

## MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, SERIES GVMM - GENERAL DESCRIPTION

Modular multi-function vacuum generators are true independent vacuum units that offer an entire vacuum control system.

They feature a reduced thickness and weight compared to their suction flow rate and they have been designed to be assembled with screws to one or more intermediate modules MI. The original internal connection system for the compressed air supply allows communication with no need for external manifolds.

This modular system allows increasing the number of independent vacuum units according to the requirements. In fact, you can order a multi-function vacuum generator and the intermediate modules with the desired capacities, already assembled, or you can assemble one or more intermediate modules to the GVMM generator that has already been installed on the machine, without having to make particular modifications. GVMM vacuum generators are composed of an anodised aluminium mono-block with lid, inside of which the silenced multiple ejectors are installed and the vacuum chamber and the compressed air supply connection are contained.

The following are instead installed on the outside:

- A micro solenoid valve for supplying compressed air to the generator.
- A micro solenoid valve for blowing the exhaust compressed air.
- An adjustable flow regulator for dosing the exhaust air.
- A digital vacuum switch provided with display and commutation LEDs, for managing the compressed air supply and for signalling the safety cycle start-up.
- An anodised aluminium or transparent Plexiglass manifold provided with vacuum connections with built-in suction filter, easy to inspect, and a check valve for maintaining the vacuum in case of electricity or compressed air failure.

By activating the compressed air power micro solenoid valve, the generator creates vacuum for use. As soon as the preset maximum value is reached, the digital vacuum switch acts on the electric coil of the micro solenoid valve and stops the air supply, reactivating it when the vacuum falls below the minimum level.

Besides maintaining the level of vacuum within set safety values (hysteresis), this modulation allows for considerable compressed air savings.

A second signal from the vacuum switch (also adjustable and independent with respect to the first) can be used to start the cycle when the level of vacuum reached is suitable for use. Once the work cycle is completed, the micro solenoid valve that supplies air to the generator is deactivated while, at the same time, the ejection solenoid valve is activated for quick restoration of the atmospheric pressure upon use.

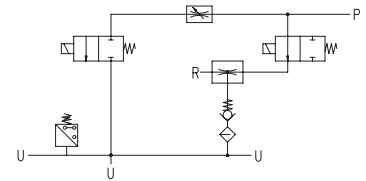
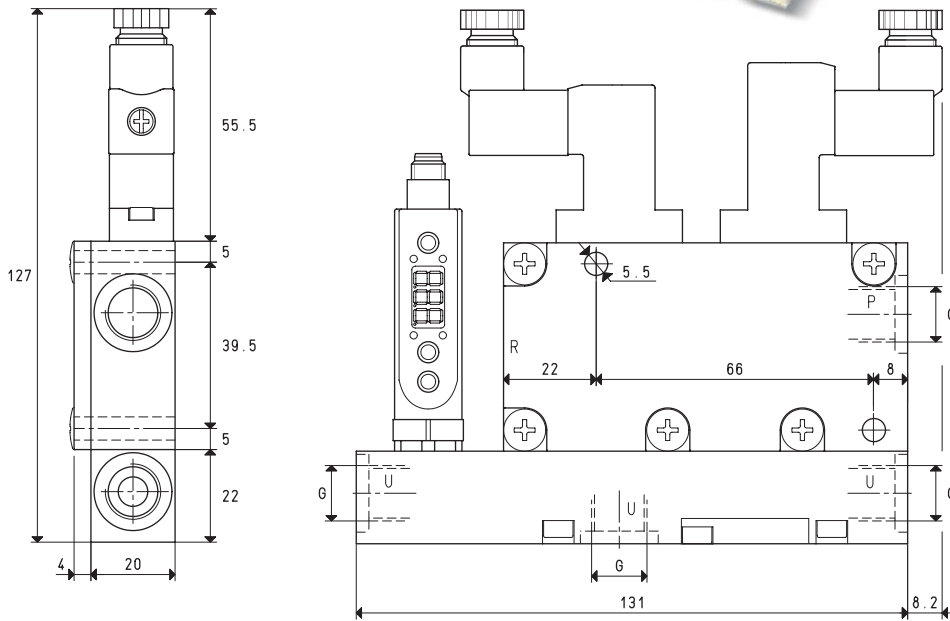
GVMM multi-function vacuum generators can be installed in any position and are suited for interconnecting vacuum gripping systems for handling sheet steel, glass, marble, ceramic, plastic, cardboard, wood, etc., and, in particular, for the industrial robotics sector which requires equipment with excellent performance and several independent vacuum units for controlling several applications but with reduced size and weight.





# MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 3 and GVMM 7

3D drawings are available on vuototecnica.net



P=COMPRESSED AIR CONNECTION      R=EXHAUST      U=VACUUM CONNECTION

Item		GVMM 3			GVMM 7		
Intake air flow rate	m <sup>3</sup> /h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	NI/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown at 5 bar	l/min			128			128
Supply solenoid valve position	NO/NC			NO			NO
Electrical absorption	W			2			2
Ejection solenoid valve position	NC			NC			NC
Electrical absorption	W			4			4
Supply voltage	V			24DC			24DC
Vacuum switch output				PNP			PNP
Degree of protection	IP			65			65
Temperature of use	°C			-10 / +60			-10 / +60
Noise level at optimal supply pressure	dB(A)			66			70
Weight	g			420			420
G	∅			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code GVMM .. SV.

