

## VBAT SET SERIES PNEUMATIC BOOSTER VALVE

# AN INSTRUCTION MANUAL

PROVIDE HIGH-QUALITY PRODUCTS AND SERVICES FOR GLOBAL AUTOMATION EQUIPMENT ENTERPRISES



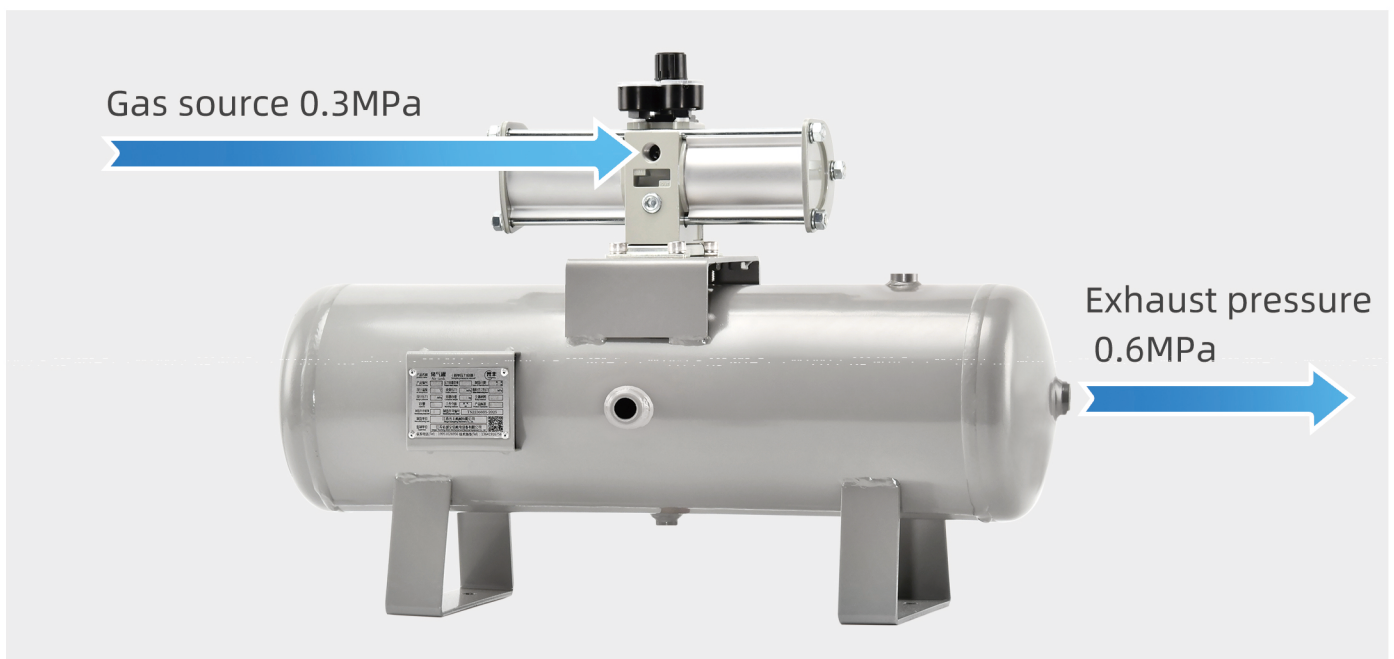
# CONTENTS

---

<b>01</b>	summary .....	one
<b>02</b>	Application scope .....	two
<b>03</b>	technical parameter .....	three
	3.1 Pressure Boosting Valve VBA Series .....	three
	3.2 Boosting tank VBAT series .....	three
	3.3 Combination Table of Boosting Valve and Gas Tank .....	four
<b>04</b>	Operating instructions .....	four-five
<b>05</b>	Flow characteristics of booster valve .....	six-seven
<b>06</b>	Maintenance and upkeep .....	eight
<b>07</b>	matters needing attention .....	eight
<b>08</b>	After sales warranty card .....	nine

