

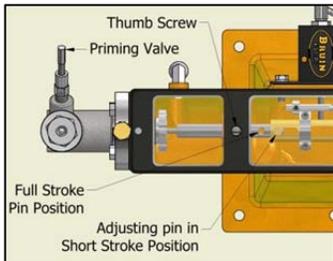


BR5000

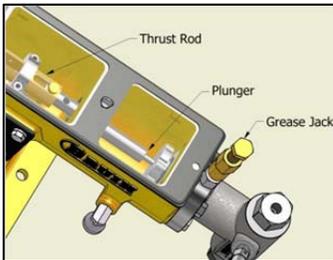
Installation &
Troubleshooting

Pneumatically Operated Chemical Injection Pump

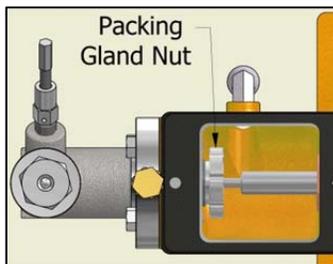
INSTALLATION



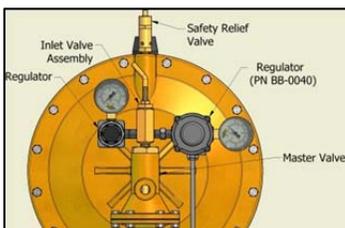
Step 1: Check to ensure the priming valve in the fluid end body is in the opened position. Remove the acrylic cover by removing the thumbscrew. Select the desired stroke length, either full ($1\frac{1}{4}$ ") or short ($1\frac{1}{2}$ ") with the adjusting pin in the correct position.



Step 2: Lubricate the thrust rod with a molydisulfide grease and the plunger with a teflon packing grease. (Note – if equipped with a pilot valve assembly, fill main cavity to bottom of the thrust rod with SAE 10W non-detergent oil, **DO NOT FILL CAVITY ON MICRO SWITCH ASSEMBLIES**). Plunger sizes $\frac{1}{4}$ " thru 1", incorporate a grease jack assembly which allows injection of grease into the plunger packing area. Lubrication sticks (part number: BA-3179) are available for most fluids. For $1\frac{1}{4}$ " plungers, no grease jack assembly is available and the plunger should be lubricated by filling the body chamber next to the fluid end up to the plunger with SAE 10W oil. In this case the drain elbow should be plugged.

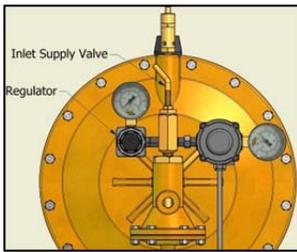


Step 3: Check the plunger packing gland nut to ensure the packing is snug but NOT too tight. For optimum operation and packing life, the packing should not be too tight. Over tightening the packing could result in the pump stalling and/or premature packing wear. Re-install acrylic cover with thumbscrew and ensuring gasket is in place. Connect the suction and discharge lines to the fluid end body (**Note – arrow on fluid end body indicates direction of fluid flow**). Ensure the suction line contains a sufficient strainer to prevent foreign matter from entering the pump, which could result in plunger or check valve damage. A line check should be installed on the discharge line at the point of injection. A brass $\frac{1}{4}$ " line check valve (part number BA-0676) is sufficient for use up to 3000 psig, while a stainless steel $\frac{1}{4}$ " line check valve (part number BA-0675) is sufficient for use up to 6000 psig. Also a stainless steel $\frac{1}{2}$ " line check valve (part number BB-0283) is sufficient for use up to 6000 psig. Ensure the packing gland is still snug and the inlet valve assembly is in the closed position.

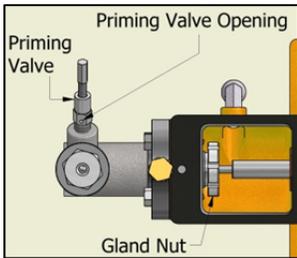


Step 4: Connect the air supply line to the inlet valve assembly. Ensure a maximum supply pressure of 50 psig. (**CAUTION:** The regulator (part number BB-0040) supplied with the pump as a standard component **DOES NOT REGULATE THE MAIN AIR SUPPLY PRESSURE**. This regulator is factory set at 12 psig to prevent over-pressuring of the Master Valve Assembly (part number BB-0037). *Note – if the supply pressure exceeds 50 psig, a pressure regulator to reduce the pressure to below 50 psig is required.* Models BR5000HP or BR5000H are equipped with a pressure regulator that can be used up to 220 psig. An optional regulator (BB-0040A) with a maximum inlet pressure of 5500 psig can be supplied for supply pressure in excess of 220 psig.)

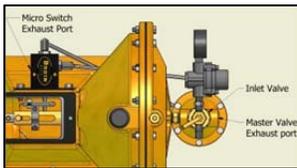
Supply air should be clean and free of moisture and debris, filters should be incorporated to ensure supply cleanliness. *Note – the pump is supplied with a safety valve which is set at 50 psig and is supplied to protect the pump diaphragm pressure from exceeding 50 psig resulting in diaphragm damage.*



Step 5: Open the inlet supply valve slowly ensuring the regulator (if equipped) is set to ensure the supply gas pressure is less than 50 psig to diaphragm. **Note – as supply gas is supplied to diaphragm, the pump will begin to stroke, ensure cover is on pump and keep fingers and other obstacles out of pump internals.**



Step 6: Once the pump discharges fluid without bubbles from the priming valve opening, close the priming valve for operation. Check the plunger packing for leaks and tighten the gland as required until leakage stops. Packing should only be adjusted after pressure has been removed from the pump head, **never adjust packing against pressure.** During the “break in period”, a slight leak is beneficial to allow the packing to ‘set in’. Packing should be checked periodically after start up.



Step 7: Once the pump reaches full pressure, alter the stroke rate by adjusting the inlet valve and the supply pressure (50 psig max.) until desired flow rate is achieved. Note – for correct operation the exhaust port from the Master Valve and the Micro Switch must have zero back pressure and the air vent must not be blocked.

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TROUBLESHOOTING

Pump operates but fails to pump fluid or reach required discharge pressure:

1. Ensure priming valve is completely shut and not leaking.
2. Ensure adjusting pin is in place and not broken.
3. Check for leaks around bottom bushing, top bushing and packing.
4. Inspect and clean bottom seat, top seat, check balls and check valve spring. Inspect for damage and replace components if necessary.

Pump fails to operate:

1. Ensure gas inlet valve is open and not blocked.
2. Ensure regulator is set to provide 12 psig maximum air supply.
3. Check Master Valve diaphragm, upper valve seat, valve spring, valve disc and lower valve seat for damage.
 - ◆ Check safety valve for leakage.
 - ◆ Ensure air vent is not blocked.
 - ◆ Check micro switch for correct operation and correct adjustment. (For optional pilot valve assembly, check for correct operation and leakage.)
 - ◆ Inspect diaphragm for ruptures.
 - ◆ Inspect return spring for damage
 - ◆ Inspect thrust rod for excessive scarring and galling.