muffler	Plastic
O-ring, gasket	Synthetic rubber (NBR)
Switch holder	Aluminum alloy (anodized)

Time to Reach Vacuum and Vacuum Breaking Time

● Measurement method



● HMEDT□



Air pressure: 0.5MPa [73psi.]

t₁: Time to reach -73.3kPa [-21.65in.Hg] in the chamber after energizing S1.

t₂: In HMEDT□-E1, time to reach -18.7kPa [-5.52in.Hg] in the chamber after de-energizing S1.

Note: Use a valve with an effective area that is more than three times the cross-section area of the nozzle.

1kPa = 0.145psi. -100kPa = -29.54in.Hg

● Response time

Chamber capacity [in. ³]	5 [0.305]		10 [0.610]		20 [1.22]		50 [3.05]		100 [6.10]		200 [12.2]		500 [30.5]		1000 [61.0]		2000 [122]	
	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂	t ₁	t ₂
Model																		
HMEDT07	0.2	0.1	0.2	0.1	0.3	0.1	0.4	0.2	0.7	0.3	1.2	0.4	2.7	0.8	5.2	1.6		
HMEDT10	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.4	0.2	0.7	0.3	1.4	0.5	2.7	0.8	5.5	1.5
HMEDT12	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.1	0.5	0.2	0.9	0.3	1.8	0.6	3.5	1.1
HMEDT14	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.4	0.2	0.8	0.3	1.6	0.5	3.1	0.9

Note: Some degree of variation may occur due to piping size and chamber shape. The figures can be viewed as a guide.