## SUMMARY

1. The pneumatic booster pump is composed of a pneumatic booster valve, a high-pressure switch, a high-pressure gauge, a low-pressure gauge, and a manual pressure regulator composed of containers, gas storage tanks, etc;
2. The usable medium is compressed air;
3. A gas storage tank is used to store compressed gas so that it can directly increase the pressure on the equipment during use power;
4. The high-voltage switch is opened when high-pressure gas is needed;
5. The pressure gauge is a gas pressure gauge that displays the unit of (bar) for the inlet and output pressure of the pump;
6. The air booster pump is suitable for working environments that require high pressure in the original air compression system, and can improve the pressure and increase ratio of the high workshop gas supply system are 1:2, and only the compressed air of the working system needs to be adjusted qi as the origin is sufficient;
7. No power supply or electrical wiring is required. Simple configuration, just connect to the gas source, occupying less space;
8. Due to the absence of electrical equipment, it generates less heat and does not produce electromagnetic radiation;
9. Fully pneumatic control, safe to use;
10. For example, as shown in the following figure, the original 0.3MPa gas source can be pressurized to 0.6MPa to meet the equipment requirements.



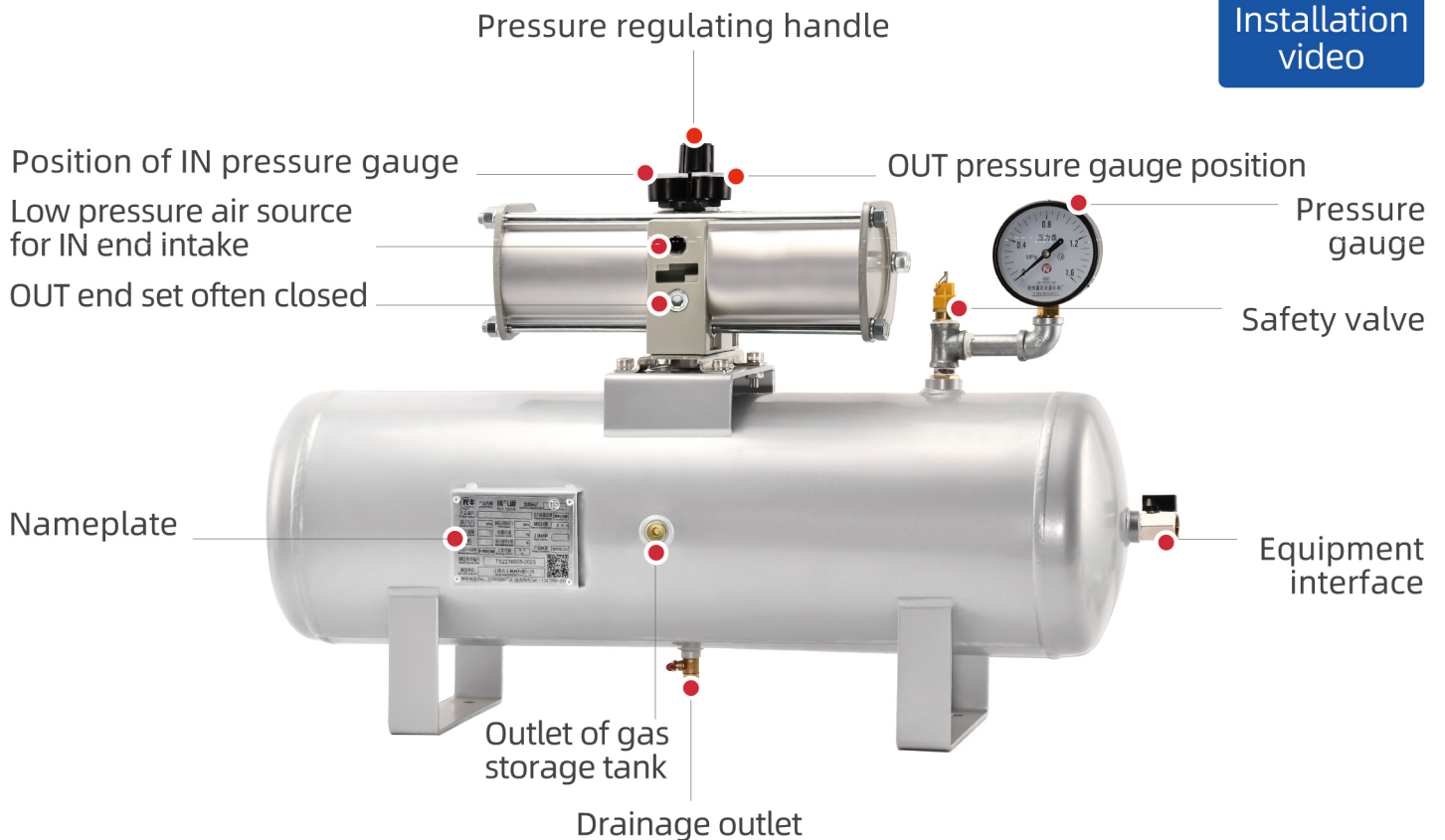
## APPLICATION SCOPE

1. Mainly used for secondary pressurization of compressed air in factories, it can easily solve the problem of compressed air source in factories. The problem of insufficient pressure can be addressed by increasing the air pressure from 1-8kg to 2-16kg.
2. Pressure and airtightness tests for products such as radiators, cooling pipes, valves, pressure vessels, pipelines, etc, and for various other purposes.
3. Pneumatic fixtures, molds, hot runners, robotic arms, CNC pneumatic clamping heads, cylinders, blow molding Machine, laser cutting machine, CNC machining center, electronics factory, machinery factory, wool spinning factory, weaving factory Perform pressure boosting and destructive pressure tests on various pneumatic equipment due to insufficient pressure.

## Product Installation Diagram



Installation video



## TECHNICAL PARAMETER

Boosting Valve VBA Series						
