

# SMALL VACUUM REGULATORS

## VR100

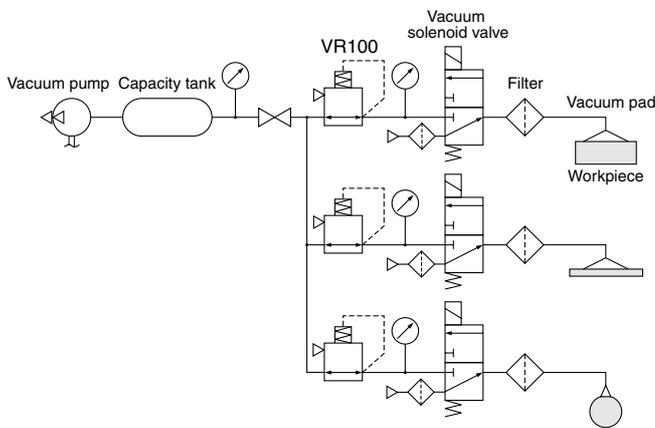


- Offer any vacuum pressure setting when mounted on vacuum lines.
- Push lock type regulator knob for light, smooth pressure regulation.
- Panel mounting is also a simple process, by opening holes in the panel.
- Suction flow rate VR100: MAX.45 ℓ /min [1.59ft<sup>3</sup>/min.] (ANR)<sup>Note1</sup>
- Lightweight (110g [3.88oz.]), compact (28×28×78mm [1.102×1.102×3.071in.])<sup>Note2</sup>

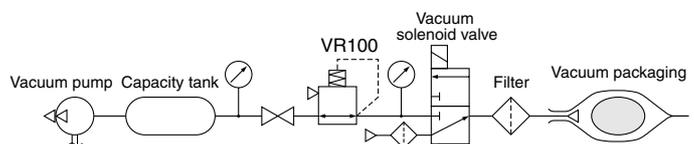
Notes: 1. Values may change depending on operating conditions.  
2. Excluding options.

### Application Example

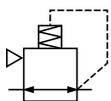
① Multiple vacuum pressured devices required



② Vacuum adjustment used for a vacuum packaging

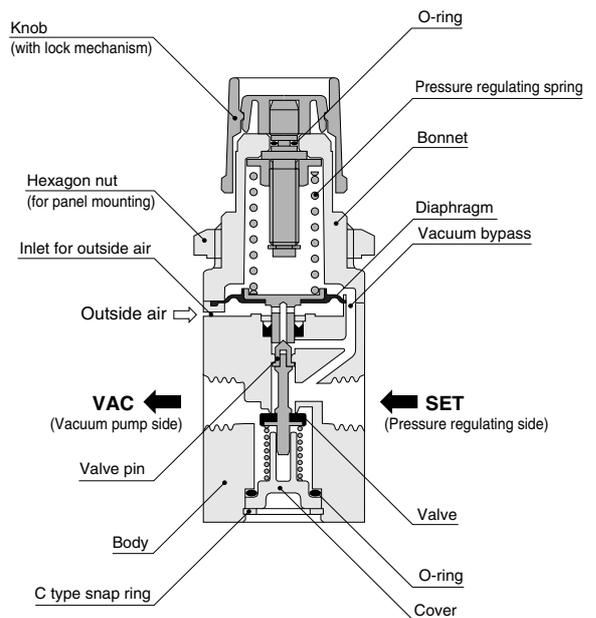


### Symbol



### Operation Principle

When the knob is pulled firmly out, rotating the knob to the right applies compression force to the pressure regulating spring, acting through a diaphragm to lift up the pressure regulating valve assembly, which then passes through the VAC (vacuum pump side) and SET (pressure regulating side) to reduce pressure on the regulating side. The vacuum pressure on the pressure regulating side passes through a bypass hole to enter a chamber on the lower part of the diaphragm, activating the diaphragm. Here, it resists the compression force of the pressure regulating spring, with the VAC side and SET side closed by the valve assembly to obtain a balance that regulates the required vacuum pressure level. If vacuum pressure on the pressure regulating side falls below the setting value, air flows into the pressure regulating side from the atmosphere, maintaining the proper level.

