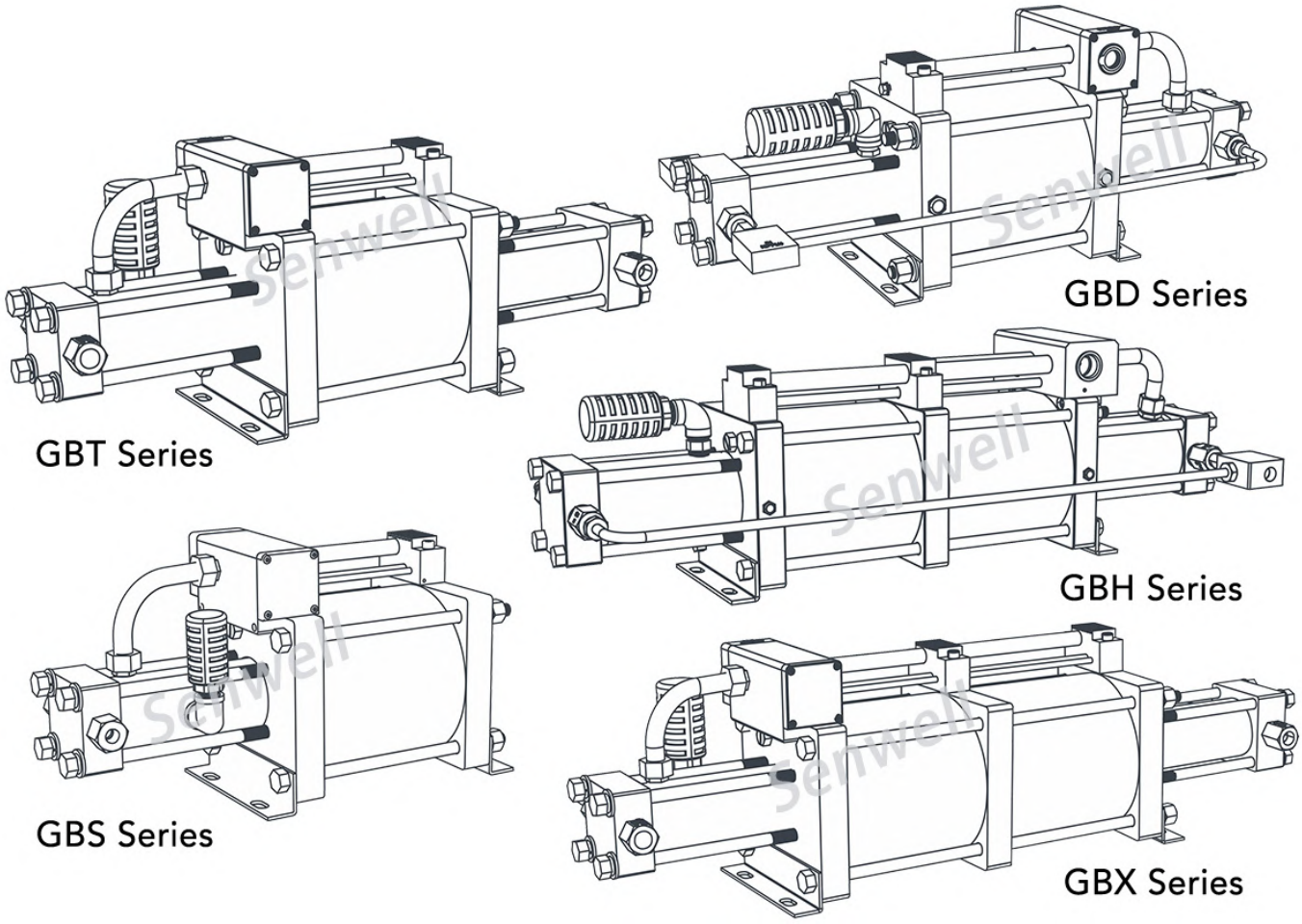
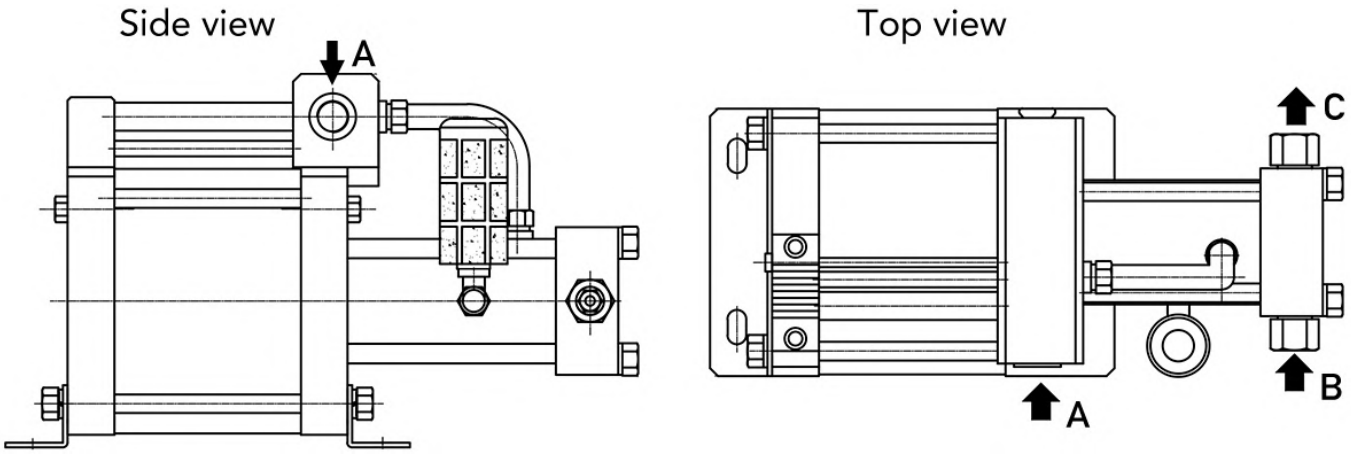
Gas Booster Pump Operation Guidance



