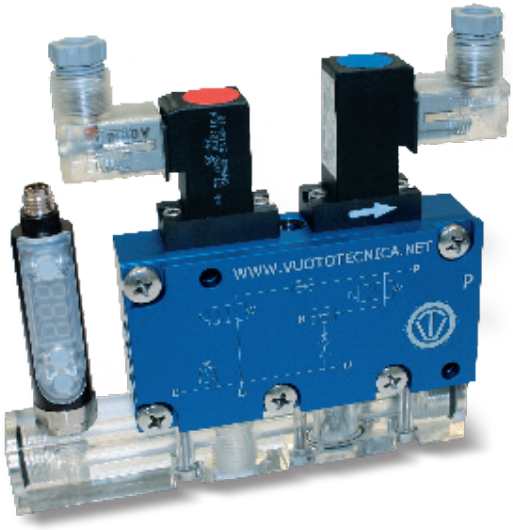
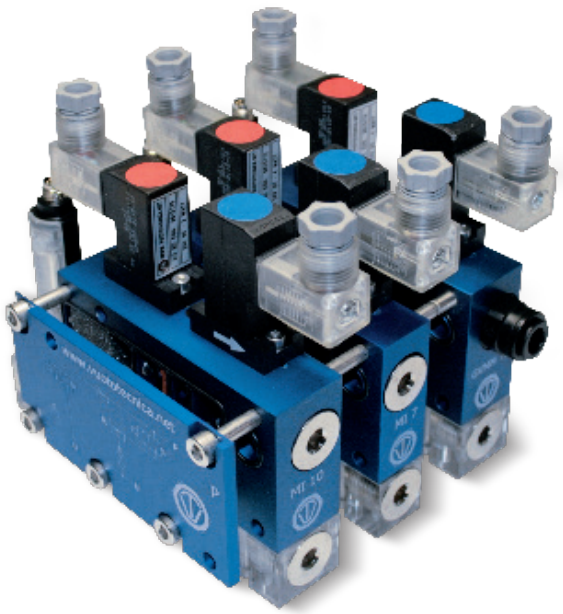
MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, SERIES GVMM - GENERAL DESCRIPTION

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.

IO-Link Ready!





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

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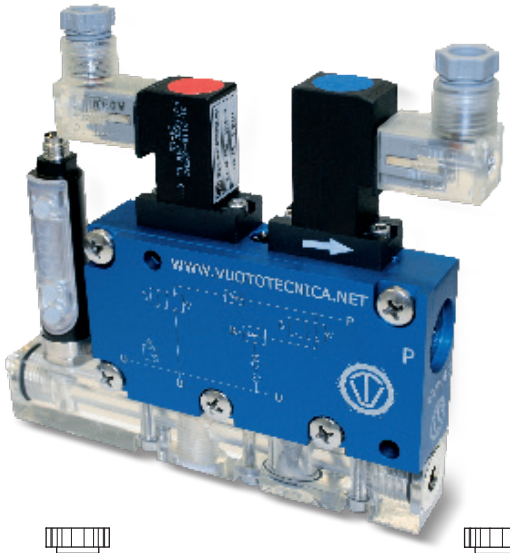
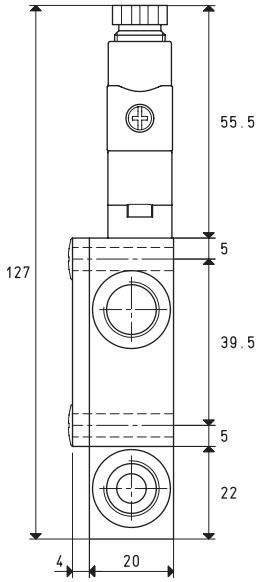
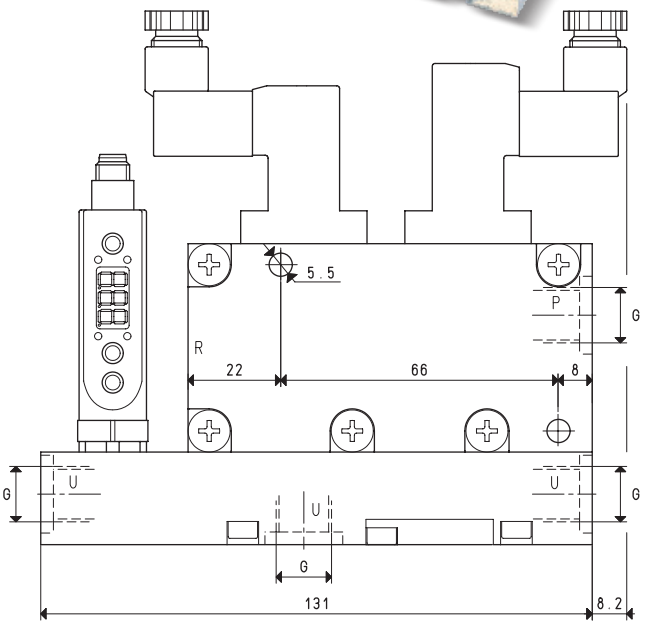
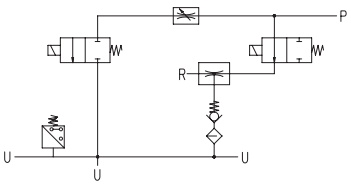








