

# Series IRV1000/2000/3000

**3 sizes**

offered in the series

Variations have been expanded to three sizes from only one in the previous series T203.

Selection is possible to accommodate the applicable flow rate.

Note)\*Flow rate corresponds to VAC pressure of -101kPa, SET pressure of -80kPa, and initial flow rate setting of 0ℓ/min(ANR).

**Compact**

**Light weight**

IRV 1000

**60**  
ℓ/min (ANR) Note)



□ **35mm**

**120g**

IRV 2000

**100**  
ℓ/min (ANR) Note)



□ **50mm**

**270g**

IRV 3000

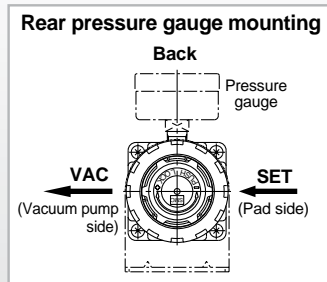
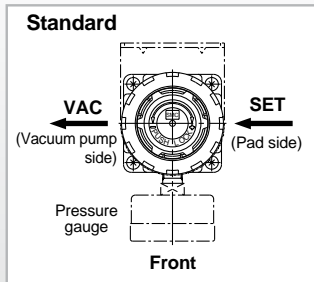
**150**  
ℓ/min (ANR) Note)