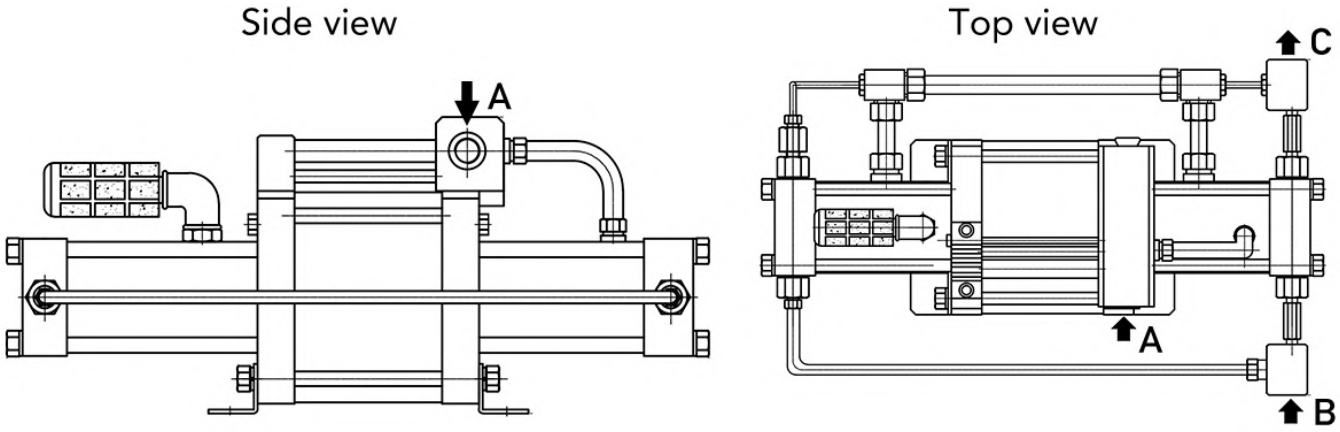
Connection Port Diagram

A: Drive air inlet **B:** Gas inlet **C:** High-pressure gas outlet

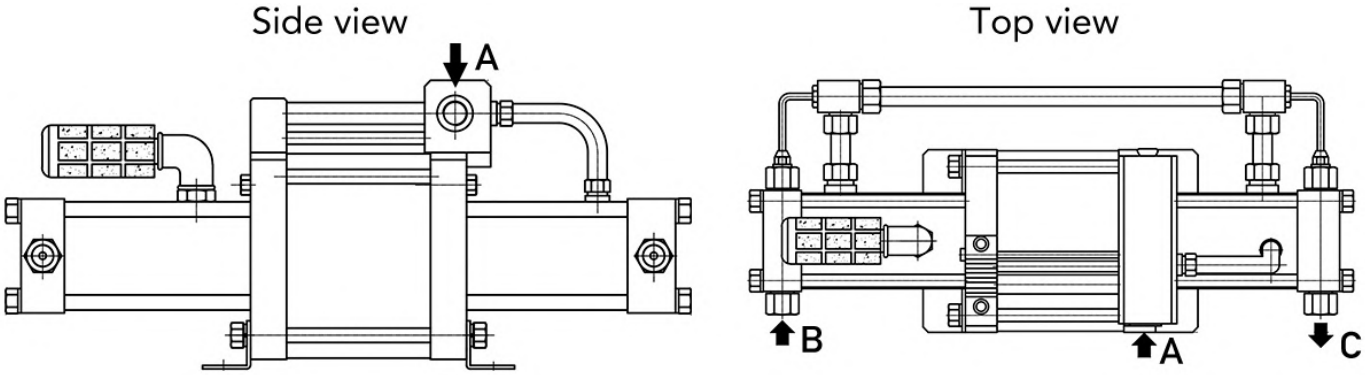
GBS Series



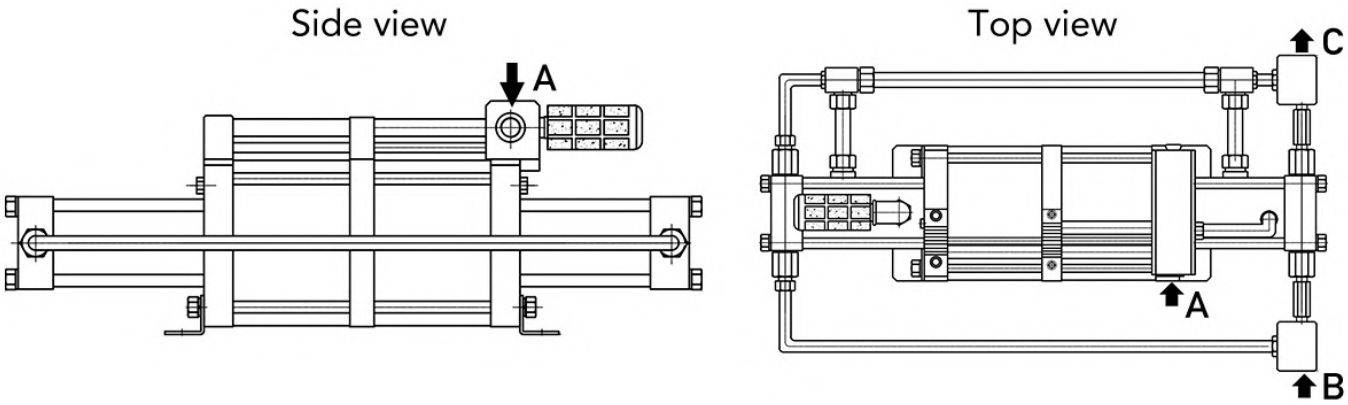
GBD Series