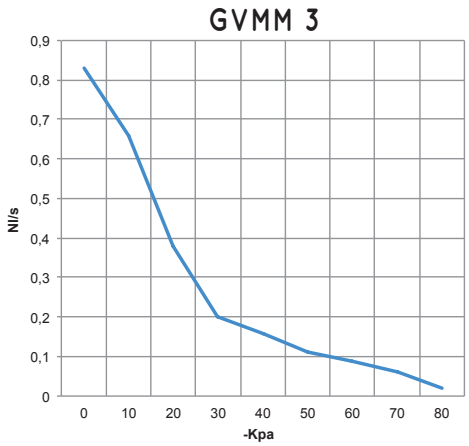
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

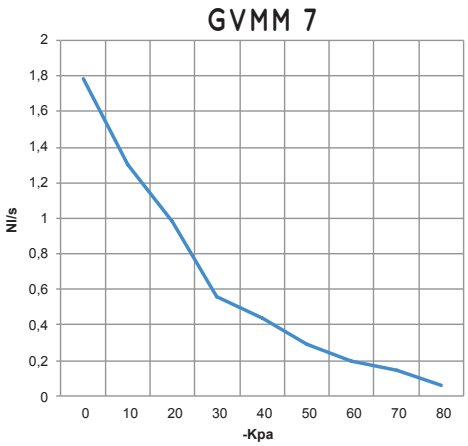
Item		GVMM 3			GVMM 7		
Intake air flow rate	m^3/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air 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	Ø			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.
To order a generator with aluminium manifold, indicate code GVMM .. AL.

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**.

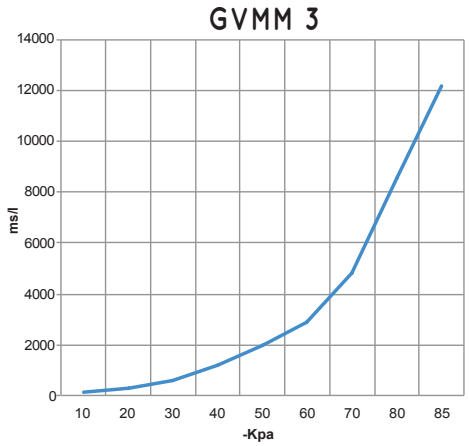
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

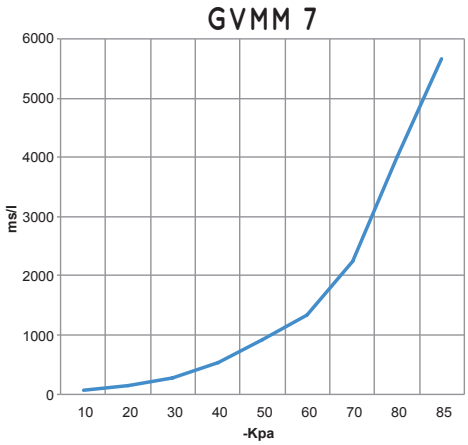




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
GVMM 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
GVMM 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20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

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





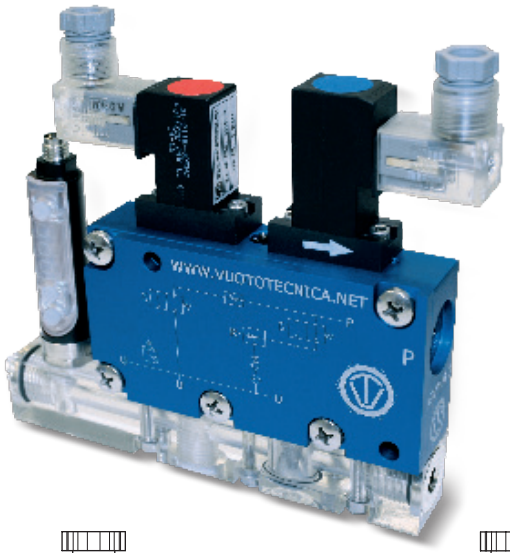
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
GVMM 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
GVMM 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

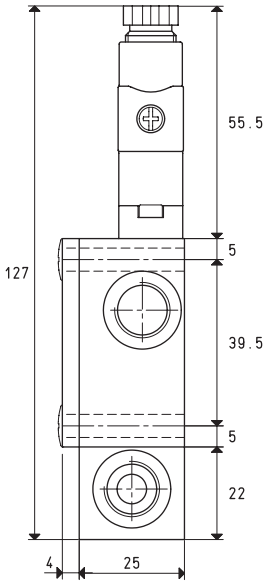
ACCESSORIES AND SPARE PARTS UPON REQUEST

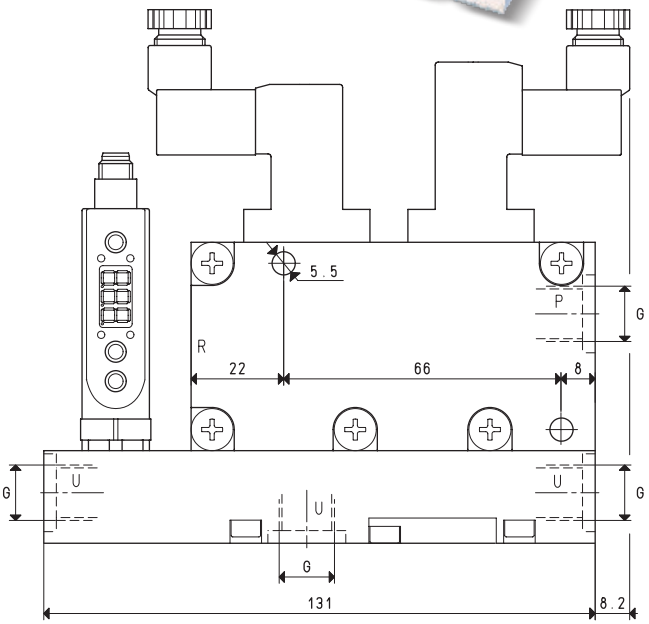
Item		GVMM 3	GVMM 7
Sealing kit and reed valves	item	00 KIT GVMM 3	00 KIT GVMM 7
Exhaust silencer	item	00 15 150	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical connection 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	