Serial number	VBA10A-02	VBA20A-03	VBA22A-03	VBA40A-04	VBA42A-04	VBA43A-04
Boost ratio	1:2	1:2	1:2	1:2	1:2	1:2
Pressure adjustment	Manual	Manual	Manual	Manual	Manual	Manual
Set pressure (MPa)	0.2-2.0	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0
Supply pressure (MPa)	0.1-0.9	0.1-0.9	0.1-0.9	0.1-0.9	0.1-0.9	0.1-0.9
Output flow rate (L/min)	230	1000	1000	1900	1900	1600
Installation size (mm)	40x60φ5	50x100φ5	53x198φ11	95x130φ11	95x130φ11	95x130φ11
Length x Width x Height (mm)	150x70x115	300x117x175	305x118x140	405x150x255	405x150x175	405x150x255
Interface size (Entrance Exit)	1/4-1/8	3/8-1/8	3/8-1/8	1/2-1/8	1/2-1/8	1/2-1/8

Note 1: When the pressure at the OUT port is higher than the set pressure of the handle, the remaining pressure is discharged from the back of the handle.

Note 2: The flow rate at N=OUT=0.5MPa will be affected by usage conditions that affect pressure changes.

Boosting tank VBAT series				
Serial number	VBAT-05L	VBAT-10L	VBAT-20L	VBAT-40L
Capacity of gas storage tank	5L	10L	20L	40L
Maximum operating pressure	1.25MPa	1.25MPa	1.25MPa	1.25MPa
Environment and fluid temperature	0~75°C	0~75°C	0~75°C	0~75°C
Weight				
Length x Width x Height (mm)	360x160x250	460x180x285	680x200x303	855x250x353
Installation size (mm)	200x95φ5	310x120φ5	400x100φ11	500x150φ11
Material and surface coating	Carbon steel (outer surface: silver gray paint/carbon steel gray inner surface: anti rust paint) stainless steel			
Enclosure	Accessories and optional bundled packaging			

Note 1: The gas storage tank complies with Chinese container regulations. Pay attention to whether the output pressure of the booster valve exceeds the maximum operating pressure of the gas tank.

Note 2: When using a gas cylinder alone (without connecting a booster valve), if it is used under normal temperature and pressure above 1MPa, it shall be included in the "High Pressure Gas The scope of management of the Sports Safety Law.

Note 3: Drainage valves need to be ordered separately

Combination Table of Boosting Valve and Gas Tank

Can model	Combination suitable for model		
VBAT-05L	VBA10A-02	VBA10A-02	
VBAT-10L	VBA10A-02	VBA20A-03	VBA22A-03
VBAT-20L	VBA20A-03	VBA22A-03	VBA40A-04
VBAT-40L	VBA40A-04	VBA42A-04	VBA43A-04

Note: Please customize according to the available models in the table. For specific usage information, please consult our company.

