

Compact Integrated Vacuum Generator

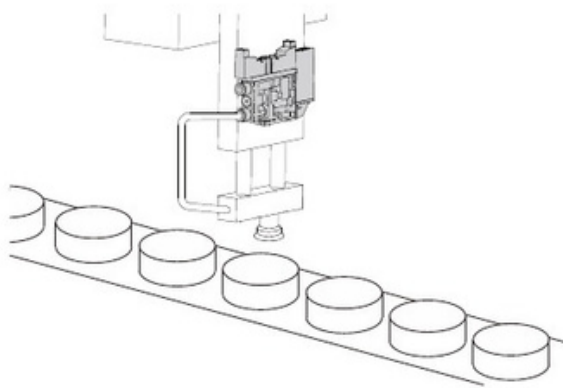
Compact Integrated Vacuum Generator MS1



3C Electronics | Packaging | Injection Molding



Compact Integrated Vacuum Generator MS1



Compact Integrated Vacuum Generator MS1 — Application

Introduction

- ◆ Multi-unit centralized air supply with built-in digital vacuum pressure switch.
- ◆ Compact and lightweight — mountable directly in the handling system
- ◆ Available in vacuum pump configuration for centralized vacuum station systems

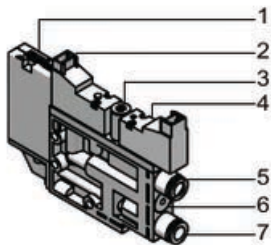
Applications

- ◆ Robotic handling and linear axis applications
- ◆ Pick-and-place applications with short cycle times
- ◆ Systems requiring high-dynamic workpiece gripping in limited space
- ◆ Fully automated small-parts handling

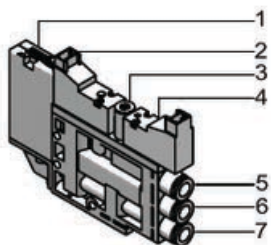
Application

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- ◆ Short cycle pick-and-place
- ◆ High-dynamic gripping, limited space
- ◆ Fully automated small-part conveying

Structure



Vacuum Generator Type



Vacuum Pump Type

- (1) Digital Vacuum Switch
- (2) Vacuum Generation Control Valve
- (3) Vacuum Break Flow Adjustment Valve
- (4) Vacuum Break Control Valve
- (5) Compressed Air Inlet
- (6) Exhaust Port / Vacuum Access Port
- (7) Vacuum Port

MS1 Ordering Guide

Example model code:

MS1 P 2 VN - Q

① ② ③ ④ ⑤

Position	Code	Description
① Product Series	MS1	Compact Integrated Vacuum Generator
② Generator Type	(blank)	Vacuum Generator Type
	P	Vacuum Pump Type
③ Stations	(blank)	1-station (NPN)
	2 – 8	2 to 8 stations
	9, 10	9 or 10 stations (Generator Type only)
④ Vacuum Switch	VN	Digital Vacuum Switch (NPN)
	VP	Digital Vacuum Switch (PNP)
⑤ Centralized Supply	(blank)	No centralized air supply
	Q	Centralized air supply

Note: Vacuum Pump Type (P) cannot be ordered in 9- or 10-station versions.

Note: If ④ is blank, option ⑤ (centralized supply) is not needed.

MS1 Technical Specifications

Model	Supply Pressure (bar)	Max Vacuum (kPa)	Max Vacuum Flow (NL/min)	Air Consumption (NL/min)	Weight (g)
MS1 (Generator Type)	3.0 – 6.0	90	12	8.2	75.4
MS1 P (Pump Type)	3.0 – 6.0	—	35	8.2	78.2

Vacuum Flow at Different Vacuum Levels (NL/min) — Supply: 5.0 bar, Consumption: 8.2 NL/min

Model	0	10	20	30	40	50	60	70	80	90 Max
MS1 (NL/min)	12	9.5	6.4	5.6	5.1	4.4	3.2	2.1	0.9	—

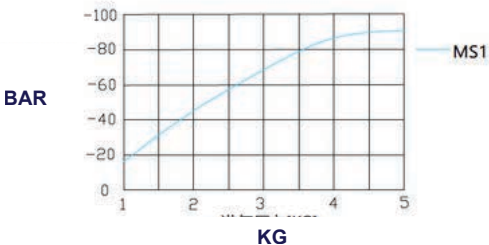
Evacuation Time at Different Vacuum Levels (s/L) — Supply: 5.0 bar, Consumption: 8.2 NL/min