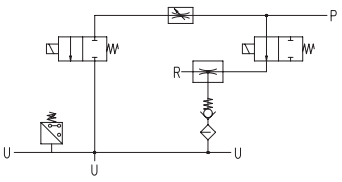
MULTI-STAGE, MULTI-FUNCTION AND MODULAR VACUUM GENERATORS, GVMM 10 and GVMM 14

IO-Link Ready!









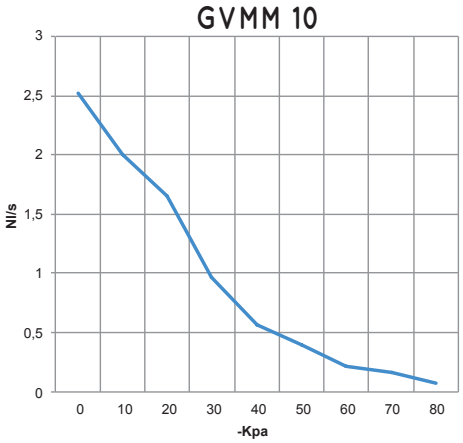
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

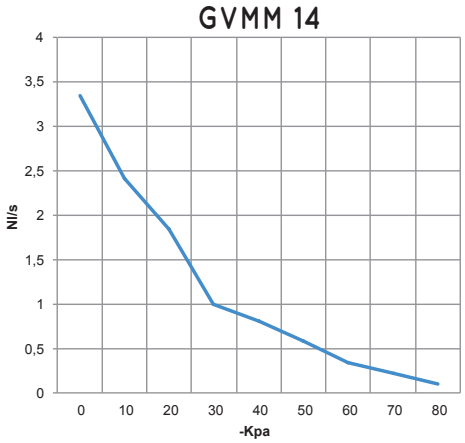
Item		GVMM 10			GVMM 14		
Intake air flow rate	m^3/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity 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)			70			72
Weight	g			460			460
G	Ø			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.
To order a generator with aluminium manifold, indicate code GVMM .. AL.

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**.

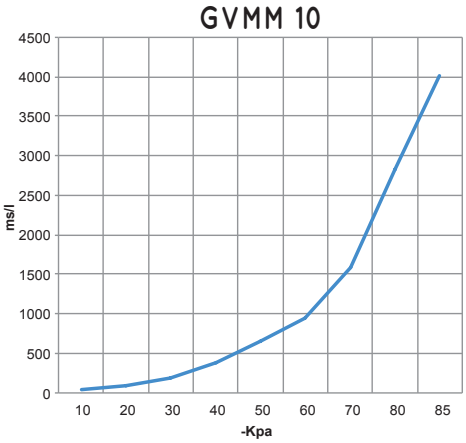
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

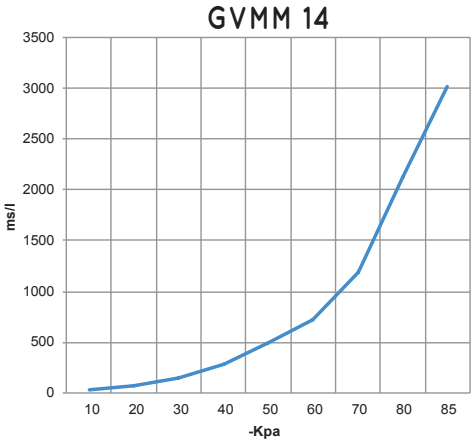




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
GVMM 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
GVMM 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
GVMM 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85
GVMM 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85

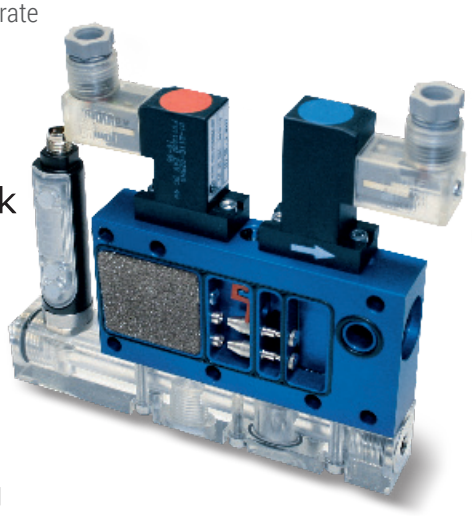
ACCESSORIES AND SPARE PARTS UPON REQUEST

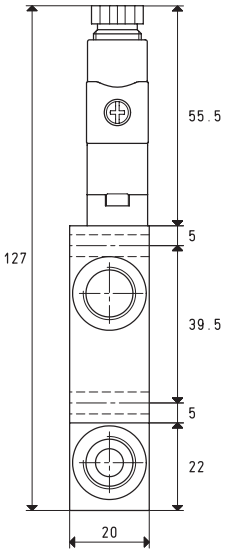
Item		GVMM 10	GVMM 14
Sealing kit and reed valves	item	00 KIT GVMM 10	00 KIT GVMM 14
Exhaust silencer	item	00 15 216	
Electrical connection cable with axial connector, for vacuum switch	item	00 12 20	
Electrical connection cable with radial connector, for vacuum switch	item	00 12 21	
Set of electrical 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	

