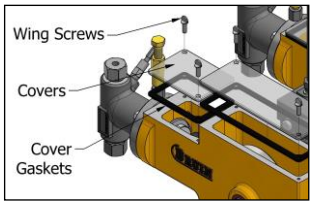
BR2400

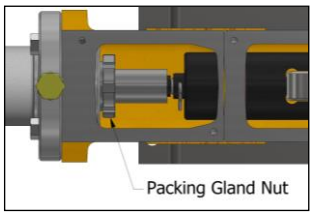
Electric Driven Chemical Injection Pump

INSTALLATION

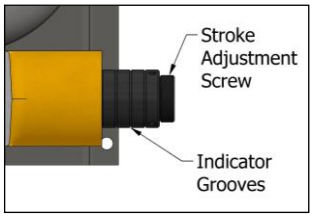
Step 1: Mount pump in desired location. Bolt holes are provided for permanent mounting (see dimensional drawing).



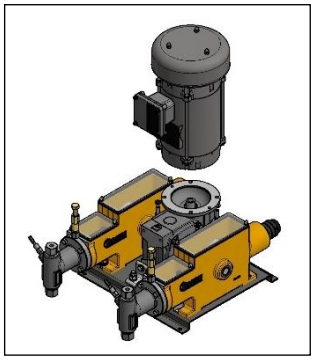
Step 2: Remove covers by removing the wing screws. Lubricate the crosshead with a multipurpose bearing grease and the plunger with a suitable packing lubricant grease (with or without additives – Teflon, Graphite or Molybdenum Disulfide are all acceptable additives.) All plunger sizes incorporate a grease jack assembly which allows injection of grease into the plunger packing area. Lubrication sticks (BA-3179) are available for most fluids.



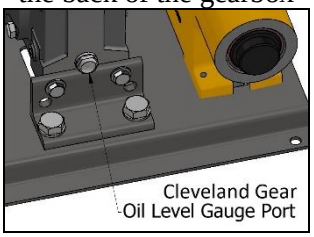
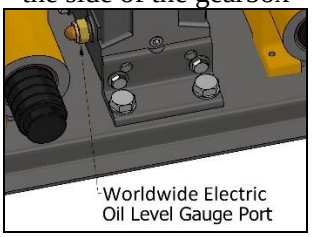
Step 3: Check the packing gland nut to make sure the packing is snug (1/8 to 1/4 of a turn past hand tight) but do not over tighten. For optimum operation and packing life, the packing should not be too tight. Over tightening the packing could result in premature packing wear. Reinstall the covers with wing screws ensuring the gaskets are in place.



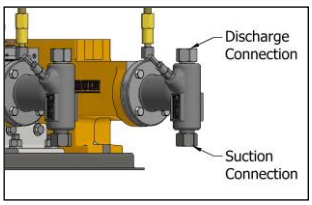
Step 4: Select desired stroke length by turning the adjusting screw assembly, clockwise rotation decreases the effective stroke length, counter-clockwise rotation increases the effective stroke length. A full stroke length (2") will pump the maximum volume shown in the specifications, for approximately 50% volume, use a 1" stroke, etc. Each groove on the crosshead assembly is equal to a 25% change in stroke length.



Step 5: Ensure the gearbox reducer is filled with oil and firmly bolted. *Note: Don't mix synthetic and non-synthetic or mineral oil; gearbox reducer is factory filled with ISO 460 Synthetic Oil. Note: There are two versions of the gearbox reducer available, Cleveland Gear and Worldwide Electric, refer to the following chart for more information.* If pump was ordered without a motor, mount motor onto gearbox reducer. The pump input shaft speed should not exceed 1800 RPM and will operate the pump in either direction of rotation (CW or CCW). *Note: Installation of an overload protector in the motor circuit is recommended.*

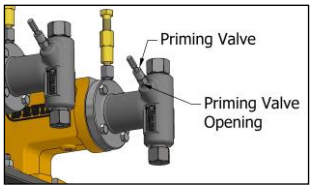
	Cleveland Gear	Worldwide Electric
Sight Gauge Type	Flat Button	Domed
Sight Gauge Location	Below the output shaft horizontal plane on the back of the gearbox 	Below the output shaft horizontal plane on the side of the gearbox 
Oil Capacity	400ml (13.5 fl oz) Bruin ISO 460 Refill Part No.: BPG460-0400	800ml (27.0 fl oz) Bruin ISO 460 Refill Part No.: BPG460-0800
Oil Level	At midpoint of the sight level gauge	Sight level gauge filled completely with oil *Note: There may be trapped air*
Oil Flush Schedule Recommendations	Drain and flush with oil before refilling: • 100 – 300 hours of operation after startup • Every 2500 hours of operation **** For oil change procedure refer to Maintenance & Inspection section*** ** Extremely severe or dirty conditions as well as high humidity, will require more frequent oil changes. The use of synthetics can extend the period.*	
Oil Recommendations	Synthetic ISO 460 (AGMA 7) for temperature range: -29°C (-20°F) to 100°C (212°F) ** EP oils should **NOT** be used with worm gears.* ** For most worm gear applications, an AGMA 7 oil is satisfactory. For low speeds (<600 RPM), or high temperatures, a higher viscosity, AGMA 8 will provide better service. Synthetic lubricants provide a lower co-efficient of friction and better wear characteristics than a straight mineral oil.*	

Lubricants must meet or exceed these standards	**AGMA Lubricant No.**	**Viscosity Range**	**ISO Number**	**Non-Synthetic Ambient Temp. Reference**
	AGMA 7	cSt @ 104°F (40°C): 414-506	460	15°F to 50°F (-9°C to 10°C)
	AGMA 8	cSt @ 104°F (40°C): 612-748	680	50°F to 125°F (10°C to 52°C)



Step 6: Connect the suction and discharge lines to the pump head. *Note: Arrow on pump head 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.

Part Number BA-0676 is a brass ¼" line check valve sufficient for use up to 3000 psig.
Part Number BA-0675 is a stainless steel ¼" line check valve sufficient for use up to 6000 psig.
Part Number BB-0283 is a stainless steel ½" line check valve sufficient for use up to 6000 psig.



Step 7: Open the priming valve and start the power source, the pump head will begin to prime. Once the pump discharges fluid without bubbles from the priming valve opening, close the priming valve for operation.

Step 8: Check the plunger packing for leaks and tighten the packing gland nut 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.

*** *** *** *** ***

TROUBLESHOOTING

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

- Ensure priming valve is completely shut and not leaking.
- Ensure drive clip and plunger pin are in place and not broken.
- Check stroke adjustment and ensure plunger movement.
- Check for leaks around bottom bushing, top bushing and packing.
- Inspect and clean bottom seat, top seat, balls and ball check spring.
- Inspect for damage and replace components if necessary.