## OPERATING INSTRUCTIONS

1. Connect the low-pressure inlet, drive inlet, and high-pressure outlet of the booster pump (Figure 4-1)
2. The maximum required air source pressure for driving this booster pump is 8 bar.
3. Close the high-pressure outlet and open the air inlet.
4. Adjust the upper knob of the pressure increasing or reducing valve (gently pull up first), clockwise rotation increases pressure, counterclockwise rotation decreases pressure Pressure. (Figure 4-1)
5. The booster pump starts working quickly and automatically stops when the pressure is increased to the set pressure.
6. Observe the high-pressure gauge at the outlet, open the high-pressure outlet, and start supplying gas. (Figure 4-2)
7. The OUT pressure gauge value and N pressure gauge value need to be within the range of the booster valve parameters. (Please refer to the VBA booster valve parameter table for details)
8. After use, perform pressure relief treatment on the tank body.
9. Note: Set the required pressure. If the pressure is lower than the set pressure, it will automatically increase and stop when the set pressure is reached.
10. There are two types of air intake: drive air intake and low-pressure air intake. The air intake must be connected to the drive air intake to regulate the pressure. When OUT when the pressure at the mouth is higher than the set pressure of the handle, the remaining pressure is discharged from the back of the handle.



Figure 4-1

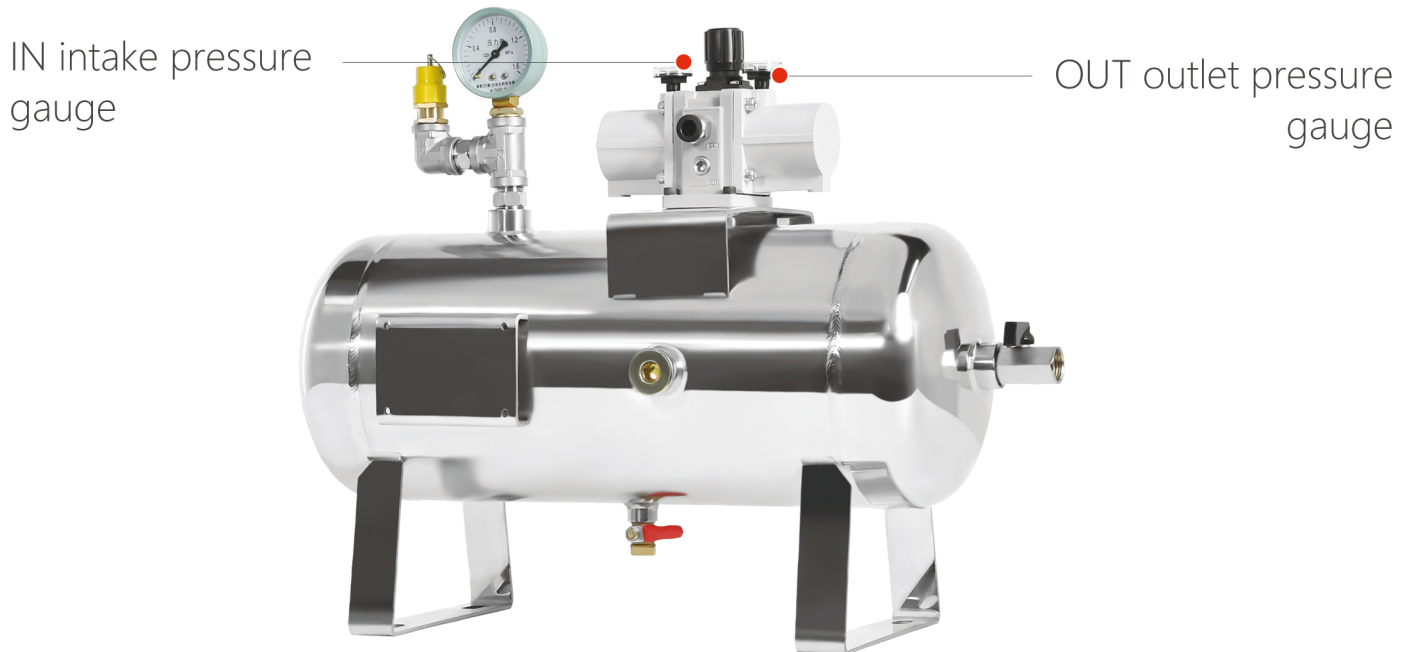


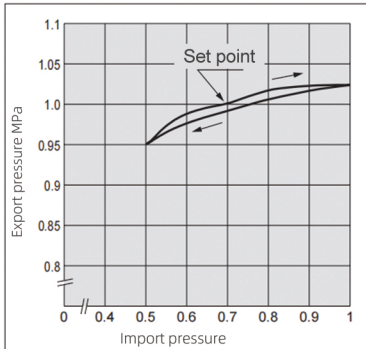
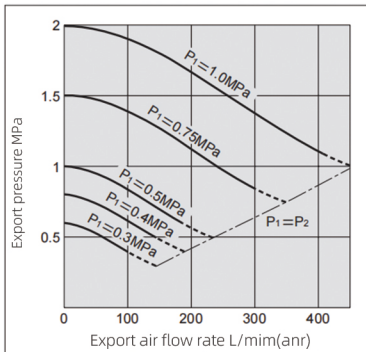
Figure 4-2

## FLOW CHARACTERISTICS OF BOOSTER VALVE

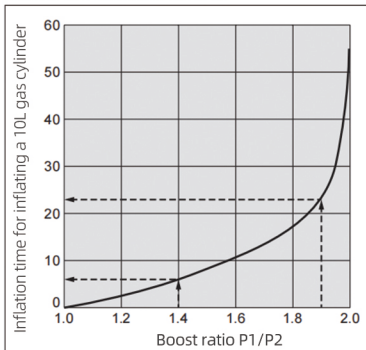
### VBA SERIES

#### VBA10A

##### Traffic characteristics



##### Inflatable characteristics



##### VBA10A occasions

- The gas source pressure is 0.5MPa, and the pressure of the gas tank is increased from 0.7MPa. Calculation method for the time required to increase to 0.95MPa

$$\frac{P_2}{P_1} = \frac{0.7}{0.5} = 1.4 \quad \frac{P_2}{P_1} = \frac{0.95}{0.5} = 1.9$$

The time required to increase the boost ratio from 1.4 to 1.9 is

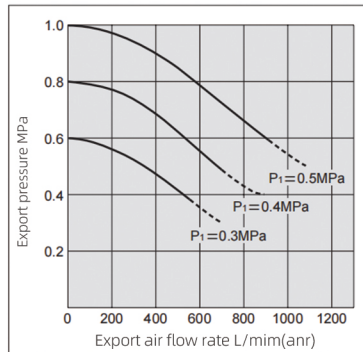
$$23 - 6 = 17(s),$$

For a 10L gas cylinder, the required time is

$$T = t \times \frac{V}{10} = 17 \times \frac{10}{10} = 17(s).$$

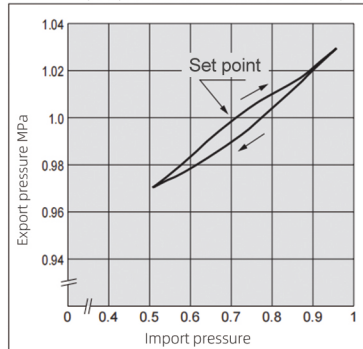
#### VBA20A, 22A

##### Traffic characteristics

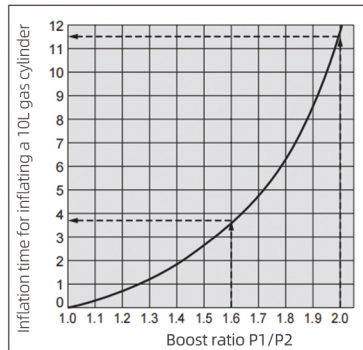


##### Pressure characteristics

Condition: Import pressure: 0.7MPa Representative value  
Export pressure: 0.7MPa flow: 20L/min(ANR)



##### Inflatable characteristics



##### VBA 20A 22A occasions

- The gas source pressure is 0.5MPa, and the pressure of the gas tank is increased from 0.8MPa. Calculation method for the time required to increase to 1.0MPa

$$\frac{P_2}{P_1} = \frac{0.8}{0.5} = 1.6 \quad \frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$$