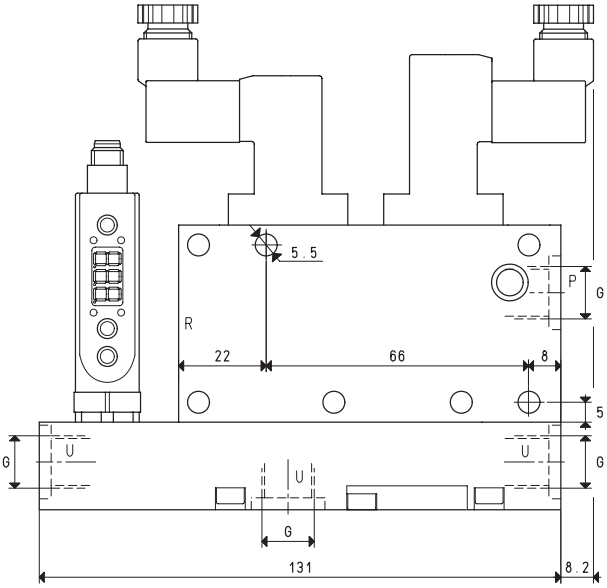
MULTI-STAGE, MULTI-FUNCTION AND MODULAR INTERMEDIATE VACUUM MODULES SERIES MI - GENERAL DESCRIPTION

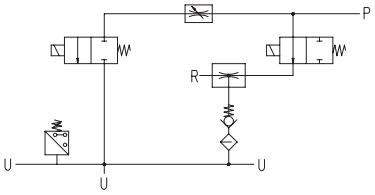
Intermediate modules are non-independent multi-stage and multi-function vacuum generators to be assembled to the generators of the GVMM range.
Their thickness and weight are reduced to the maximum compared to their suction flow rate and they have been designed to be enclosed between the lid and the base of the GVMM vacuum generator and fixed with screws. The internal connections for the compressed air supply allow communication between them and the basic generator, with no need for external manifolds.
This way, each module becomes an independent vacuum unit that can control an entire vacuum system.
They can be ordered in the desired amount and flow rate, either already assembled onto the GVMM multi-function vacuum generator, or separately, to be assembled to the GVMM generator previously installed onto the machine. In this case, we suggest ordering a screw kit suitable for the number of modules to be assembled.
MI intermediate vacuum modules are made up of the same elements that compose GVMM generators, except for the lid. They operate and they are used as the GVMM multi-function vacuum generator onto which they are assembled.

IO-Link Ready!









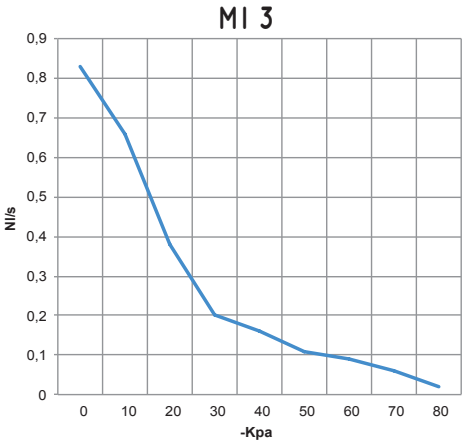
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

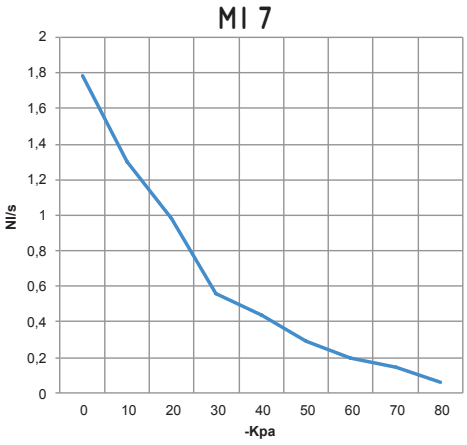
Item		MI 3			MI 7		
Intake air flow rate	m^3/h	2.6	2.8	3.0	5.5	6.0	6.4
Maximum level of vacuum	-KPa	64	85	85	60	80	85
Final pressure	mbar abs.	360	150	150	400	200	150
Supply pressure	bar	3	4	5	3	4	5
Optimal supply pressure	bar			5			5
Air consumption	Nl/s	0.6	0.7	0.8	0.9	1.1	1.3
Max quantity of air blown 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			380			380
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.
To order a generator with NC supply solenoid valve, indicate code MI .. NC.
To order a generator with aluminium manifold, indicate code MI .. AL.

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**.