□ **66mm**

**700g**

■ Pressure gauge can be mounted from the front or rear

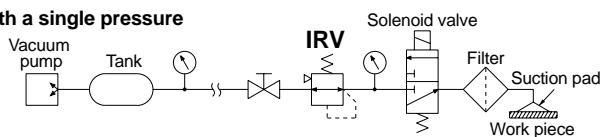


■ Panel mounting capability is standard

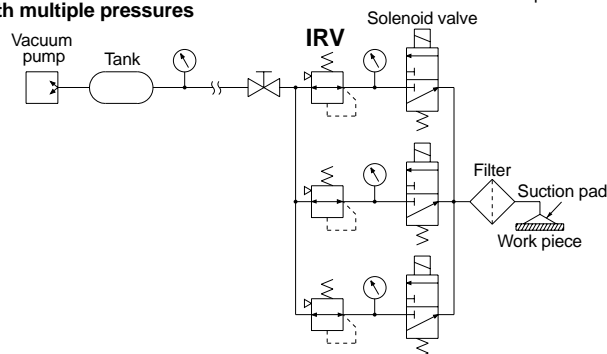
## Applications

### Lifting of work pieces

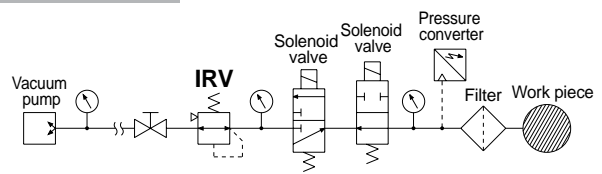
#### With a single pressure



#### With multiple pressures

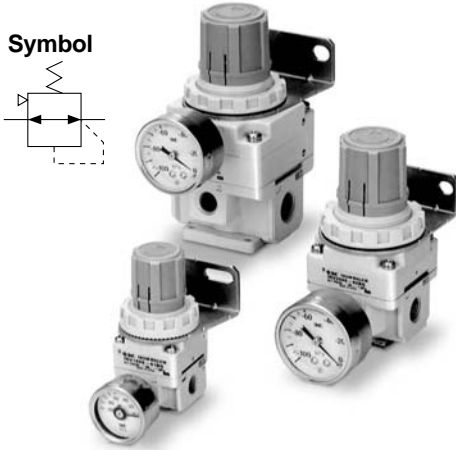


### Leak tester



# Vacuum Regulator

## Series *IRV1000/2000/3000*

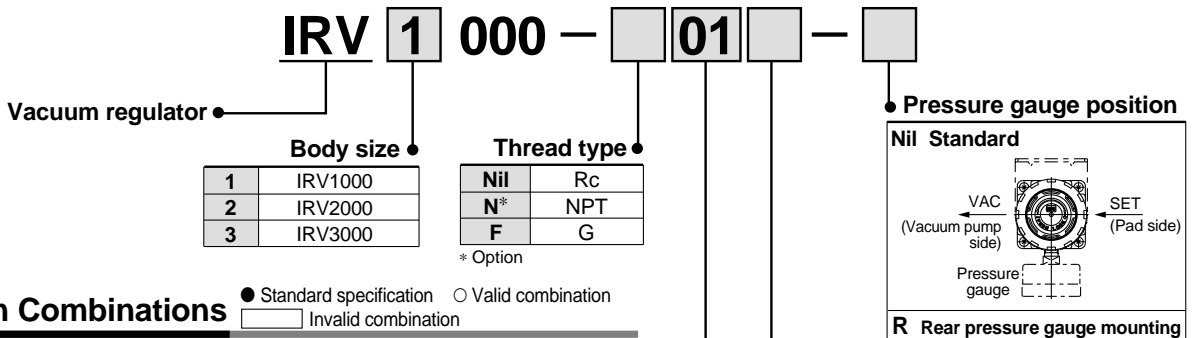


### Standard Specifications

| Model   | IRV1000                | IRV2000                | IRV3000       |
|---|------------------------|------------------------|---------------|
| Fluid   | Air                    |                        |               |
| Regulating pressure range <sup>Note 1)</sup>      | -100 to -1.3kPa        |                        |               |
| Atmospheric intake consumption <sup>Note 2)</sup> | 0.6ℓ/min (ANR) or less | 1.1ℓ/min (ANR) or less |               |
| Knob resolution                                   | 0.13kPa or less        |                        |               |
| Ambient and fluid temperature                     | 5 to 60°C              |                        |               |
| Port size   | 1/8                    | 1/4                    | 1/4, 3/8, 1/2 |
| Pressure gauge port size                          | Rc 1/8 (2 locations)   |                        |               |
| Weight (kg) [without accessory]                   | 0.12                   | 0.27                   | 0.7           |

Note 1) Note that the pressure range fluctuates depending on the vacuum pump pressure.  
 Note 2) Air is always supplied from the atmosphere.

### How to Order



### Specification Combinations

● Standard specification ○ Valid combination  
 [ ] Invalid combination

| Specification           | Symbol                       | Applicable model |         |         |
|-------------------------|------------------------------|------------------|---------|---------|
|                         |                              | IRV1000          | IRV2000 | IRV3000 |
| Standard specifications | Connection G 1/8             | F 01             | ●       |         |
|                         | Connection G 1/4             | F 02             |         | ●       |
|                         | Connection G 3/8             | F 03             |         | ●       |
|                         | Connection G 1/2             | F 04             |         | ●       |
| Accessories             | Bracket                      | B                | ○       | ○       |
|                         | Pressure gauge               | G                | ○       | ○       |
| Options                 | Rear pressure gauge mounting | R                | ○       | ○       |
|                         | Connection NPT 1/8           | N01              | ○       |         |
|                         | Connection NPT 1/4           | N02              |         | ○       |
|                         | Connection NPT 3/8           | N03              |         | ○       |
|                         | Connection NPT 1/2           | N04              |         | ○       |
|                         | Connection Rc 1/8            | 01               | ○       |         |
|                         | Connection Rc 1/4            | 02               |         | ○       |
|                         | Connection Rc 3/8            | 03               |         | ○       |
| Connection Rc 1/2       | 04                           |                  | ○       |         |

### Accessory (Optional) Part Nos.

| Description     | Part no.  |           |           |
|-----------------|-----------|-----------|-----------|
|                 | IRV1000   | IRV2000   | IRV3000   |
| Bracket         | P53801018 | P53802016 | P53803013 |
| Pressure gauge* | GZ33-K-01 | GZ43-K-01 | GZ43-K-01 |

