



## **SITEKE Air driven gas booster--GBD40**

### **Operating instruction**

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## **Company Profile**

SITEKE company has been developing and manufacturing components and complex systems for high pressure technology for nearly to ten years. Years of experience in the high pressure technology. Quality management certified according to ISO9001.

## **Product introduction**

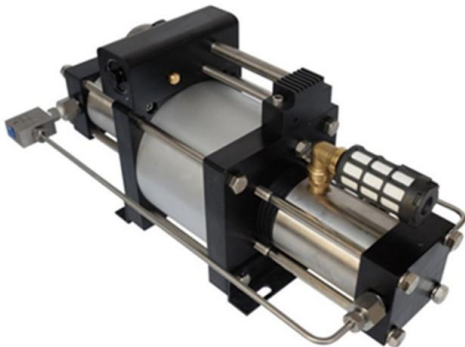

- SITEKE GBD series is a single acting and double head air driven gas booster, overall use of aluminum and stainless steel, it can use 17-4PH、15-5PH、440C、nickel-based alloys, hastelloy and other materials to meet the special media.
- The gas booster pump air driven inlet is G1/2", air driven pressure less than or equal to 8.3bar. And the driving piston diameter of GBD series is 160mm and some products has exhaust cooling function.
- GBD series air driven gas booster products are characterized by large output flow, high stability and more reliable structure. It is mainly used in high gas source occasion of the output pressure and flow rate has requiring as the same time.

## **Working Principle**

- SITEKE-GBD40 air driven gas booster pump is a reciprocating piston pump powered by compressed air. A large area of low pressure gas driving surface is used to convert the small area of high pressure gas, the supercharging ratio determines the maximum output pressure of the pump.
- When SITEKE air driven gas booster works the driving piston to run backward, the gas is sucked into the pump. At this time, the one-way valve at the inlet is opened and the other one-way valve at the outlet is closed. When the piston moves forward, pressurize the intake gas, the pressure will close the one-way valve at the inlet, open the other one-way valve at the outlet, and the high pressure gas will flow the outlet.
- SITEKE air driven gas booster can achieve automatic filling pressure, when the outlet pressure rises, the booster pump will slow running and the piston produces a certain resistance, when the force balance, the pump will stop running automatically, the driven piston side pressure and high pressure port balance, piston remain still, lowest energy consumption, components to stop working. When the outlet pressure decrease or the drive pressure increase, the air driven gas booster will automatically start the operation.

## **Technical Data**

Air Drive Pressure	1-8.3bar
Pressure Ratio	40:1
Minimum inlet pressure	1bar
Maximum outlet pressure	332bar
Inlet Connection	NPT1/4"
Outlet Connection	NPT1/4"
Maximum flow standard (NL/min)	273@Pi=40
Air drive connection	G1/2"
Net weight	23KG



**Remark:** Based on static pressure, the air consumption is 1.0m<sup>3</sup> when the air pressure is 7Bar.  
@ represents a condition: for example:100@Pi=7, it represents the flow rate is 100NL/min when the input pressure is 7Bar