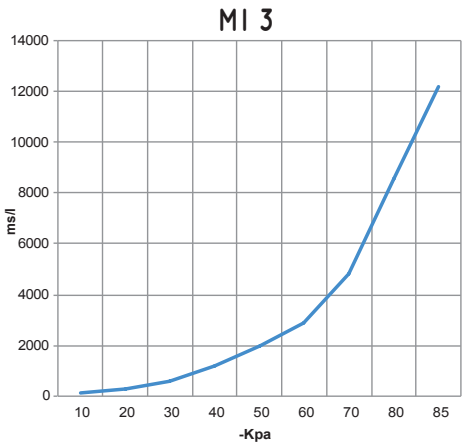
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

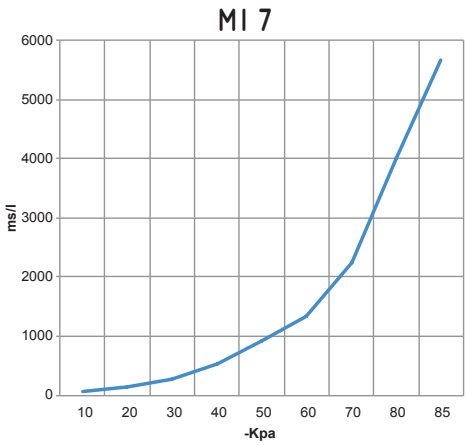




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MI 3	5.0	0.8	0.83	0.66	0.38	0.20	0.16	0.11	0.09	0.06	0.02	85
MI 7	5.0	1.3	1.78	1.30	0.98	0.56	0.44	0.29	0.20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

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure





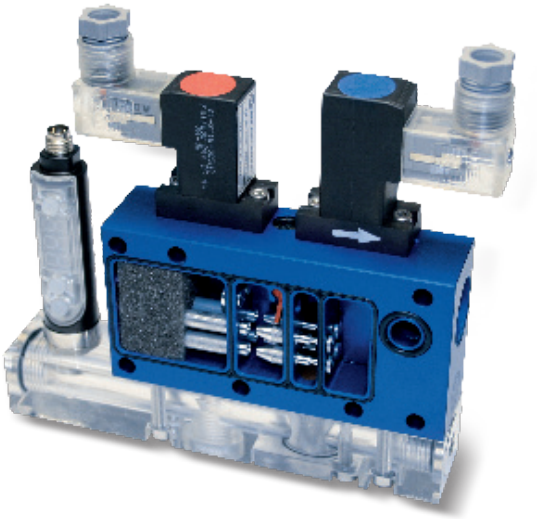
Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MI 3	5.0	0.8	128	294	592	1167	1978	2889	4824	8588	12195	85
MI 7	5.0	1.3	59	137	275	543	921	1344	2245	3997	5676	85

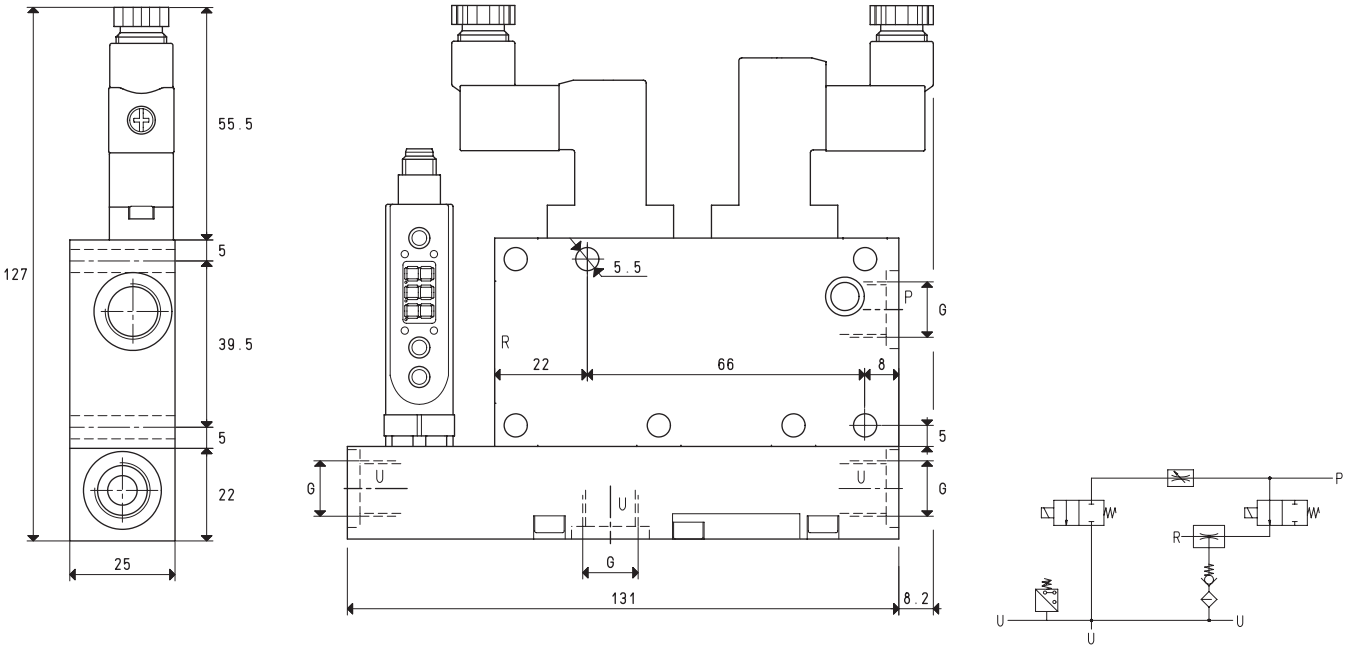
ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 3	MI 7
Sealing kit and reed valves	item	00 KIT MI 3	00 KIT MI 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	

INTERMEDIATE VACUUM MODULES MI 10 and MI 14

IO-Link Ready!