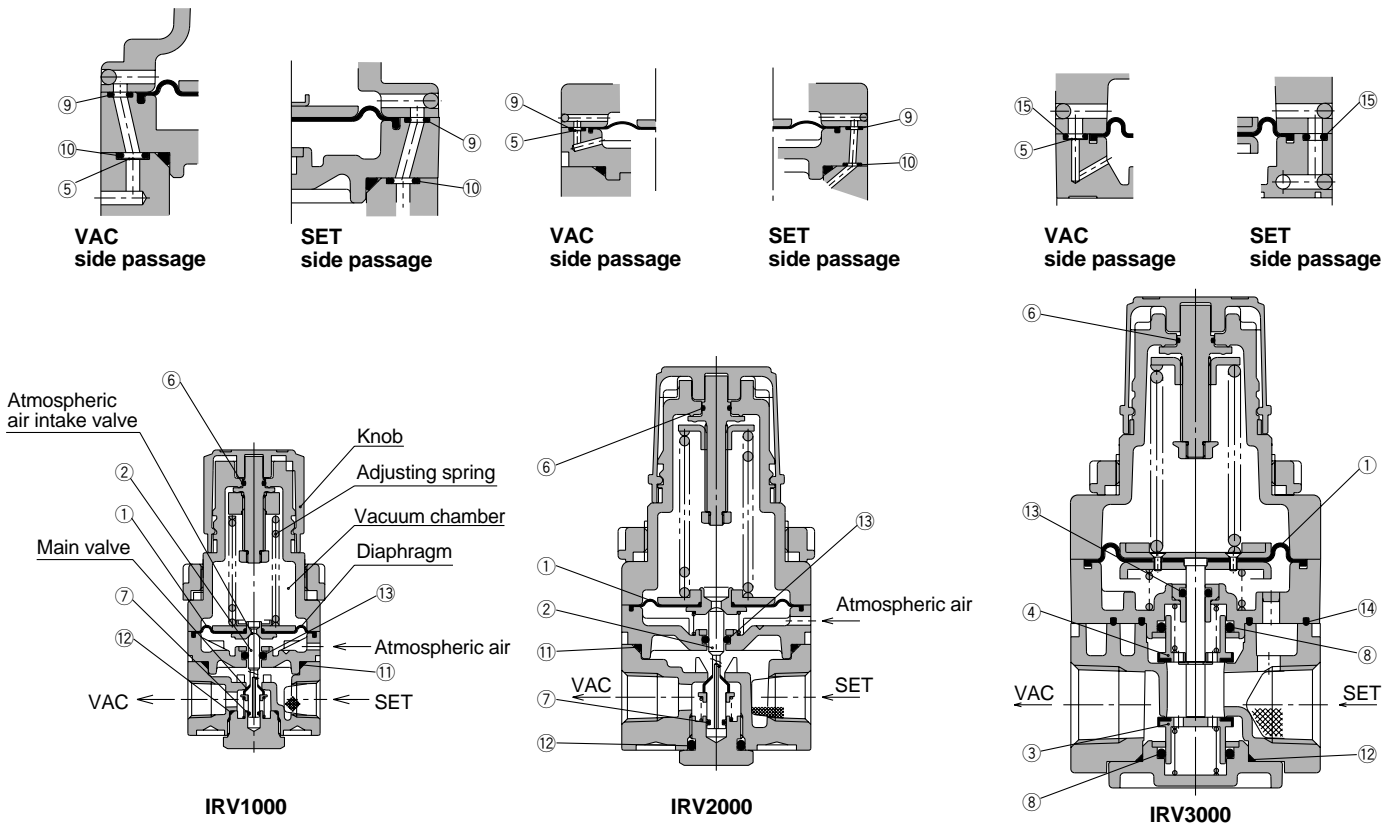
\* Pressure gauge accuracy: -3% (full span)

ZX  
 ZR  
 ZM  
 ZH  
 ZU  
 ZL  
 ZF  
 ZP  
 ZCU  
 CYV

Vacuum related

# Series IRV1000/2000/3000

## Construction



### Working principle (for IRV1000)

When the knob is turned to the right, the adjusting spring's generated force pushes down the diaphragm and the main valve. This connects the VAC side and SET side, and the degree of vacuum on the SET side increases (becomes closer to an absolute vacuum). Furthermore, the SET side vacuum pressure moves through the air passage into the vacuum chamber, where it is applied to the top side of the diaphragm and counters the adjusting spring's compression force; and this adjusts the SET side pressure. When the degree of vacuum on the SET side is higher than the designated setting value (becomes closer to an absolute vacuum), the balance between the adjusting spring and the SET side pressure in the vacuum chamber is lost, and the diaphragm is pushed up. This causes

the main valve to close and the atmospheric intake valve to open, which lets atmospheric air into the SET side. When the adjusting spring's compression force and the SET side pressure are balanced, the SET side pressure is set. Also, when the degree of vacuum of the SET side pressure is lower than the designated setting value (becomes closer to the atmosphere), the balance between the adjusting spring and the SET side pressure of the vacuum chamber is lost, and the diaphragm is pushed down. This causes the atmospheric intake valve to close and the main valve to open, which lets air into the VAC side. When the adjusting spring's compression force and the SET side pressure are balanced, the SET side pressure is set.