Model	10	20	30	40	50	60	70	80	90 Max
MS1 (s/L)	0.49	1.37	2.90	4.70	6.98	10.03	14.90	23.20	59.52

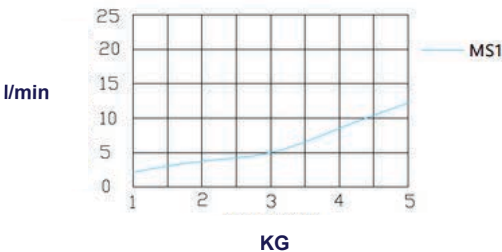
Compact Integrated Vacuum Generator MS1

MS1 Performance Curves

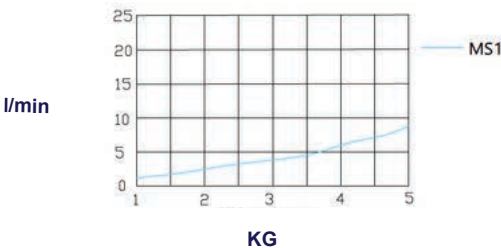
Vacuum level vs. inlet pressure |



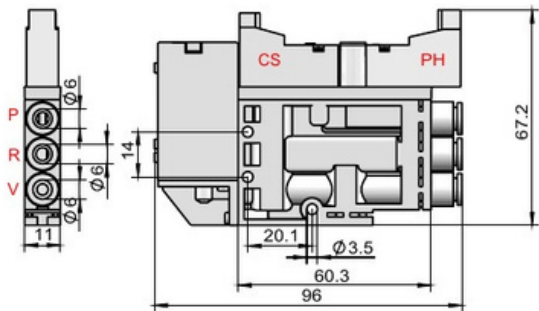
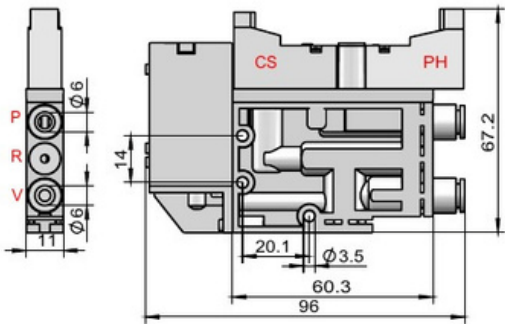
Max vacuum flow vs. inlet pressure



Air consumption vs. inlet pressure



MS1 Design Dimensions

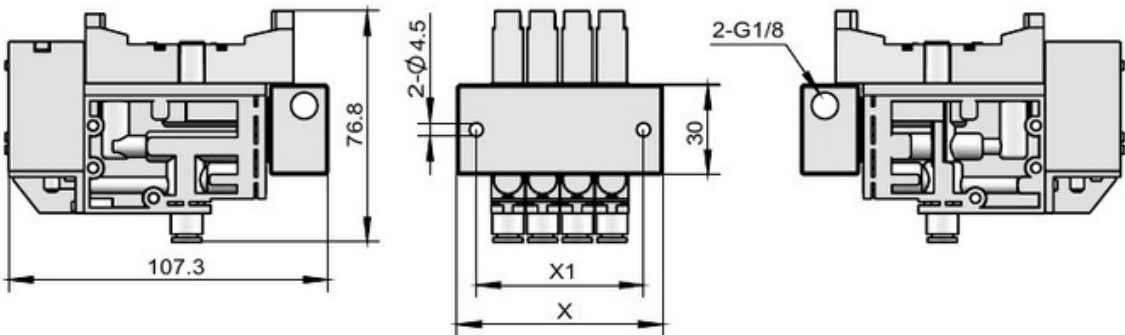


Port / Valve	Description
P	Compressed Air Inlet
R	Exhaust Port
V	Vacuum Port
CS	Vacuum Generation Control Valve
PH	Vacuum Break Control Valve