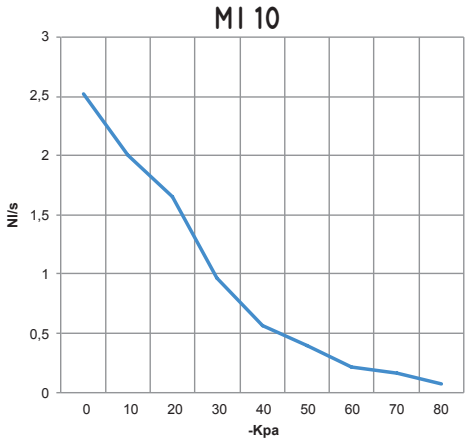
P=COMPRESSED AIR CONNECTION R=EXHAUST U=VACUUM CONNECTION

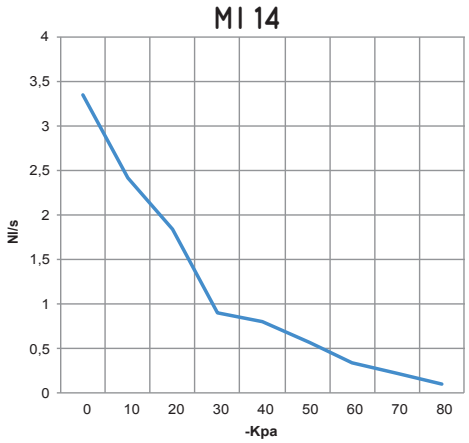
Item		MI 10			MI 14		
Intake air flow rate	m^3/h	7.5	8.3	9.1	10.1	11.1	12.1
Maximum level of vacuum	-KPa	60	80	85	60	80	85
Final pressure	mbar abs.	400	200	150	400	200	150
Optimal final pressure	mbar abs.			150			150
Supply pressure	bar	3	4	5	3	4	5
Air consumption	Nl/s	1.1	1.4	1.7	1.4	1.7	2.1
Max quantity 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)			70			72
Weight	g			410			410
G	Ø			G1/4"			G1/4"

Note: To order a generator without a digital vacuum switch, indicate code MI .. SV.
To order a generator with NC supply solenoid valve, indicate code MI .. NC.
To order a generator with aluminium manifold, indicate code MI .. AL.

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**.

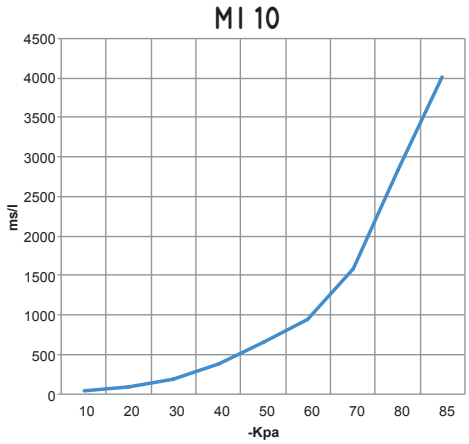
Air flow rate (Nl/s) at different level of vacuum (-KPa) at optimal supply pressure

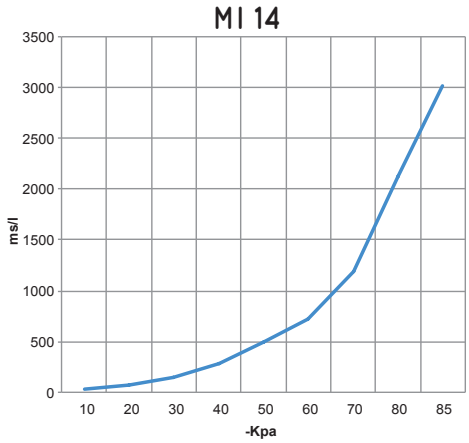




Generator item	Supp. press. bar	Air consumption Nl/s	Air flow rate (Nl/s) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			0	10	20	30	40	50	60	70	80	-KPa
MI 10	5.0	1.7	2.52	2.00	1.66	0.97	0.56	0.40	0.22	0.16	0.07	85
MI 14	5.0	2.1	3.35	2.42	1.84	0.99	0.80	0.58	0.34	0.22	0.10	85

Evacuation rates (ms/l = s/m³) at different levels of vacuums (-KPa) at optimal supply pressure