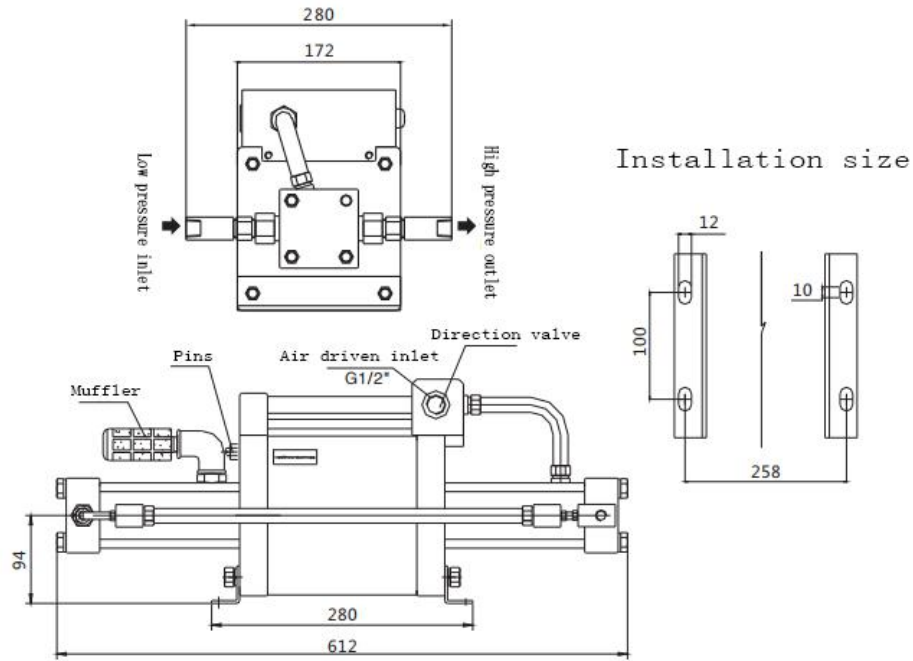
## Air driven gas booster features

1. Reliable, easy to maintain, compact and robust
2. No heat, flame or spark risk
3. Infinitely variable output pressure and flow capability
4. Air driven models do not require electrical connection, easy to apply automatic controls
5. Wide range of models and controls and options
6. Seals system designed for long working life, no airline lubricated required
7. Wide range of standard and customized systems

## Product Application

It can be used for pressure testing, valve actuators, Air drills, Blow moulding pet, Increase pressure capacity, for air cylinder charging.

## Outline Dimension

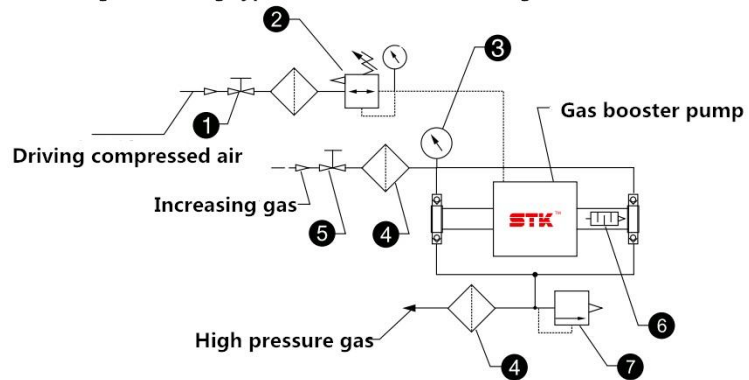


## Typical installation circuit diagram

The numbers are explained below

- ① Drive origin switch
- ② Regulating valve
- ③ Pressure gauge
- ④ Filter
- ⑤ Needle valve
- ⑥ Silencer
- ⑦ Relief valve

GBD series gas boosting typical installation circuit diagram



## How to select Air-driven gas booster pump

Our air-driven gas booster pumps are completely air operated and no need any electricity

1. What is your present gas pressure ?
2. What is your gas? Oxygen gas, compressed air, nitrogen gas or other gases ?
3. What outlet gas pressure do you want ?
4. What driven air pressure (of your air compressor) can you offer ?
5. What outlet gas flow rate do you need ?

## Safety Instruction

**Operating Safety Specification:**

- Personnel engaged in power machinery operation should pay attention to equipment movement which may cause hazards and not injure themselves or others.
- Before starting the booster pump, it is necessary to check the air pipe and connecting equipment correctly and observe that there is no potential danger in the surrounding environment before starting the booster pump.
- Power machinery can only be operated in a safe working environment with the necessary protective measures, and the long-term integrity of these facilities must be guaranteed.
- Check the trachea: Before work, the airflow is unloaded by checking whether the listening airway is sealed or not, and then repaired by professionals.
- In addition, the current specifications for pneumatic pipelines and pressure vessels should be complied with.
- In all work processes, the existing regulations on safety, noise, environmental protection and accident protection must be observed.