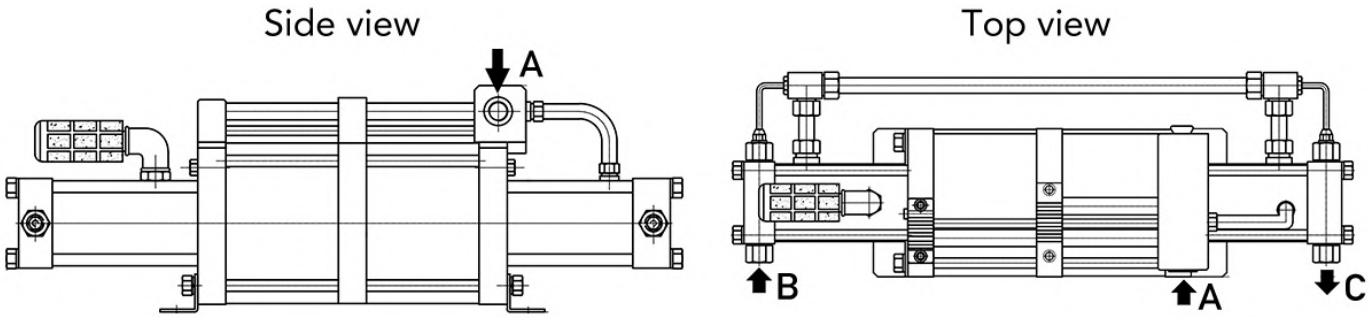
GBT Series



GBH Series

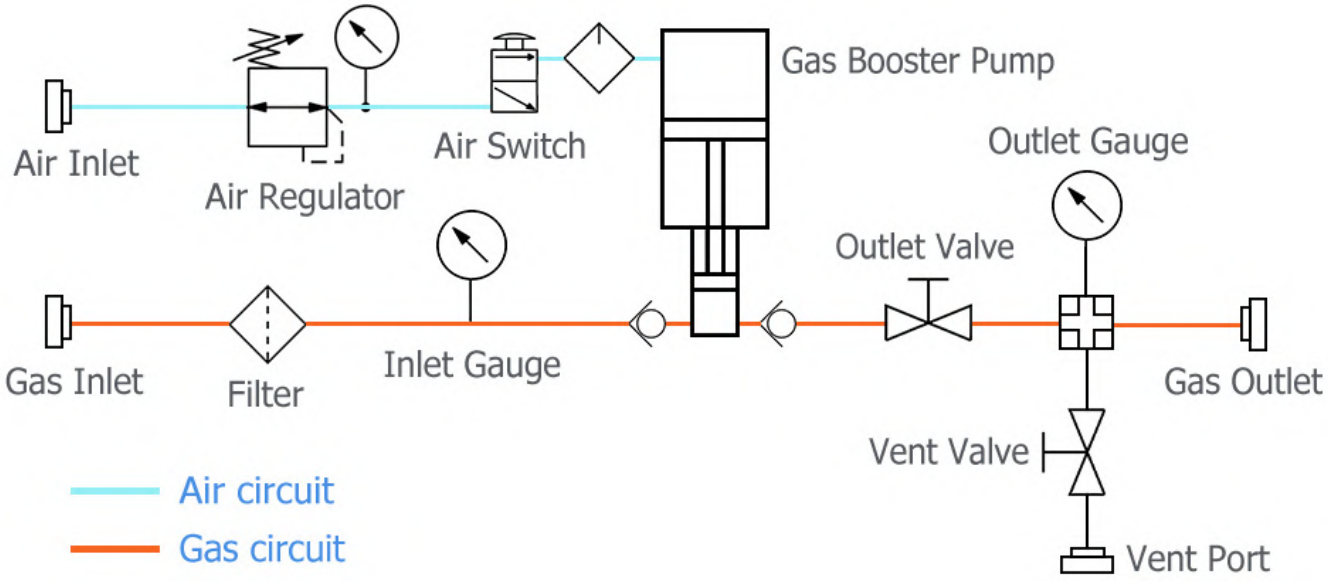


GBX Series



Typical Mounting Circuit

The typical mounting circuit is suitable for most applicable scenarios. You can also install and lay out the gas booster pump as per your own usage scenarios.