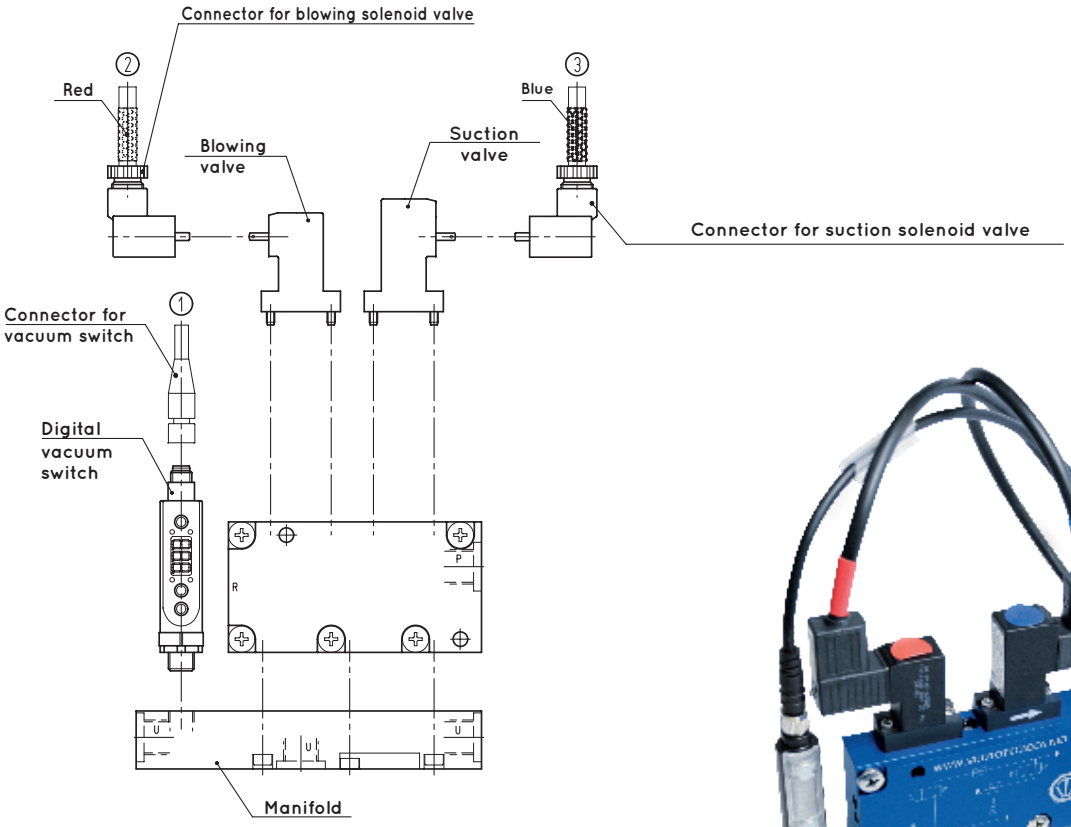


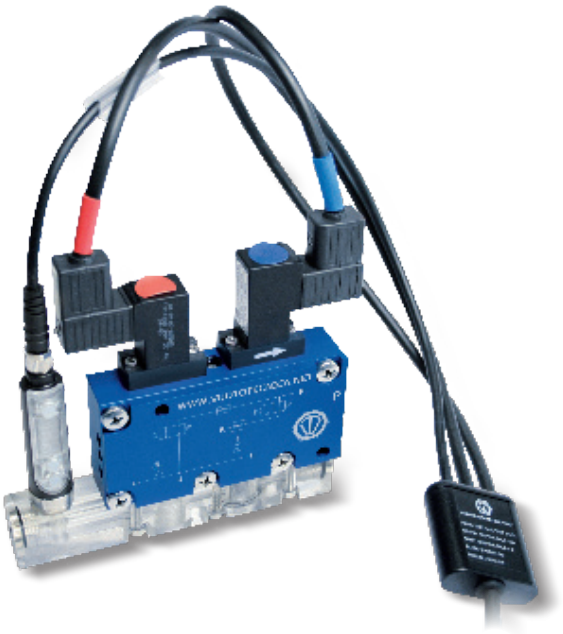


Generator item	Supp. press. bar	Air consumption Nl/s	Evacuation rates (ms/l= s/m³) at different levels of vacuums (-KPa) at optimal supply pressure									Max vacuum
			10	20	30	40	50	60	70	80	85	-KPa
MI 10	5.0	1.7	42	97	195	384	651	951	1589	2828	4016	85
MI 14	5.0	2.1	31	72	146	288	489	714	1193	2124	3016	85

ACCESSORIES AND SPARE PARTS UPON REQUEST

Item		MI 10	MI 14
Sealing kit and reed valves	item	00 KIT MI 10	00 KIT MI 14
Exhaust silencer	item	N°2 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	





Cable set with built-in energy saving device for GVMM.. generator

Item	Description
00 15 202	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NO micro supply solenoid valve
	- NC micro ejection solenoid valve
	- Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Cable set with built-in energy saving device for GVMM..NC generator

Item	Description
00 15 203	Set of cables with built-in energy saving device for connection to:
	- Digital vacuum switch
	- NC micro supply solenoid valve
	- NC micro ejection solenoid valve
	- Cable length - 5 m

Note: The IO-Link signal cannot be handled by the energy-saving cable set.

Connector

Item	Description
00 15 157	Connector with LED for micro solenoid valves

M8 3 PIN Connector

Item	Description
00 07 424	M8 3 PIN Connector with LED for micro solenoid valves

Cable with axial connector

Item	Description
00 12 20	Electrical connection cable with M8 - 4 pin axial connector for digital vacuum switches length 5 m

Cable with radial connector

Item	Description
00 12 21	Electrical connection cable with M8 - 4 pin radial connector for digital vacuum switches length 5 m

NO micro supply solenoid valve

Item	Description
00 15 176	NO micro supply solenoid valve - h = 43 mm

NC supply and blowing micro solenoid valve

Item	Description
00 15 175	NC supply and blowing micro solenoid valve - h = 37.5 mm

Digital vacuum switch

Item	Description
12 10 10	Digital vacuum switch

ACCESSORIES AND SPARE PARTS FOR VACUUM GENERATORS AND MODULES SERIES GVMM and MI

Sealing kit and reed valves

Item	By generators item
00 KIT MI 3	MI 3
00 KIT MI 7	MI 7
00 KIT MI 10	MI 10
00 KIT MI 14	MI 14
00 KIT MI 18	MI 18

Sound absorbing material on the exhaust

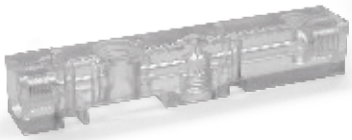
Item	By generators item	Quantity
00 15 150	GVMM 3	1 piece
	GVMM 7	1 piece
	GVMM 10	2 pieces
	GVMM 14	2 pieces