**Maintenance safety guidelines:**

**Caution:** Maintenance and inspection personnel should master the necessary safety standards before performing maintenance, repair and inspection work.

Maintenance and repair work can only be carried out when safety is confirmed:



- Dangerous movements must return to rest static.
- Avoid incorrect, non-conforming start-up.
- Avoiding the dangers that may arise from the accumulation of energy

**Installation environment requirements**

- The driving pressure connection range of air driven gas booster pump is (1-8.3bar max).
- Dust-free working environment (solid matter maximum particle size: 40μm), no corrosion and ambient temperature is -20~60℃.
- Each booster pump is equipped with two L-scaffolds.

**Air Pressure Request:**

Solid particles		Pressure dew point		Maximum oil content	
classification	μm	classification	°C	classification	mg/m <sup>3</sup>
6	≤5	4	≤+3	2	≤0.1

Classification standard:ISO 8573-1

• Driving gas source should be equipped with filters, water-gas separators, oil mists, etc. to ensure that there are no water and solid particles in driving gas. VG32 turbine oil is recommended to be added to the oil mist, and other oils will accelerate the aging of seals.

**Temperature Request:**Conventional booster pump, the pump body can withstand the working temperature -20~80℃, beyond the range must stop, the temperature is normal before starting. High temperature resistant pumps shall be executed at specified temperatures.

#### **Start-up:**

- Make sure the booster pump is securely fastened.
- Check that all interfaces are securely fastened and components are installation in place.
- Adjust the relief valve to 0 psi.
- Open the intake switch and slowly adjust the pressure relief valve until the pump starts (normally,the starting pressure of the pump is between 15 to 20 psi.),Continue to adjust and observe the pressure gauge to achieve the pressure you need.

### **Common troubleshooting**

※ **Caution:** Initial installation and debugging considerations:

- Make sure there are no impurities entering the pump.
- Ensure that the intake air is smooth, and the air driven must be no dust , iron slag , rust , etc .Solid matter maximum particle size is 5μm.
- Ensure that the intake press is suitable ,air drive pressure is 1-8.3Bar and the 8.3 is the max pressure , During the commissioning process, first adjust the driving pressure to 0Bar, and then start the pump, finally slowly increase the driving pressure.
- When the installation is completed, run the air for about 1 minute to observe whether the booster pump is running normally and whether leak in the pipeline.

5. Ensure that there is a lubricator in the drive circuit and pay attention to refueling.
6. The pump body is fixed safely and securely.

**The first: Booster pump move slowly**

- a. Check whether the drive air path of the booster pump is blocked and the air switch and relief valve are properly regulated.
- b. Check whether the pin of the booster pump is deformed or jammed.
- c. Check whether the sealing parts of the driving piston of the booster pump are leaking, wearing and aging.

**The second: Low output pressure of booster pump**

- a. For the booster cylinder with pressure regulating valve, check whether the pressure regulating valve is too low. If so, adjust the pressure regulating valve.
- b. The regulating valve has been damaged, which causes the gas source to not enter normally. It is necessary to replace the new regulating valve.
- c. The check valve had jammed or it had impurity.

**The third: The driving cylinder works normally and the high pressure cylinder doesn't pressurize.**

- a. Low pressure of driving gas source.
- b. Check valve seals is leakage.
- c. Check valve is jiammed.

**The fourth: Booster pump doesn't holding pressure**

- a. Check the seal of the outlet check valve for damage. If it is damaged, replace it with a new one.
- b. Check the seal of the high pressure cylinder for damage.If it is damaged, replace it with a new one.

**The fifth: Booster pump out of work**

- a. Check whether the driving gas source is on and whether the driving pressure is full of the requirements of the booster pump.
- b. Check whether the air passage of the booster pump is unblocked and whether the connection of the gas circuit of the booster pump is correct.
- c. Check whether the air path of the reversing valve is unblocked.