Preparations

1. Install Gas booster pump.

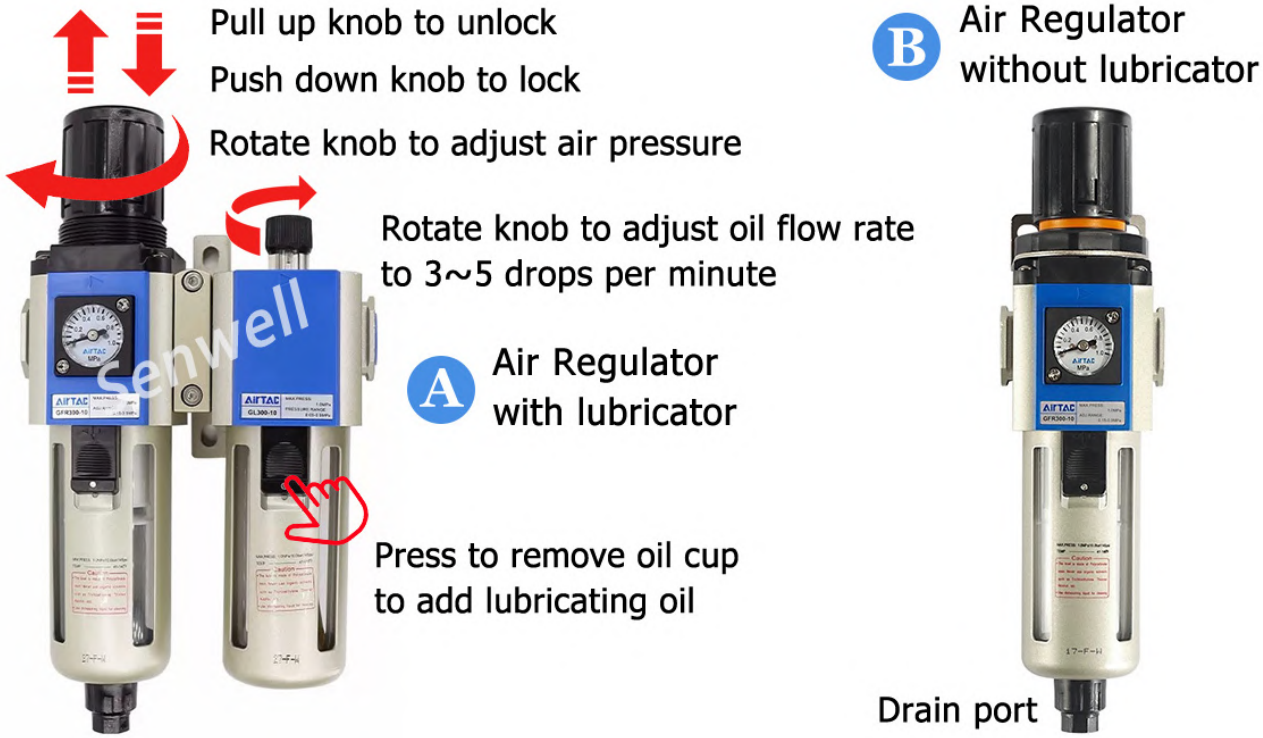
For your easy installation, the gas booster pump is equipped with two slotted mounting brackets, you can mount the gas booster pump at any angle.