Aluminium manifolds

Item	Description
00 15 174	Aluminium suction manifold for GVMM - MI 3/7
00 15 187	Aluminium suction manifold for GVMM - MI 10/14

Plexiglass manifolds

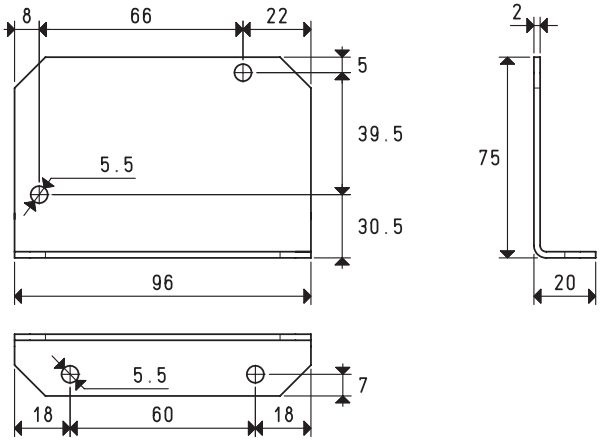
Item	Description
00 15 171	Plexiglass suction manifold for GVMM - MI 3/7
00 15 188	Plexiglass suction manifold for GVMM - MI 10/14



Replacement plate for micro blowing solenoid valve

Item	Description
00 15 332	Replacement plate for micro blowing solenoid valve
00 15 333	Sealing gasket for replacement plate Art. 00 15 332

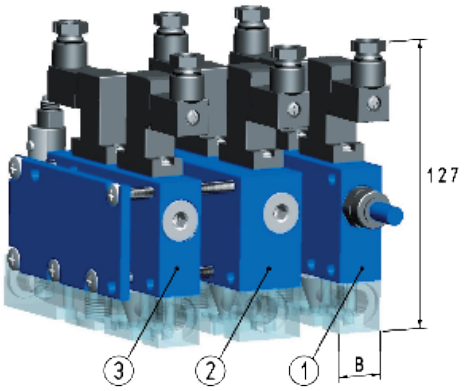
Support



Item	Description
00 15 306	L-shaped fixing support in galvanised steel sheet

MODULAR VACUUM SYSTEMS SET-UP

GVMM multi-function vacuum generators can be assembled with one or more intermediate modules, thus forming a modular vacuum system, featuring a compact shape and reduced size and weight.
As a standard, up to 6 vacuum units can be assembled, but using threaded bars instead allows assembling even more.



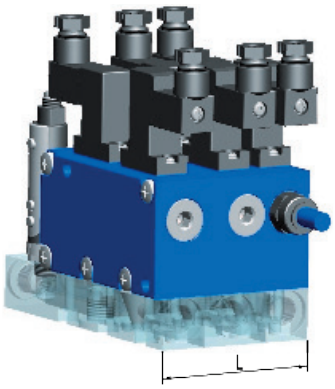
EXAMPLE OF SET-UP 1

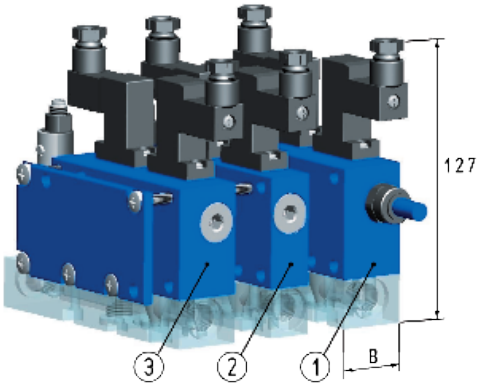
No.	Item	B
1	GVMM 3 - 7	20
2	MI 10 - 14	25
3	MI 3 - 7	20

Total length L= 65

Required screw kit: Item 00 KIT GVMM 02

Ordering example:
1 Generator GVMM 3
1 Intermediate module MI 10
1 Intermediate module MI 3
1 kit of stainless steel screws 00 KIT GVMM 02





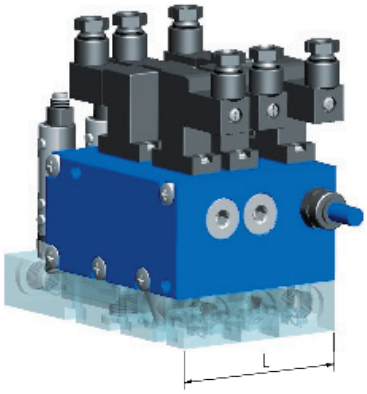
EXAMPLE OF SET-UP 2 00 KIT GVMM 02

No.	Item	B
1	GVMM 10 - 14	25
2	MI 3 - 7	20
3	MI 10 - 14	25

Total length L= 70

Required screw kit: Item 00 KIT GVMM 03

Ordering example:
1 Generator GVMM 10
1 Intermediate module MI 3
1 Intermediate module MI 10
1 kit of stainless steel screws 00 KIT GVMM 03



STAINLESS STEEL M5 SCREW KIT

Item	L
00 KIT GVMM 01	45 - 50
00 KIT GVMM 02	60 - 65
00 KIT GVMM 03	70 - 75
00 KIT GVMM 04	80 - 85
00 KIT GVMM 05	90 - 95
00 KIT GVMM 06	100 - 105
00 KIT GVMM 07	110 - 115
00 KIT GVMM 08	120 - 125
00 KIT GVMM 09	130 - 135
00 KIT GVMM 12	140 - 145
00 KIT GVMM 11	150 - 155