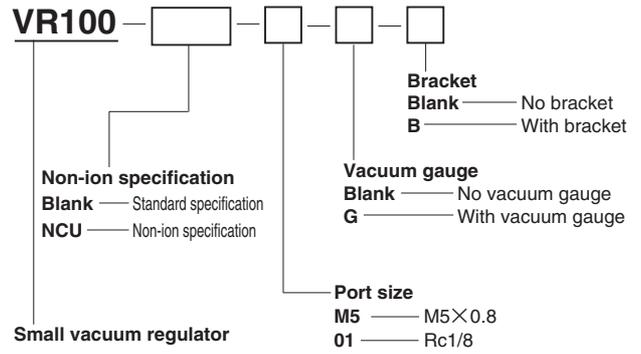


## Specifications

Item	Model	VR100
Media		Air
Setting pressure range	kPa [in.Hg]	-6.5~-100 [-1.9~-29.54] <sup>Note</sup>
Setting pressure sensitivity	kPa [in.Hg]	0.26 [0.08] <sup>Note</sup>
Repeatability	kPa [in.Hg]	±0.8 [±0.24] <sup>Note</sup>
Proof pressure	MPa [psi.]	0.2 [29]
Suction flow rate	ℓ/min [ft. <sup>3</sup> /min.] (ANR)	MAX. 45 [1.6] <sup>Note</sup>
Operating temperature range	°C [°F]	5~60 [41~140]
Pressure characteristics	kPa [in.Hg]	ΔP=4 [1.2]
Port size		M5×0.8, Rc1/8
Vacuum gauge connection port size	Rc	1/8
Mass	kg [lb.]	0.11 [0.24]

Note: Values may vary depending on conditions. These values do not guarantee performance in practical conditions. Please take note.

## Order Codes



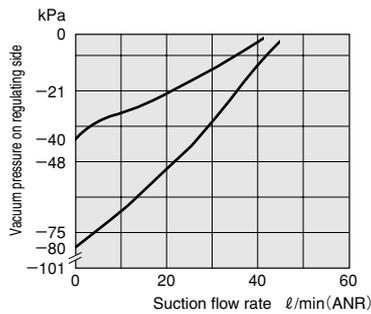
● Order codes for vacuum gauge only

**GV-40-01** (Standard specification)

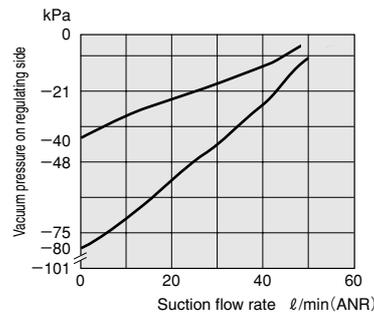
**GV-40-01-NCU** (Non-ion specification)

## Flow Rate Characteristics

### ● VR100-M5



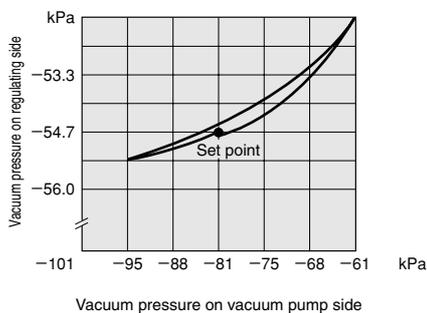
### ● VR100-01



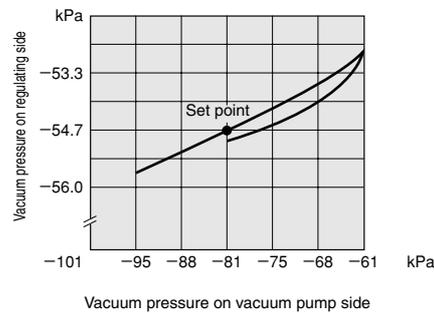
1 ℓ/min = 0.0353ft.<sup>3</sup>/min.  
-100kPa = -29.54in.Hg