2. Connect Drive air inlet port.

(1). Gas booster's maximum air consumption is 800L/minute (It is 1600L/min for GBX and GBH series). And 7.5KW/10HP Air compressor is recommended. Gas booster will automatically adjust the air intake volume as per current working conditions and load, no requiring human intervention.

(2). Add lubricating oil into oil cup of Air Regulator, and the oil level should not exceed half capacity of oil cup. Lubricating oil type: ISO VG32.

Please keep Air Regulator as close to gas booster pump as possible, and ensure there is sufficient lube oil in Air Regulator during gas booster running.



Notice: For special gases such as flammable gas (oxygen, hydrogen, methane)

and high-purity gas, the gas booster will use oil-free compression, therefore, do not add lube oil to Air Regulator.

3. Connect Gas inlet port.

The port marked with "IN" is the pump's Gas inlet. If your source gas contains solid impurities, the check-valve inside gas inlet port may be damaged, resulting in gas booster pump abnormal running. Please add a gas filter.

4. Connect Gas outlet port.

The port marked with "OUT" is Gas outlet. Please connect your terminal device such as a gas cylinder on the port tightly to ensure high pressure will not leak.

Gas Booster Outlet Pressure Calculation Formula

Gas booster outlet pressure is always directly proportional to driving air pressure. Therefore, if you change driving air pressure, gas booster discharge pressure will be changed accordingly; if you set a driving air pressure, gas booster discharge pressure will be preset too.

Each model of gas booster has a boost ratio. For example, model GBS05 means its boost ratio is 5; model GBD80 means its boost ratio is 80.

* **For GBS series** (models GBS07 to GBS150)

Gas booster outlet pressure = Driving air pressure x Boost ratio.

For example, model GBS40, boost ratio is 40, when you set driving air pressure at 5bar, it will discharge 200bar gas.

