

Please read and save this Repair Parts Manual. Read this manual and the General Operating Instructions carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. The Safety Instructions are contained in the General Operating Instructions. Failure to comply with the safety instructions accompanying this product could result in personal injury and/or property damage! Retain instructions for future reference.

# SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

Refer to form L-4082 for General Operating and Safety Instructions.

## Description

SHURflo self-priming, positive displacement, external rotary gear pumps are ideal for a wide range of intermittent and light-duty industrial, marine, agricultural, and commercial applications, providing a nearly pulseless flow. Close-coupled models are available directly mounted to NEMA framed, AC ODP single-phase, thermally overload-protected motors or as pump heads only for custom installations. All models include a pressure relief valve. Motor-driven models are HP configured to handle up to 500 SSU at 100 psi (specific gravity of 1.0).

Uses: For use with non-particulate and non-abrasive fluids compatible with pump wet-end construction component materials.

- Flows to 4.4 GPM.
- Max. RPM: 1725.
- Max. PSI: 100.
- Standard motors are Dual hertz (50/60), Dual voltage (115/230), RoHS compliant, UL, CSA & CE.
- Maximum viscosity of 500 SSU at 1725 RPM (max. input torque of 45 in.-lbs.).
- Pumps can operate bi-directionally (reversible). In reverse operation, the pressure relief valve will not function.
- Temperature ranges from -20° to 280° F.
- Maximum working pressure: 150 PSI.

**CARBONATOR-MOUNT CAST IRON PUMPS (INTERMITTENT DUTY)** – Specifically designed for use with oil-based fluids. Not to be used with water-based fluids. Pumps include steel spur gears with steel shafts and cast iron shaft support; standard pressure relief valves that can be ported internally or externally and a Viton mechanical carbon/ceramic-faced seal with temperature range of 32° to 280° F. Wet-end parts are constructed from cast iron, steel, stainless steel (302, 303 and/or 18-8), carbon, ceramic, and Viton.

**CARBONATOR-MOUNT BRONZE PUMPS (INTERMITTENT DUTY)** – Excellent for water-based fluids. Feature 303 stainless steel shafts, carbon graphite bushings, and Buna-N mechanical carbon/ceramic faced seal with a temperature range of -20° to 210° F. Standard pressure relief valves can be ported internally or externally. Wet-end parts are constructed from bronze, brass, stainless steel (302, 303 and/or 18-8), graphite, carbon, and Buna-N.

**PUMP HEADS (NO MOTOR)** – Close-coupled gear pump heads are designed to direct couple to carbonator pump motors (See NEMA Spec. MGI-18.739, Dimensions of Carbonator Motor mounting). The face of this gear pump has been machined to match the carbonator motor face. Pump and motor held together with a stainless steel beveled “V” band clamp. Coupling of shafts is done by mating the carbonator motor’s slot with the pump’s slot using the Oldham coupling (See Figure 2). This positive displacement characteristic offers a wide range of applications.

**NOTE:** See Rotary Gear Pump Selection Guide in the Motor Manual for suggestions concerning installation, selection, options, and accessories.



**WARNING:** Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in flammable and/or explosive atmospheres. When pumping hazardous or dangerous materials, use only in room or area designated for that purpose. For your protection, always wear proper clothing, eye protection, etc. in case of any malfunction. For proper handling techniques and cautions, contact your chemical supplier, insurance company and local agencies (fire dept., etc.). Failure to comply with this warning could result in personal injury and/or property damage.

# SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

## Model Ordering Codes and Options



Example Model: GCBN33V

1st	2nd	3rd	4th	5th	6th
Mounting	Material	Sealing	Gear Size: Ports	AC Motor	Options
GC: Gear Carbonator	B: Bronze C: Cast Iron	N: Nitrile (Buna-N) V: Viton	2: 1/4" 3: 1/2"	1: 1/4 HP 2: 1/3 HP 3: 1/2 HP  If blank, motor is not included with pump head.	V: Pressure Relief Valve (Standard)

**NOTE:** Not all order code combinations (configurations) are standard models available from the manufacturer. Custom model configurations may require ordering standard components and/or optional parts that will need to be assembled by the customer. Manufacturer reserves the right to change model order codes, standard models, specifications, and performance without notification.

Maximum motor speed is 1725 RPM.

Cast iron is not for use with water-based fluids.

Standard motors are Dual hertz (50/60), Dual voltage (115/230), RoHS compliant, UL, CSA & CE.