### Replacement parts

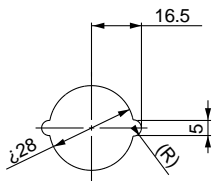
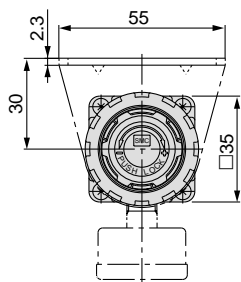
| No.  | Description        | Material               | Part no.   |            |            |
|--|--------------------|------------------------|------------|------------|------------|
| 1  | Diaphragm assembly | H-NBR, etc.            | IRV1000    | IRV2000    | IRV3000    |
| 2  | Valve              | Stainless steel, H-NBR |            |            |            |
| 3  | Valve              | Brass, H-NBR           | IRV1000    | IRV2000    | IRV3000    |
| 4  | Valve              | Brass, H-NBR           |            |            |            |
| 5  | Fixed orifice      | SUS304                 | IRV1000    | IRV2000    | IRV3000    |
| 6  | O-ring             | H-NBR                  |            |            |            |
| 7  | O-ring             | H-NBR                  | IRV1000    | IRV2000    | IRV3000    |
| 8  | O-ring             | NBR                    |            |            |            |
| 9  | O-ring             | NBR                    | IRV1000    | IRV2000    | IRV3000    |
| 10   | O-ring             | NBR                    |            |            |            |
| 11   | O-ring             | NBR                    | IRV1000    | IRV2000    | IRV3000    |
| 12   | O-ring             | NBR                    |            |            |            |
| 13   | O-ring             | NBR                    | IRV1000    | IRV2000    | IRV3000    |
| 14   | Seal (A)           | NBR                    |            |            |            |
| 15   | Seal (B)           | NBR                    | KT-IRV1000 | KT-IRV2000 | KT-IRV3000 |
| Repair kit no. (A set of above nos. ① to ⑮.) |                    |                        | KT-IRV1000 | KT-IRV2000 | KT-IRV3000 |

Note 1) For O-ring numbers 8 and 13, use mini-flicking type.

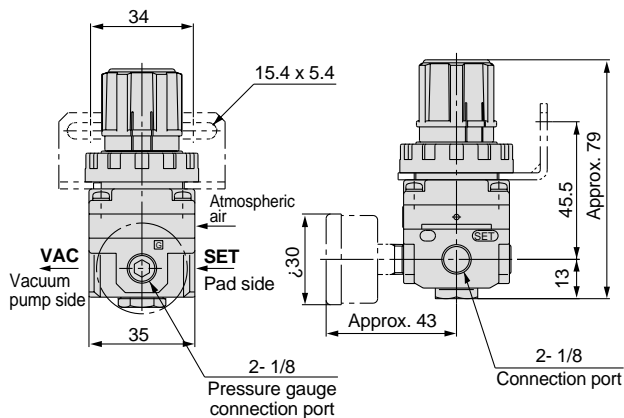
Note 2) Replacement part numbers correspond to the item numbers in the figures.

## Dimensions

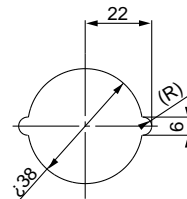
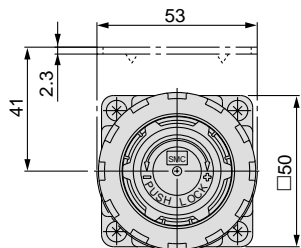
### IRV1000-01□