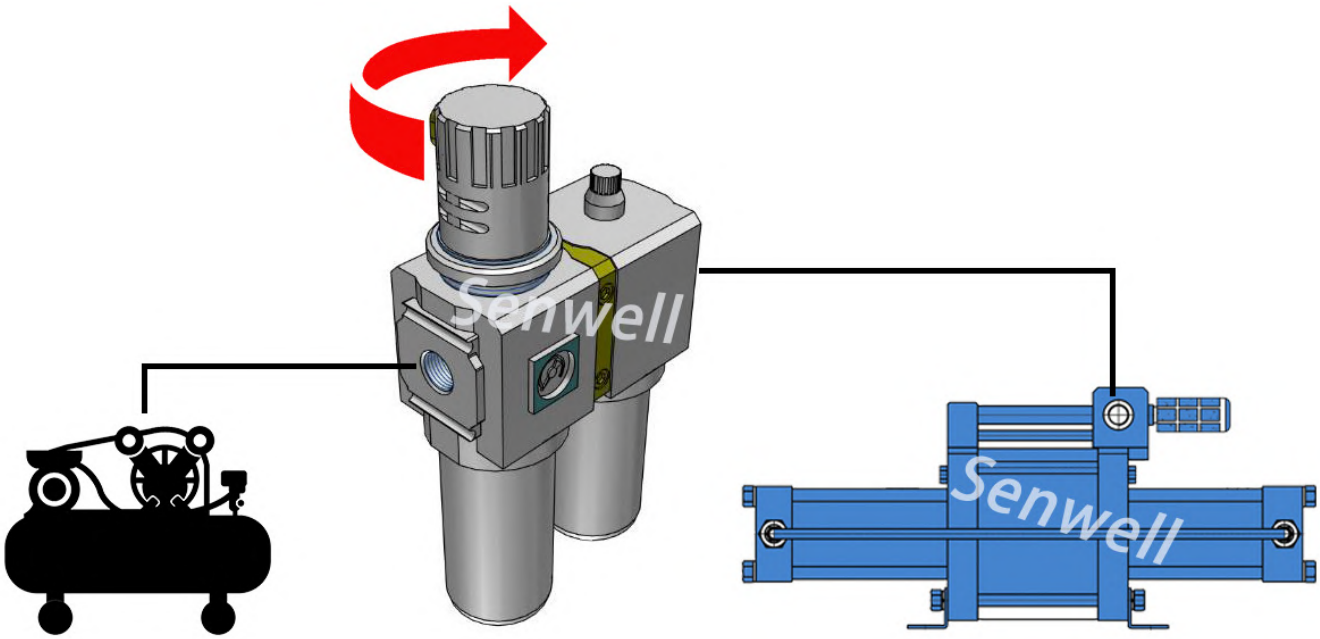
* **For the remaining series and models**

Gas booster outlet pressure = Air pressure x Boost ratio + Gas inlet pressure

For example, model GBD40, boost ratio is 40, when you feed 20bar gas to it, and

when you set driving air pressure at 5bar, it will discharge 220bar gas.

How to Set or Adjust Gas Booster Discharge Pressure



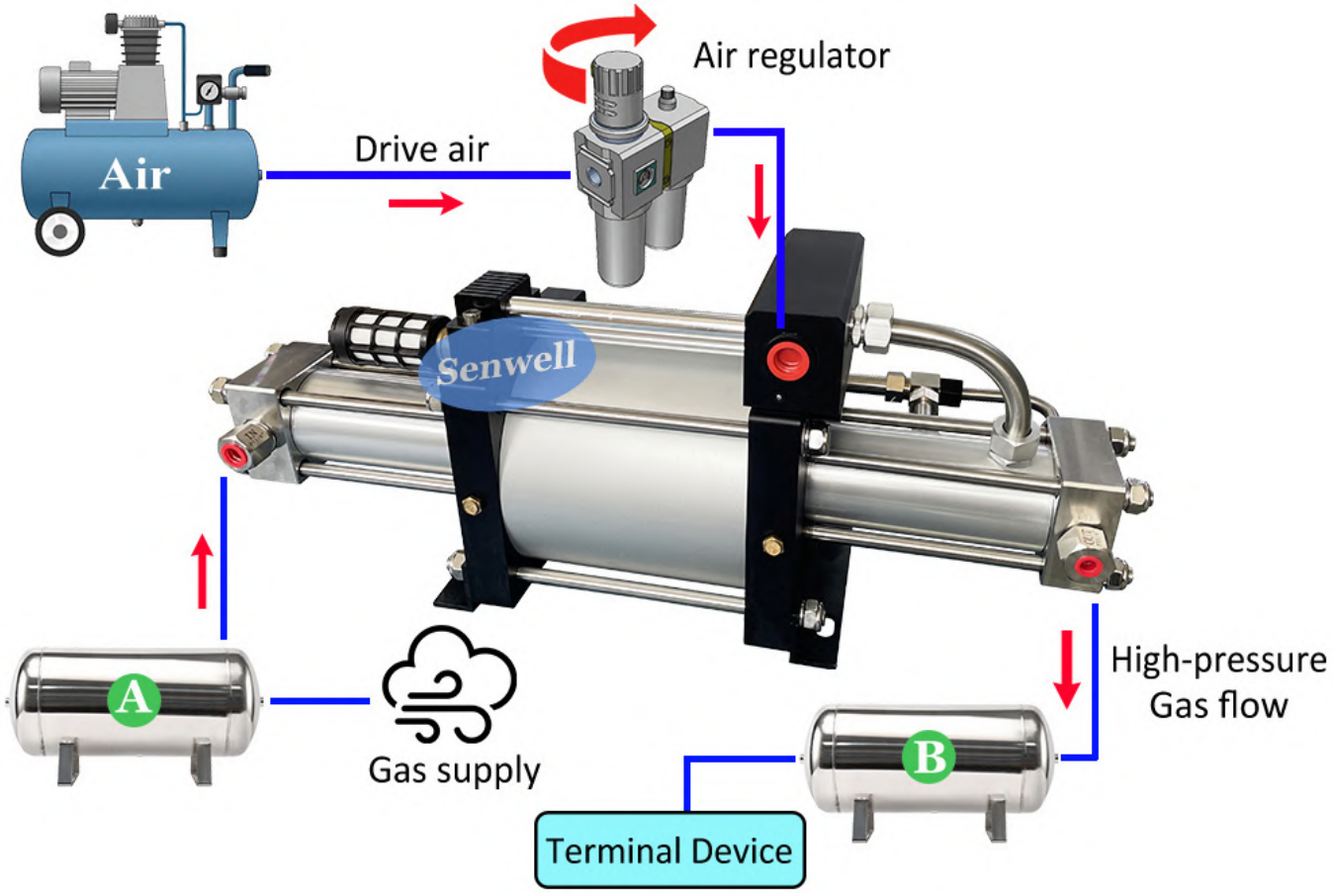
Pull up Air Regulator knob and rotate it clockwise, and the compressed air begins entering gas booster pump. As driving air pressure rising, gas booster pump discharging pressure will rise accordingly. When air pressure reaches your desire, push down the knob to lock Air Regulator. In this case, gas booster pump will constantly compress gas and transfer gas into your terminal device (such as a gas cylinder). When the pressure in your terminal reaches your preset pressure, gas booster will automatically stop and standby, thus avoiding overpressure.