# Bronze Models GCBN2V, GCBN3V, GCBN22V and GCBN33V Cast Iron Models GCCV2V, GCCV3V, GCCV22V and GCCV33V

## Performance

Bronze Models	Cast Iron Models	Port Size*	Motor HP	RPM	Max. Input Torque in.-lbs.	Suction Lift**	GPM Pumping 10 Wt. Oil at 70° F (500 SSU)					
							Free Flow GPM	20 PSI GPM	40 PSI GPM	60 PSI GPM	80 PSI GPM	100 PSI GPM
<b>Models with Motors</b>			<b>Equipped</b>									
GCBN22V	GCCV22V	1/4	1/3	1725	45	3.2	2.2	2.1	2.0	1.8	1.7	1.6
GCBN33V	GCCV33V	3/8	1/2	1725	45	3.6	4.4	4.3	4.2	4	3.8	3.6
<b>Models without Motors</b>			<b>Suggested</b>									
GCBN2V	GCCV2V	1/4	1/3***	1725	45	3.2	2.2	2.1	2.0	1.8	1.7	1.6
GCBN3V	GCCV3V	3/8	1/2***	1725	45	3.6	4.4	4.3	4.2	4	3.8	3.6

Test data taken on SAE 10 wt. oil at 70° F (500 SSU).

Performance in water will decrease by about 10%, and HP required will also be reduced by 10%. (Don't use water with Cast Iron.)

Pump performance when pump is new. As pump wears, the performance will decrease.

(\*) NPT inlet and outlet (in inches).

(\*\*) Suction lift requires wetted gears and primed seal chamber.

(\*\*\*) Motor not provided.

**NOTES:** Pumps with motors are HP rated to handle up to 500 SSU at 100 PSI and specific gravity of 1.0.

Max. PSI = 100

Max. Viscosity = 500 SSU

Max. RPM = 1725

Max. Specific Gravity = 1.1 at 100 PSI, up to 1.6 at lower PSI & viscosity.

Max. Input Torque = See chart above.

Reverse Rotation = Pumps are equipped with pressure relief valves and can be run in reverse rotation; however, pressure relief valve will not function when pump is reversed unless pump relief valve cover is rotated 180°.

The pump relationship between volume (GPM), pressure (PSI), speed (RPM) and horsepower is shown on performance chart in Shurflo Motor Manual form L-4082. When pumping a more viscous liquid, a slower speed, a larger pipe size pump, and possibly a larger motor should be selected. Manufacturer reserves the right to change performance without notification.

# SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

## Specifications

Model	NEMA Motor Frame	Min Motor HP	Motor Voltage	Motor Amps	AC Motor Frame	Hz	Insulation Class	Thermal Overload Protection	Duty	Motor Bearings	MAX RPM	Port Size ***	PUMP CONSTRUCTION (Wet End)						Ship Wt. (lbs.)
	Required	Req										Body & Cover	Gear	Shaft	Bushings	Pressure Relief Valve****	O-Rings & Seals**		
<b>Models with Motors</b>																			
GCBN22V	48Y	1/3	115	6.0	ODP 60	60	A	Yes <sup>†</sup>	Cont.	Sleeve	1725	1/4	BZ	BZ	303 SS	CG	BR & SS	Buna Mech	19.8
GCBN33V	48Y	1/2	115/208-230	6.8/3.4	ODP 50/60	50/60	B	Yes <sup>†</sup>	Cont.	Ball	1450/1725	3/8	BZ	BZ	303 SS	CG	BR & SS	Buna Mech	22.8
GCCV22V	48Y	1/3	115	6.0	ODP 60	60	A	Yes <sup>†</sup>	Cont.	Sleeve	1725	1/4	CI	CRS	CRS	CI	CRS & SS	Viton Mech	19.3
GCCV33V	48Y	1/2	115/208-230	6.8/3.4	ODP 50/60	50/60	B	Yes <sup>†</sup>	Cont.	Ball	1450/1725	3/8	CI	CRS	CRS	CI	CRS & SS	Viton Mech	22.3
<b>Models without Motors</b>																			
GCBN2V*	48Y	-	-	-	-	-	-	-	-	-	1725	1/4	BZ	BZ	303 SS	CG	BR & SS	Buna Mech	4.3
GCBN3V*	48Y	-	-	-	-	-	-	-	-	-	1725	3/8	BZ	BZ	303 SS	CG	BR & SS	Buna Mech	4.8
GCCV2V*	48Y	-	-	-	-	-	-	-	-	-	1725	1/4	CI	CRS	CRS	CI	CRS & SS	Viton Mech	4.0
GCCV3V*	48Y	-	-	-	-	-	-	-	-	-	1725	3/8	CI	CRS	CRS	CI	CRS & SS	Viton Mech	4.3

BZ = Bronze BR = Brass CG = Carbon Graphite CI = Cast Iron CRS = Cold Rolled Steel ODP = Open Drip-Proof

(\*) Motor not provided.

(\*\*) In addition to elastomer noted, mechanical seal components have carbon on ceramic faces and 18-8 SS metal components.