## Pressure Characteristics

### ● VR100-M5



### ● VR100-01



-100kPa = -29.54in.Hg

# PILOT TYPE VACUUM REGULATORS

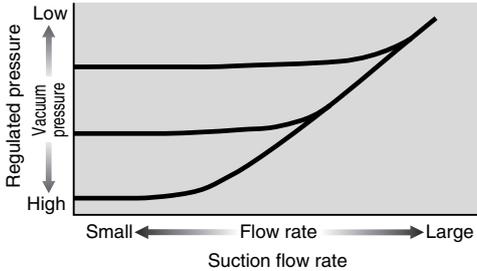
## NVR200, NVRA200



- Uses the vacuum pilot method (diaphragm indirect operation type).
- Achieves superior pressure stability in the face of fluctuating flow rates.

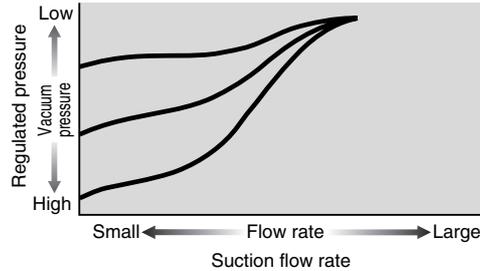
### NVR□200

- Small change in the set pressure when flow rate increases.



### Conventional product

- Large change in the set pressure when flow rate increases.

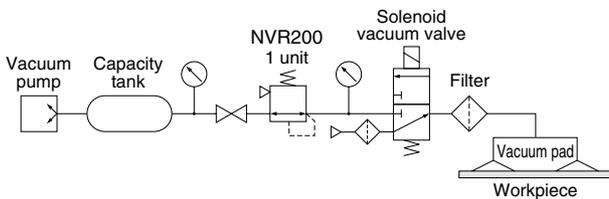


※These graphs are image diagrams. Results vary depending on the performance and conditions of the vacuum pump used.

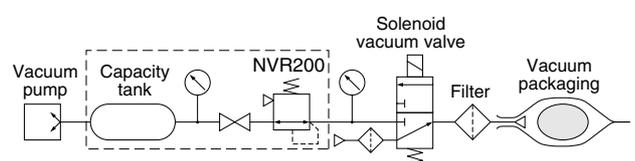
- Use of the indirect operation type achieves lightweight (0.20kg [0.44lb.]) and compact (50×40×109cm [1.969×1.575×4.291in.]) design with a large flow rate.  
Suction flow rate MAX.200 ℓ/min [7.06ft<sup>3</sup>/min.] (ANR)<sup>Note</sup> Note: Varies depending on conditions.
- External pilot type (NVRA200) for cases where pressure regulation operations are difficult such as inside panel applications.  
Enables remote operation by using the vacuum regulator for pilot pressure regulation.
- Select from two piping port diameters (Rc1/8, Rc1/4).

## Application Examples

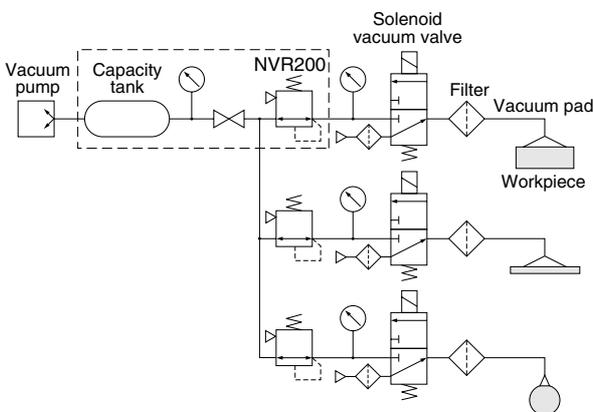
### ① NVR200



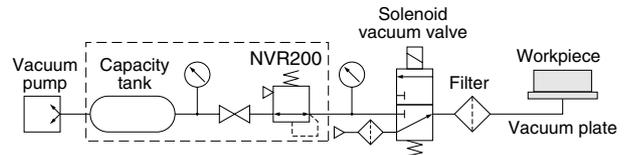
### ③ Vacuum pressure regulation using vacuum packaging