The time required to increase the boost ratio from 1.6 to 2.0 is

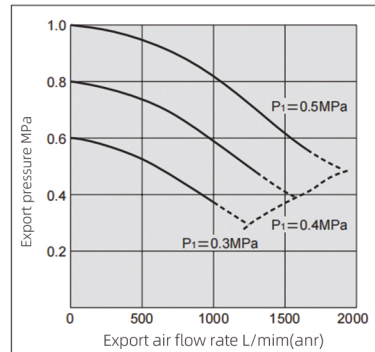
$$11.5 - 3.8 = 7.7(s),$$

For a 100L gas cylinder, the required time is

$$T = t \times \frac{V}{10} = 7.7 \times \frac{100}{10} = 77(s).$$

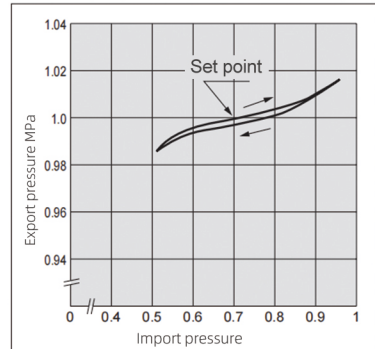
#### VBA40A, 42A

##### Traffic characteristics

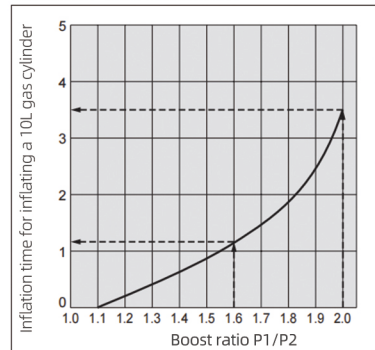


##### Pressure characteristics

Condition: Import pressure: 0.7MPa Representative value  
Export pressure: 0.7MPa flow: 20L/min(ANR)



##### Inflatable characteristics



##### VBA 40A and 42 occasions

- The gas source pressure is 0.5MPa, and the pressure of the gas tank is increased from 0.8MPa. Calculation method for the time required to increase to 1MPa

$$\frac{P_2}{P_1} = \frac{0.8}{0.5} = 1.6 \quad \frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$$

The time required to increase the boost ratio from 1.46 to 2.0 is

$$3.5 - 1.1 = 2.4(s),$$

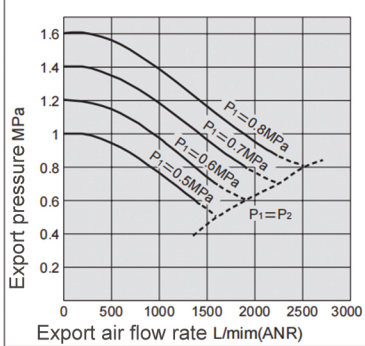
For a 100L gas cylinder, the required time is

$$T = t \times \frac{V}{10} = 2.4 \times \frac{100}{10} = 24(s).$$

## BOOSTING VALVE VBA SERIES

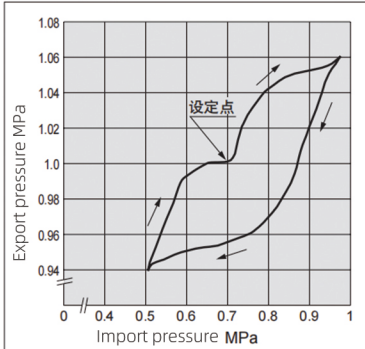
### VBA43A

#### Traffic characteristics

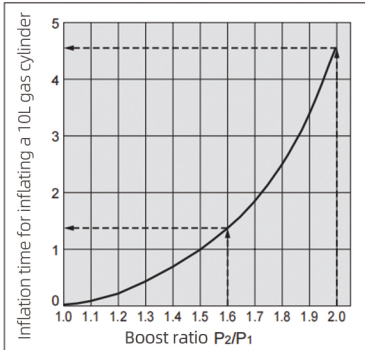


#### Pressure characteristics

Condition: Import pressure: 0.7MPa Representative value  
Export pressure: 0.7MPa flow: 20L/min(ANR)