To order a generator with NC supply solenoid valve, indicate code GVMM .. NC.

Note: All vacuum values indicated in the table are valid at the normal atmospheric pressure of 1013 mbar and obtained with a constant supply pressure.

Vacuum generator supply must be carried out with non-lubricated compressed air, 5 micron filtration, in accordance with standard ISO 8573-1 class 4.

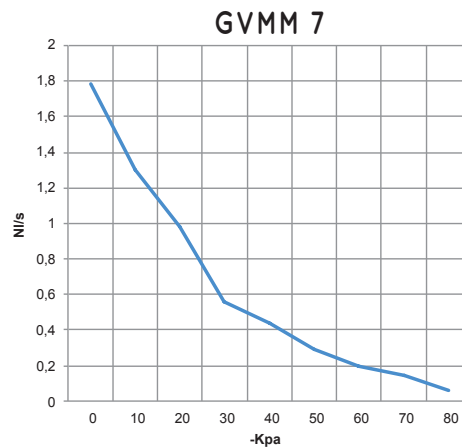
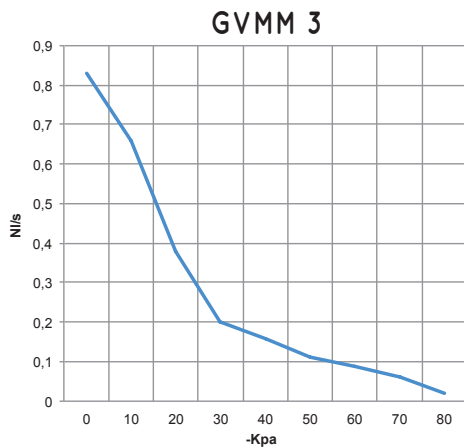
Transformation ratio: N (newton) = Kg x 9.81 (force of gravity)

inch =  $\frac{\text{mm}}{25.4}$  ; pounds =  $\frac{\text{g}}{453.6} = \frac{\text{Kg}}{0.4536}$

Adapters for GAS - NPT threading available on page 1.130

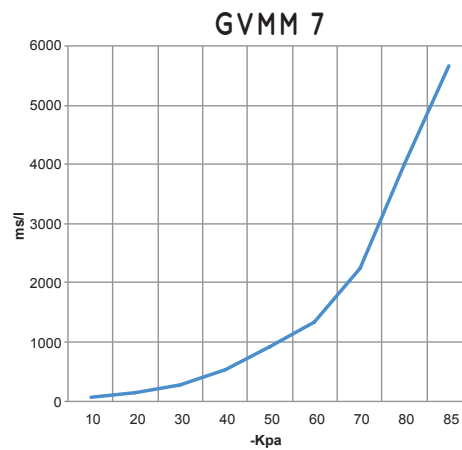
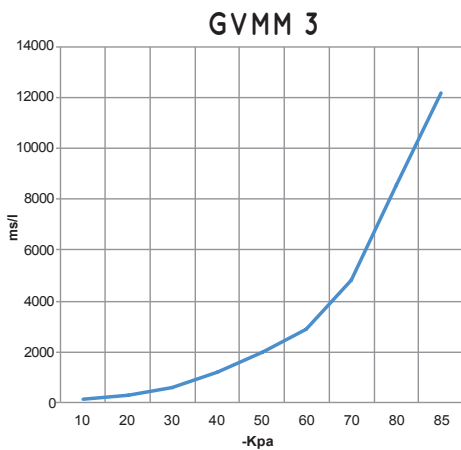


Air flow rate (NI/s) at different level of vacuum (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Air flow rate (NI/s) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			0	10	20	30	40	50	60	70	80		
GVMM 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85	
GVMM 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20	0.14	0.06	85	

Evacuation rates (ms/l = s/m<sup>3</sup>) at different levels of vacuums (-KPa) at optimal supply pressure



Generator item	Supp. press. bar	Air consumption NI/s	Evacuation rates (ms/l= s/m <sup>3</sup> ) at different levels of vacuums (-KPa) at optimal supply pressure										Max vacuum -KPa
			10	20	30	40	50	60	70	80	85		
GVMM 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85	
GVMM 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85	

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		GVMM 3	GVMM 7
Sealing kit and reed valves	item	00 KIT GVMM 3	00 KIT GVMM 7
Exhaust silencer	item		00 15 150
Electrical connection cable with axial connector, for vacuum switch	item		00 12 20
Electrical connection cable with radial connector, for vacuum switch	item		00 12 21
Set of electrical connection cables, with built-in NO energy saving device and connectors	item		00 15 202
Set of electrical connection cables, with built-in NC energy saving device and connectors	item		00 15 203
Digital vacuum switch	item		12 10 10
NO supply solenoid valve	item		00 15 176
NC supply solenoid valve	item		00 15 175