### ② Multiple vacuum pressure units required

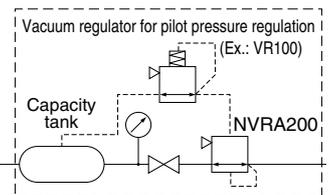


### ④ Vacuum pressure regulation using vacuum plate



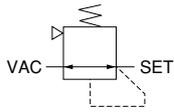
### ● NVRA200 (External pilot type)

When using NVRA200, the boxed part of the circuit above is instead configured as shown to the right.

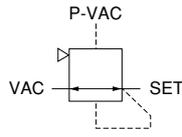


# Symbols

## Internal pilot



## External pilot

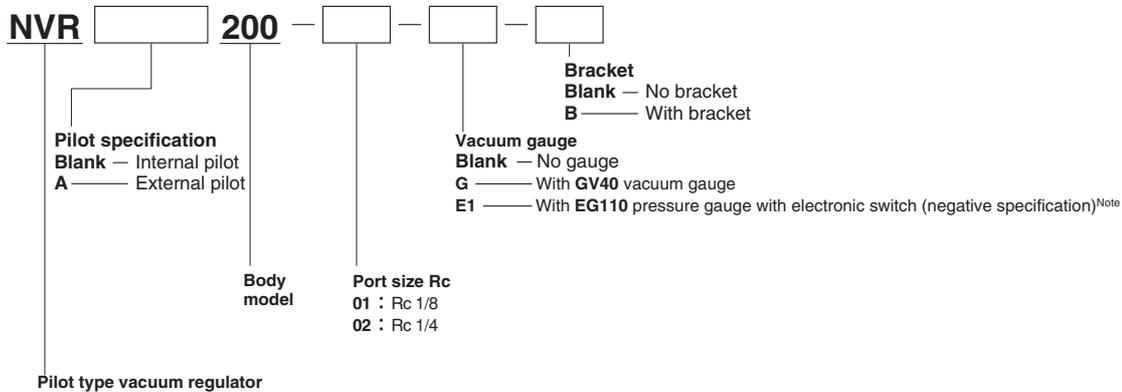


# Specifications

Item	Model	NVR200		NVRA200	
Pilot specification		Internal vacuum pilot type		External vacuum pilot type	
Port size	Rc	1/8	1/4	1/8	1/4
Media		Air			
Set pressure range <sup>Note1</sup>	kPa [in.Hg]	- 2.5 ~ - 95 [- 0.74 ~ - 28.06]			
Set pressure sensitivity <sup>Note1</sup>	kPa [in.Hg]	0.1 [0.03]			
Repeatability <sup>Note1</sup>	% (F.S.)	2		0.6	
Proof pressure	MPa [psi.]	0.5 [73]			
Suction flow rate <sup>Note1</sup>	ℓ/min [ft <sup>3</sup> /min.] (ANR)	MAX.130 [4.59]	MAX.200 [7.06]	MAX.130 [4.59]	MAX.200 [7.06]
Operating temperature range	°C [°F]	5 ~ 60 [41 ~ 140]			
Vacuum gauge port diameter	Rc	1/4			
Mass <sup>Note2</sup>	kg [lb.]	0.20 [0.44]		0.17 [0.37]	

Notes: 1. May vary depending on conditions on the SET (pressure regulation) side and pump performance on the VAC (vacuum pump) side.  
 These figures are for the case connected to a vacuum pump with exhaust speed of 1000 ℓ/min [35.3ft<sup>3</sup>/min.] or higher, and a maximum vacuum level of - 101kPa [- 29.84in.Hg] or more. (Reference)  
 2. Excluding the option

# Order Codes



- Order Code only for vacuum gauge  
**GV-40** (standard)
- Order code for pressure gauge with electronic switch (negative pressure specification)<sup>Note</sup>  
**EG110**

Note: For specifications, dimensions, and handling of the pressure gauge with electronic switch, see p.177, pressure gauge with electronic switch.