#### Inflatable characteristics

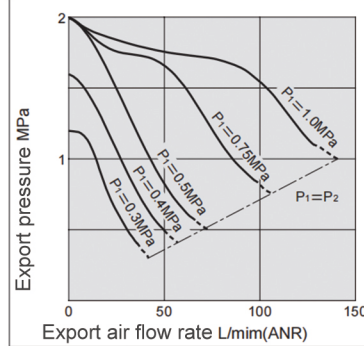


#### VBA43A occasions

- The gas source pressure is 0.5MPa, and the pressure of the gas tank is increased from 0.8MPa. Calculation method for the time required to increase to 1.0MPa  
 $\frac{P_2}{P_1} = \frac{0.8}{0.5} = 1.6$      $\frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$   
 The time required to increase the boost ratio from 1.6 to 2.0 is  
 $4.5 - 1.3 = 3.2\text{(s)}$ ,  
 For a 10L gas cylinder, the required time is  
 $T = t \times \frac{V}{10} = 3.2 \times \frac{100}{10} = 32\text{(s)}$ .

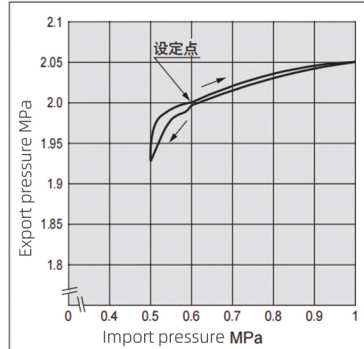
### VBA11A

#### Traffic characteristics

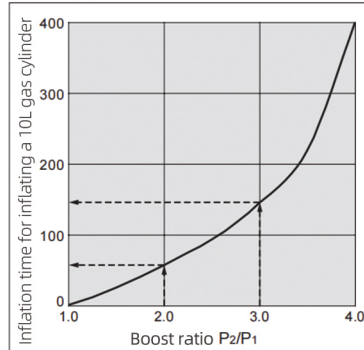


#### Pressure characteristics

Condition: Import pressure: 0.6MPa Representative value  
Export pressure: 2.0MPa flow: 10L/min(ANR)



#### Inflatable characteristics



#### VBA11A occasions

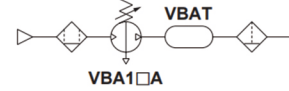
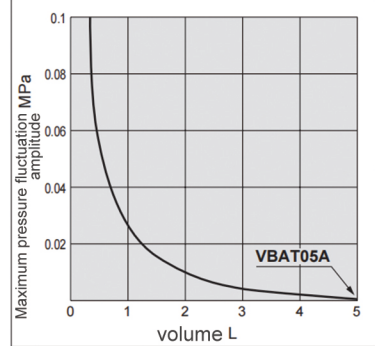
- The gas source pressure is 0.5MPa, and the pressure of the gas tank is increased from 1.0MPa. Calculation method for the time required to increase to 1.5MPa  
 $\frac{P_2}{P_1} = \frac{1.0}{0.5} = 2.0$      $\frac{P_2}{P_1} = \frac{1.5}{0.5} = 3.0$   
 The time required to increase the boost ratio from 2 to 3 is  
 $147 - 58 = 89\text{(s)}$ ,  
 For a 10L gas cylinder, the required time is  
 $T = t \times \frac{V}{10} = 89 \times \frac{10}{10} = 89\text{(s)}$ .

#### pressure fluctuation

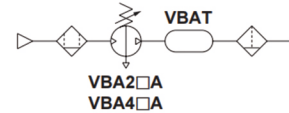
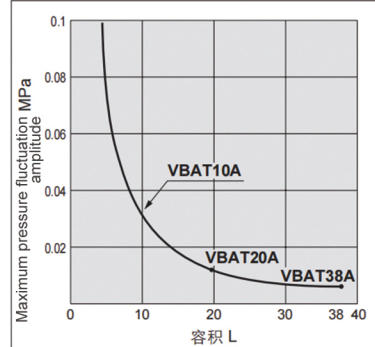
Use gas cylinders to mitigate pressure fluctuations

When the volume of the gas tank on the outlet side is small, pressure fluctuations will occur

### VBAT05A



### VBAT10A·VBAT20A·VBAT38A



Condition: Inlet pressure: 0.5MPa,  
outlet side set pressure: 1MPa,  
flow rate: 0~maximum flow rate

- The function of gas cylinders  
 Relieve pressure fluctuations at the outlet of the pressure boosting valve. In situations where intermittent movements result in air consumption exceeding the supply capacity, the method of storing the concentrated air consumption in a gas tank can be used. If the continuous action causes the air consumption to exceed the supply capacity, using a gas tank will also have no effect.