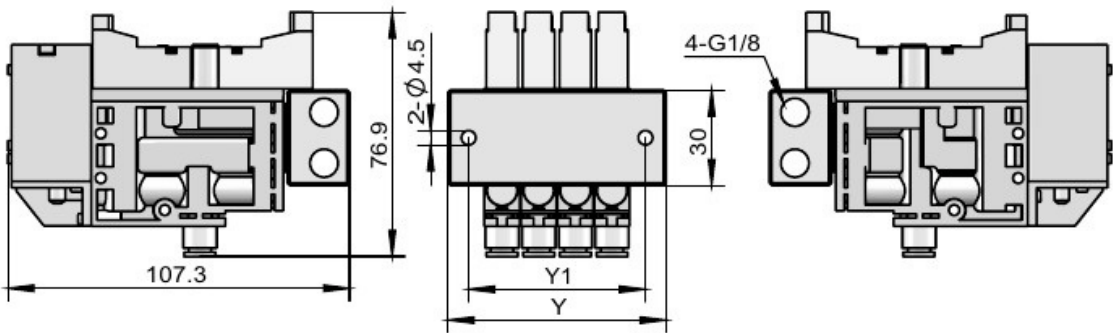
Compact Integrated Vacuum Generator MS1

MS1 Centralized Air Supply Design Dimensions

MS1 Vacuum Generator Type — Centralized Air Supply



MS1 P Vacuum Pump Type — Centralized Air Supply



Manifold dimensions vary by station count.
X1/X Applies to the Vacuum Generator Type
Y1/Y Applies to the Vacuum Pump Type.

Stations	X1 (mm)	X (mm)	Y1 (mm)	Y (mm)
2	32.5	45.5	32.5	45.5
4	55.5	68.5	55.5	68.5
6	78.5	91.5	78.5	91.5
8	101.5	114.5	101.5	114.5
10	137.5	124.5	—	—

Note: Even-numbered station configurations are standard products. Odd-numbered configurations use even-station manifold blocks with blank plug inserts.



Integrated Vacuum Generator MS2

Introduction and Applications

- ◆ For handling airtight or slightly porous workpieces in electronics, electronic engineering, packaging technology, robotics, and automotive manufacturing
- ◆ RD energy-saving vacuum switch: reduces air consumption by up to 90% vs. standard — stops air supply once the target vacuum level is reached
- ◆ Integrated DIN rail mounting with centralized air inlet

MS2 Ordering Guide

Example model code:

MS2 10 H S NC AS VD NPN B 2 Q
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

	Code	Description
① Product Series	MS2	Integrated Vacuum Generator
② Nozzle Size	07 / 10 / 15	0.7 mm / 1.0 mm / 1.5 mm
	XI10 / PI12	0.8 mm (XI10) / 0.9 mm (PI12) –
③ Max Vacuum	H	85 kPa
④ Supply Pressure	S	0.5 MPa
	R	0.35 MPa
⑤ Suction Valve State	NC	Normally Closed
	NO	Normally Open
⑥ Blow-off Valve	AS	Blow-off valve included
⑦ System Monitoring	(blank)	No vacuum switch
	VD	Digital vacuum switch Energy-
	RD	saving vacuum switch NPN or
⑧ Switch Output	NPN / PNP	PNP output
⑨ Silencer	(blank)	Standard silencer
	B	High-silence silencer
⑩ Stations	(blank) / 2–8	1 station / 2 to 8 stations
Centralized Supply	(blank)	No centralized supply
	Q	Centralized air supply

Note: XI10 pairs with HS only; PI12 pairs with HR only.

If ⑦ is blank, ⑧ is not required.

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Suction Capacity: 27 l/min to 41 l/min