Precautions

1. The optimal range of driving air entering gas booster is 3~8bar. If it exceeds 8bar, it may damage the pneumatic components inside the gas booster pump.

2. Pls ensure a stable and uninterrupted gas supply. If your gas supply is unstable or intermittent, there will be little gas even no gas entering the pump, causing

gas booster to run idle. Prolonged idle running will cause gas booster pump to overheat rapidly, potentially burning internal seals. In this case, you can add a gas buffer tank at location A; if your gas-consuming device has fluctuating demand for high-pressure gas or high requirements for the stability of high-pressure gas, you can add a gas buffer tank at location B.



3. The gas booster pump's muffler is a vent that the exhaust air is discharged to the atmosphere. It can effectively reduce the noise during the pump running. Do not block the muffler. If the working noise of the pump suddenly increases, please unscrew the muffler and clean the dust on its surface and interior.

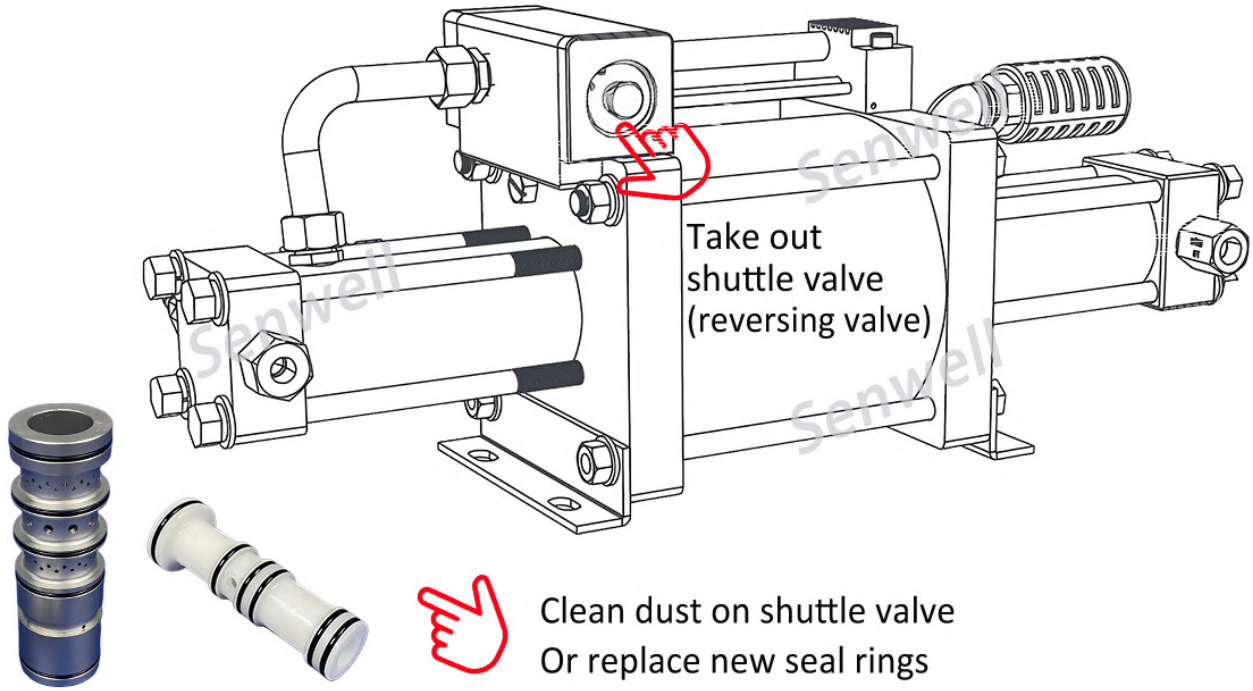
4. To avoid premature aging of the seal rings caused by high temperature, inlet gas temperature does not exceed 78°C.