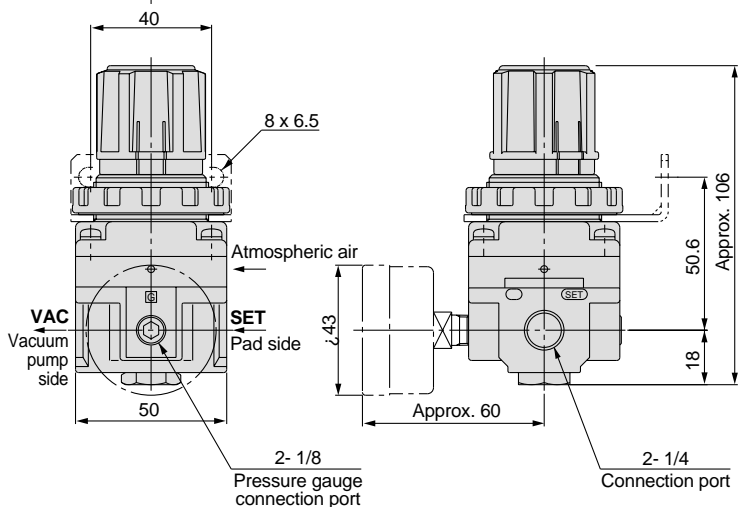
Panel cut  
Panel thickness: Max. 3



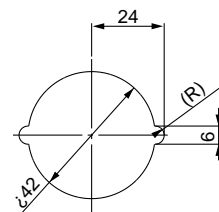
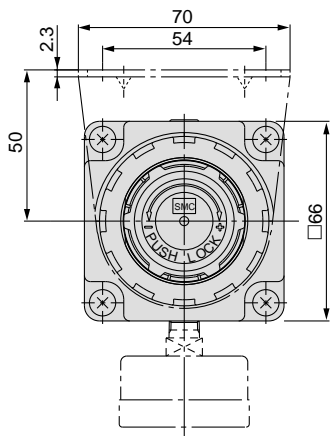
### IRV2000-02□