## MAINTENANCE AND UPKEEP

1. This device belongs to high-tech products, and the working environment requirements are: no water, no oil, no corrosion, at room temperature. If there are special requirements, customization is required.
2. Discharge condensate water once a day (at various locations).
3. Oil is prohibited during daily work, and no maintenance or upkeep is required. If product maintenance is needed, please contact Guangjia for consultation. It is not allowed to disassemble without permission (No quality issues such as improper use and wear of sealing rings are not covered by the warranty).

## MATTERS NEEDING ATTENTION

1. Consider the specifications and use within the scope of this article.
2. Avoid placing it in places with rain or direct sunlight.
3. When preventing accidents such as mechanical failures or low outlet pressure, safety measures must be taken.
4. If the change in import pressure is significant and exceeds the set range of export pressure, it may lead to accidents, and safety measures must be taken to dealing with abnormal pressure.
5. Before piping, blow clean the cutting powder, cutting oil, dust, etc. inside the piping. If they enter the interior of the pressure boosting valve, it will cause malfunction good, reduced durability.
6. The selection of the size of the booster valve is based on the necessary conditions (pressure, flow rate, production cycle time, etc.) on the outlet side, according to the sample select the specification range indicated by our institute.
7. When operating for a long time, it is necessary to confirm the service life of the booster valve, as the service life of the booster valve is determined by the number of actions. Therefore, when the outlet side is operated When more components are used, their lifespan will be shortened.
8. The setting of export pressure should be more than 0.1MPa higher than the inlet pressure. If the pressure difference is below 0.1MPa, it will cause unstable operation.
9. In situations where dry air is used (atmospheric dew point below  $-17^{\circ}\text{C}$ ), the lifespan may be shortened due to the volatilization of internal lubrication.
10. After the work is completed, please cut off the inlet gas source to stop the unused operation of the booster valve, in order to prevent any malfunction caused by this.
11. The ambient temperature and usable fluid temperature of this product are  $2^{\circ}\text{C}$ - $50^{\circ}\text{C}$  (unfrozen). The medium used for this product is compressed air.

## MAINTENANCE AND UPKEEP

- 1、 To purchase this product, please fill out this card carefully and read the following warranty terms carefully to ensure that the product receives effective warranty.
  1. Users should carefully keep this card when purchasing products and asking the seller to stamp and confirm
  2. This warranty card must be provided at the same time as the warranty.
  3. The information filled in this warranty card is true, otherwise it is invalid.
  4. The product warranty period is six months. If the product malfunctions during the warranty period due to poor quality of the original components or manufacturing issues, free maintenance will be provided Repair and component replacement
- 2、 The product is damaged and cannot be used normally due to the following reasons, which are not covered by the warranty.
  1. Damage caused by failure to use and install according to the instructions.
  2. Any product damage caused by human or accidental factors.
  3. Repair, modification or product seal sticker rupture without the approval of our company.
  4. Aging, scratches, and dents on the surface shell of the product.
- 3、 After the warranty period expires, users can still receive repair services provided by our company, but they need to pay the corresponding fees

User Profile			
Product Name		Product model	
Product Code		Purchase quantity	
Purchase date		Purchase unit	
Customer Name		contact information	

Warranty Record			
Warranty Date	Fault handling methods	completion date	Customer signature

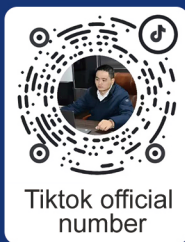
# VUYOMUA

## PROFESSIONAL SERVICE R&D INNOVATION

PROVIDE HIGH-QUALITY PRODUCTS AND SERVICES FOR GLOBAL AUTOMATION EQUIPMENT ENTERPRISES



WeChat official  
account



Tiktok official  
number

Telep: 17155215555 / 18915593292

Email : [yczx1@youchengzhixin.com](mailto:yczx1@youchengzhixin.com)

web: [www.youchengzhixin.com](http://www.youchengzhixin.com)

Add: No.725 Hongyang Road,Kunshan City,Suzhou CityJiangsu Province