5. If gas booster pump is used in dusty and harsh environment for a long time, or

the pump is frequently overloaded, it may accelerate the aging of the seals, so the seals replacement cycle will be shortened.

6. In order to extend the gas booster pump service life, it is recommended that it work for a period of time and rest for 20 minutes.

7. If your normally working gas booster suddenly fails, the symptoms are that gas booster cannot reciprocate, and it can no longer output high-pressure gas.



In this case, it is basically because the dust and impurities contained in your compressed air accumulate in the shuttle valve, blocking the holes of the shuttle valve and even causing the shuttle valve seal rings to wear. Please remove the shuttle valve, clean off dust or replace new seal rings to solve the trouble.

Rebuild Gas Booster

Each of gas booster comes with a spare maintenance kit, which is used to help you rebuild or repair your gas booster.

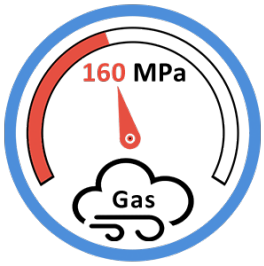
Over time, the internal seals of your gas booster pump will gradually wear and

age. Then particulate matter and moisture from your air supply may accumulate in the reversing valve or drive cylinder of your gas booster pump. Moreover, the impurities and moisture in your gas supply maybe accumulate around the piston or on the inner wall of the gas booster pump. Rebuild gas booster pump can restore its original performance, that is, disassemble the pump, then clean components and replace all seals, and finally reassemble. It is recommended to rebuild your gas booster pump every 1 to 3 years, this cycle depends on whether your gas booster pump is operating under good or bad conditions. Pls request **Gas Booster Rebuild Repair Guidance Manual** from us if you need.

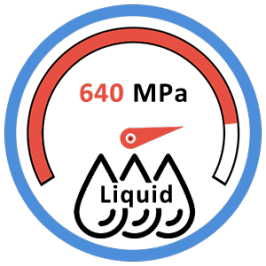
Gas Booster Pump Troubleshooting

Each gas booster pump has been fully inspected before leaving factory. If your pump is not working properly for some reason, please troubleshoot as below.

	Fault phenomenon	Reason Analysis	Solution
1	Gas booster pump does not reciprocate, and muffler does not exhaust air or exhausts little air only.	1.Reversing valve is stuck	Take out the valve core of reversing valve, clean dust or foreign objects, apply grease and install it back
		2. Muffler blocked	Take the muffler off, clean it and install back.
2	Gas booster pump does not reciprocate, but the muffler exhausts a lot of air.	O-rings on valve core of reversing valve severely worn.	Take out the valve core of reversing valve, replace new O-rings, apply grease and install it back.
3	Gas booster reciprocates, but the piston stroke is not complete, causing pump working frequency is abnormally fast or slow.	1.The firing pin is stuck.	Remove firing pin and clean it
		2. Firing pin O-ring falls off	Remove the firing pin and reset the O-ring.
4	Gas booster pump works normally, but can't pressurize gas or can't pressurize gas to the rated pressure.	1. Foreign objects inside the check-valve cause it to jam	Disassemble the check valve and remove any foreign objects
		2. High-pressure piston seal is severely worn.	Replace new high-pressure seals for high-pressure piston.



Gas booster



High pressure pump

Gas fill machine

Pressure test machine

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