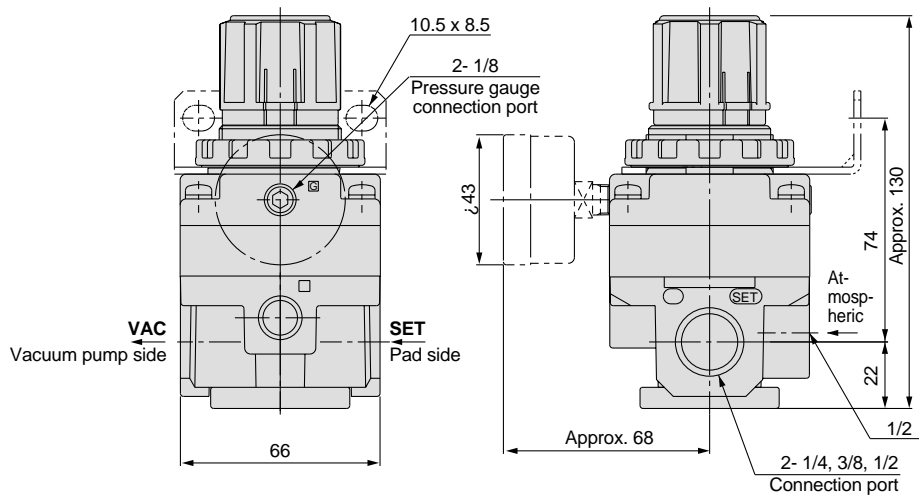
Panel cut  
Panel thickness: Max. 4



### IRV3000-03□ 04



Panel cut  
Panel thickness: Max. 4



- ZX
- ZR
- ZM
- ZH
- ZU
- ZL
- ZF
- ZP
- ZCU
- CYV

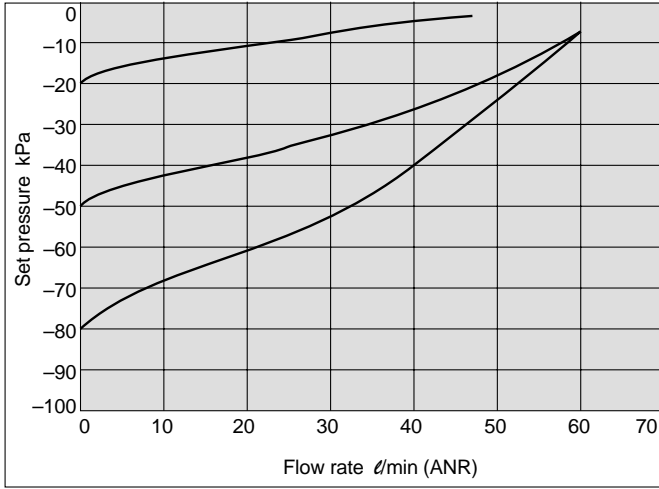
Vacuum related

# Series IRV1000/2000/3000

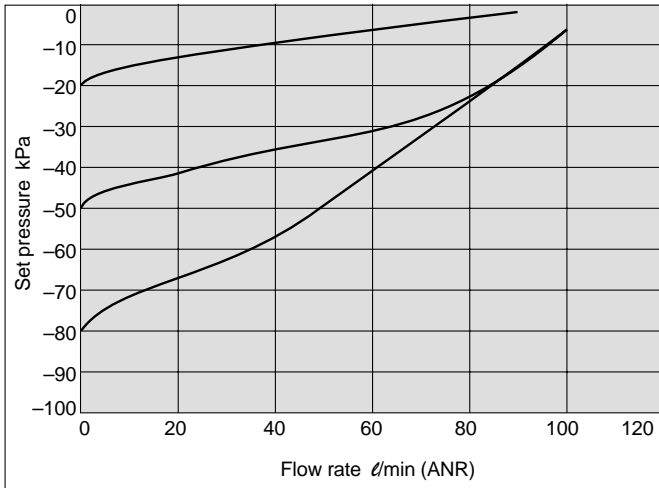
## Flow Characteristics

Conditions: Vacuum pump exhaust speed 500ℓ/min  
VAC side pressure -101kPa at initial setting

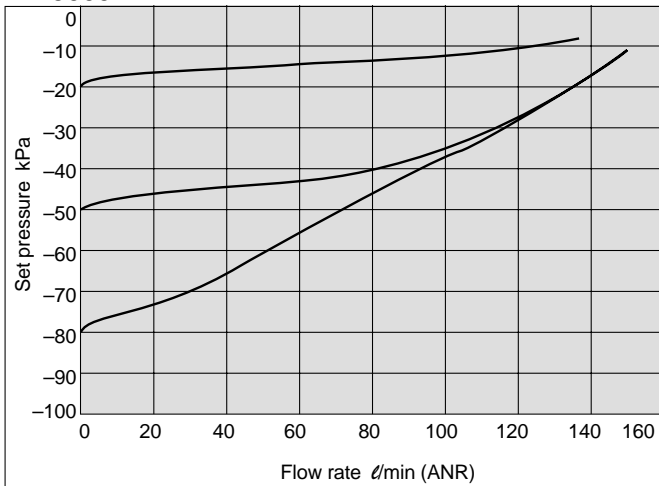
### IRV1000



### IRV2000



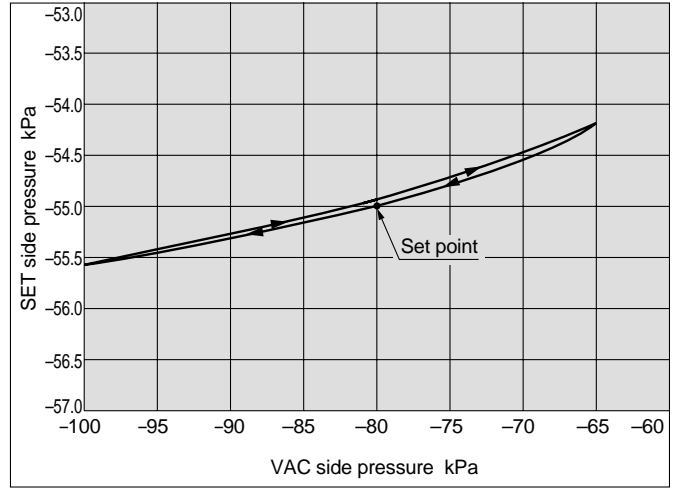
### IRV3000



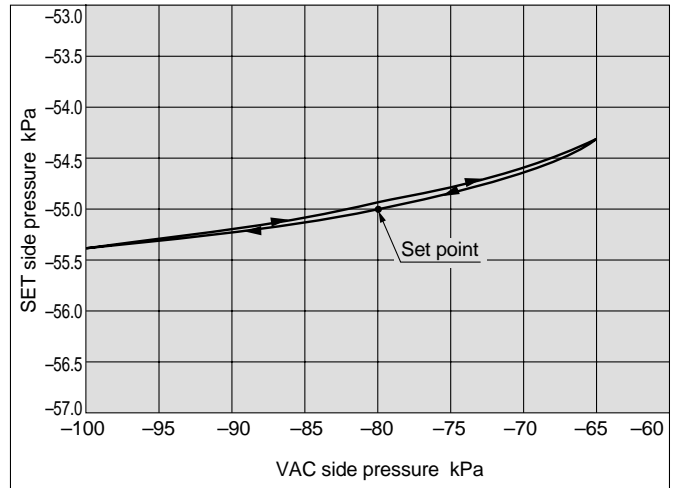
## Pressure Characteristics

Conditions: Vacuum pump exhaust speed 500ℓ/min

### IRV1000



### IRV2000



### IRV3000