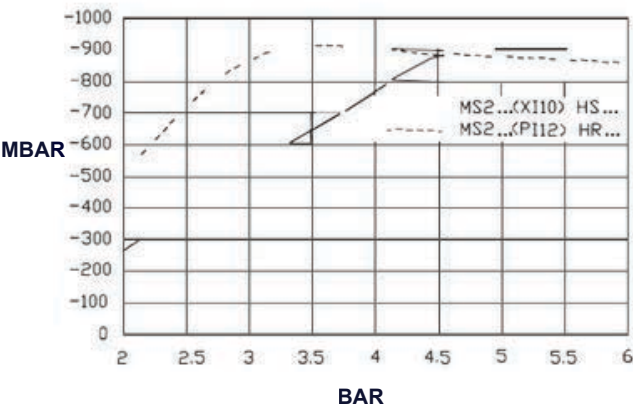
MS2 Technical Specifications

Suction Capacity: 27 l/min to 41 l/min

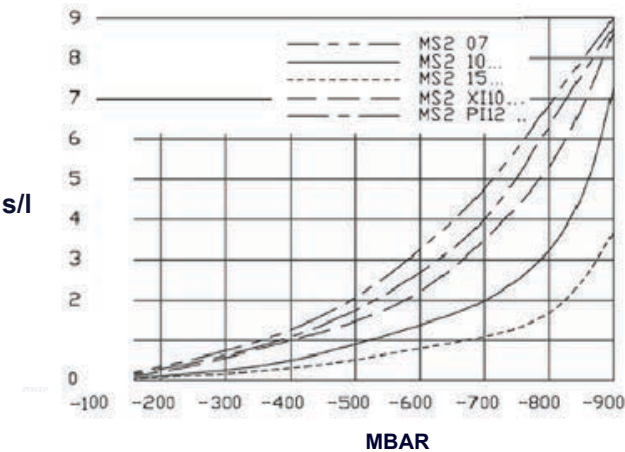
Model	Nozzle (mm)	Vacuum (%)	Max Suction (l/min)	Air Consump. (l/min)	Work. Press. (bar)	Work. Temp. (°C)	Weight (g)
MS2 07 HS...	0.7	85	11	22.5	5	0...45	130
MS2 07 HR...	0.7	85	9	22.5	3.5	0...45	130
MS2 10 HS...	1.0	85	27	44	5	0...45	130
MS2 10 HR...	1.0	85	25	44	3.5	0...45	130
MS2 15 HS...	1.5	85	63	100	5	0...45	130
MS2 XI10 HS...	0.8	85	45	28	5	0...45	130
MS2 PI12 HR...	0.9	85	41	32	3.5	0...45	130

MS2 Performance Curves

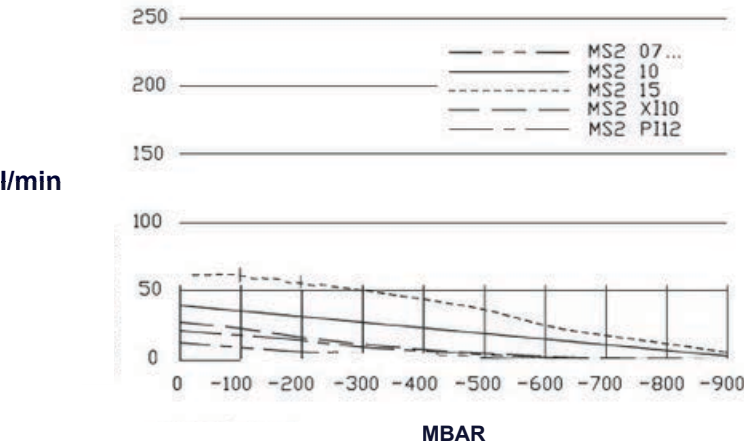
Vacuum level vs. working pressure



Evacuation time vs. vacuum level



Suction capacity vs. vacuum level



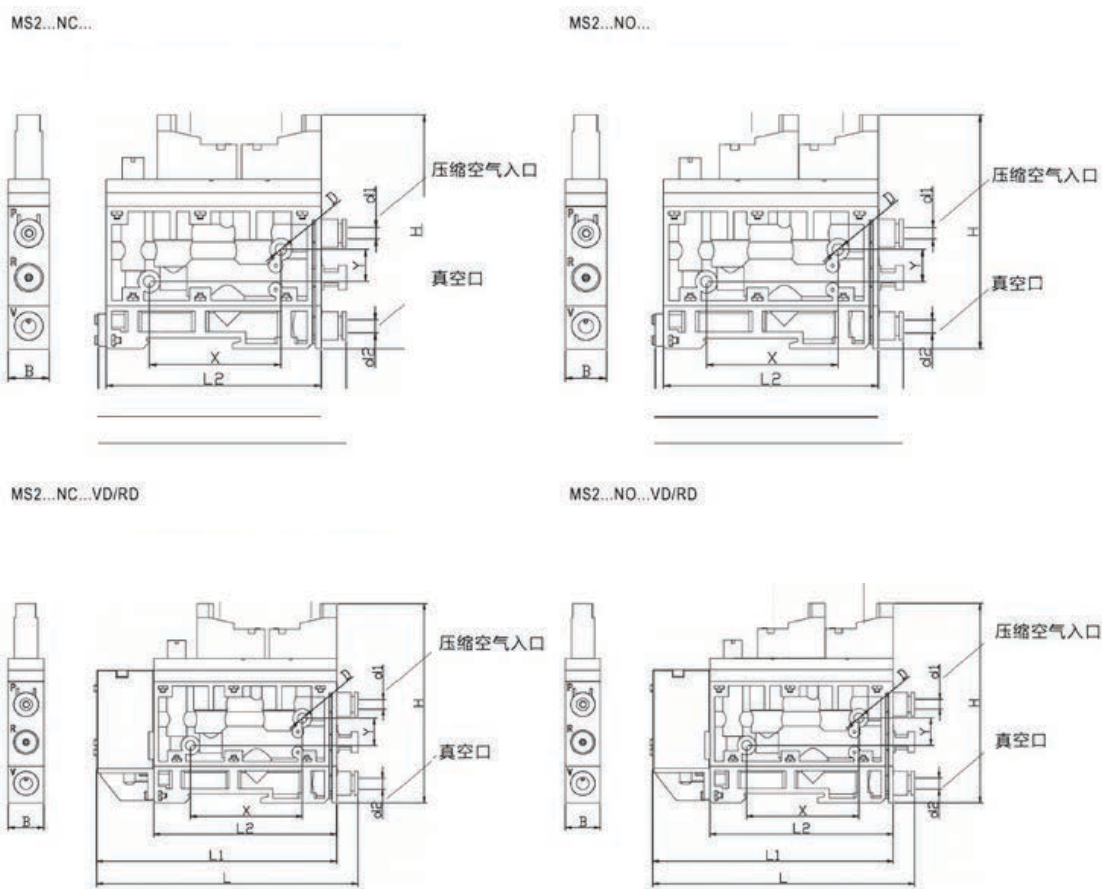
MS2 Design Dimensions

Suction Capacity: 27 l/min to 41 l/min

Four variants depending on suction valve state (NC / NO) and vacuum switch option (VD / RD):

- ◆ **MS2...NC...**: Normally Closed — without vacuum switch
- ◆ **MS2...NO...**: Normally Open — without vacuum switch
- ◆ **MS2...NC...VD/RD**: Normally Closed — with digital or energy-saving vacuum switch
- ◆ **MS2...NO...VD/RD**: Normally Open — with digital or energy-saving vacuum switch

MS2 design dimensions — all four variants (NC/NO with and without VD/RD vacuum switch)



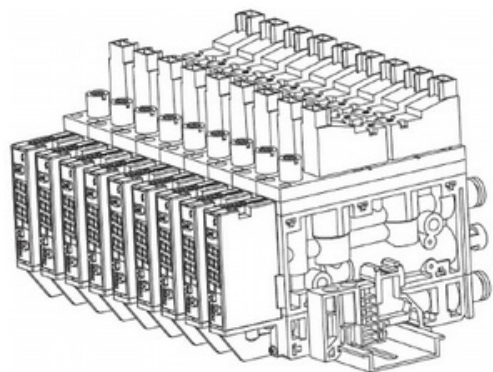
Model	B (mm)	D (mm)	d1 (mm)	d2 (mm)	H (mm)	L (mm)	L1 (mm)	L2 (mm)	X (mm)	Y (mm)
MS2...NC/NO...	15	4.3	6	6	87	92.3	83	80	49	12
MS2...NC/NO...VD/RD	15	4.3	6	6	87	*14.3	105	80	49	12

Integrated Vacuum Generator MS2

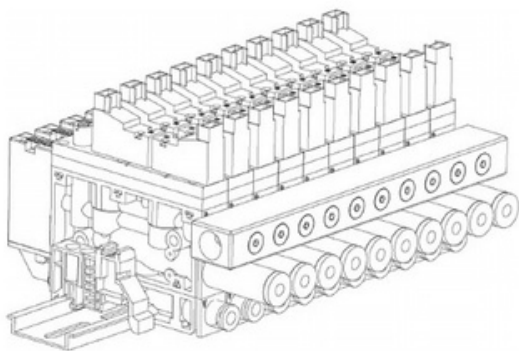
MS2 Installation Configurations

Suction Capacity: 27 l/min to 41 l/min

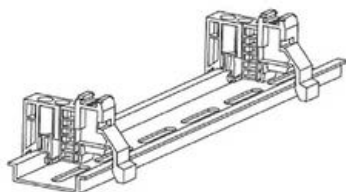
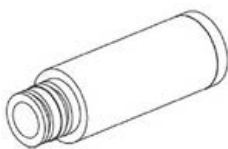
Manifold with Independent Air Supply



Manifold with Centralized Air Supply



Maintenance Component Selection



Component Name	Part Number	Notes
Silencer Cotton (Standard Silencer)	MS2-XYM	—
High-Silence Silencer	MS2-GXYXYQ	—
Solenoid Valve Terminal Cable	MS2-N	Connector lead 300 mm