(\*\*\*) NPT inlet and outlet (in inches).

(\*\*\*\*) Bronze models are made of brass and/or bronze, stainless steel (302, 303 and/or 18-8). Cast Iron models are made of cast iron, cold rolled steel and stainless steel (302, 303 and/or 18-8 SS).

(†) Thermal overload protection reset may be automatic or manual.

**NOTES:** 48Y motor frame also referred to as carbonator motor.

Standard motors are Dual hertz (50/60), Dual voltage (115/230), RoHS compliant, UL, CSA & CE.

Motor base is movable.

Motors are split-phase start.

Motor driver subject to change without notice (refer to motor nameplate).

Manufacturer reserves the right to change specifications without notification.

# Bronze Models GCBN2V, GCBN3V, GCBN22V and GCBN33V Cast Iron Models GCCV2V, GCCV3V, GCCV22V and GCCV33V

## Dimensions

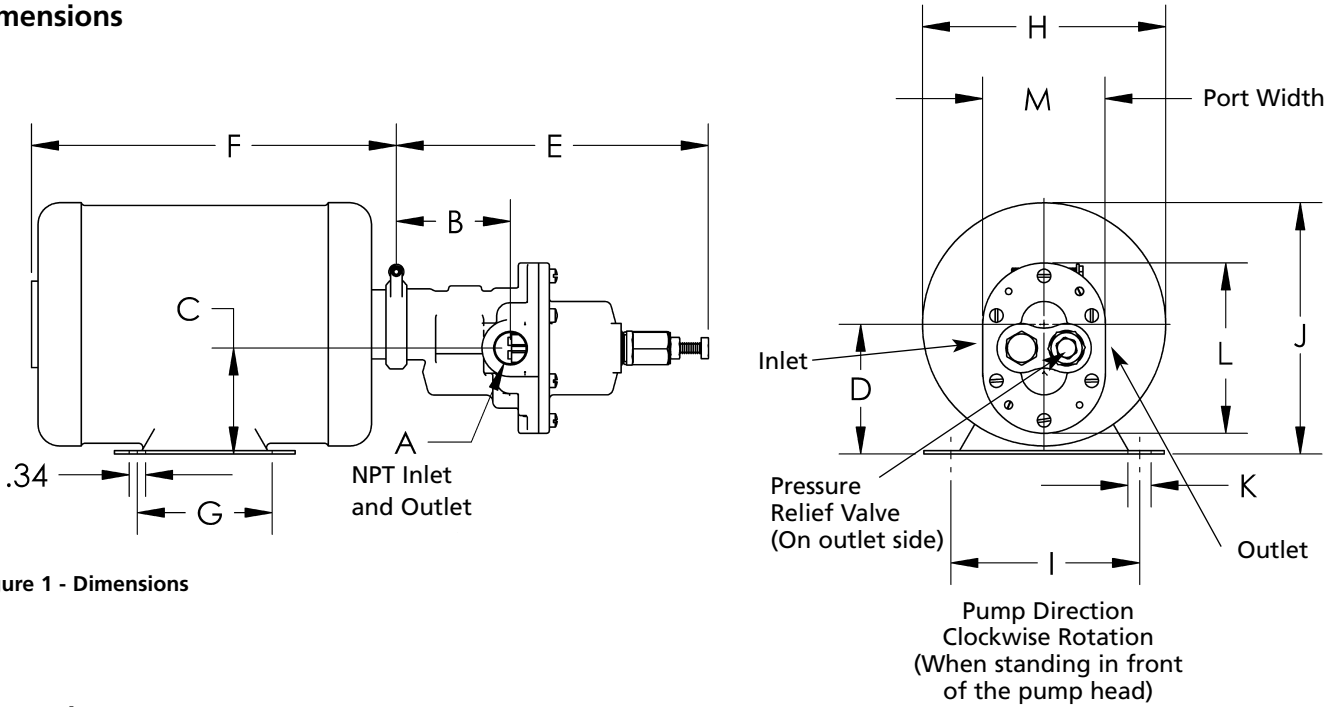


Figure 1 - Dimensions

## Dimensions

Model	Dimensions (in inches)												
	A*	B	C	D	E	F**	G**	H**	I**	J**	K**	L	M
<b>Models with Motors</b>													
GCBN22V, GCCV22V	1/4	1 <sup>29</sup> / <sub>32</sub>	2 <sup>7</sup> / <sub>16</sub>	3	6 <sup>9</sup> / <sub>16</sub>	8	2 <sup>3</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>
GCBN33V, GCCV33V	3/8	2 <sup>1</sup> / <sub>4</sub>	2 <sup>7</sup> / <sub>16</sub>	3	7	8 <sup>9</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>4</sub>	5 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>16</sub>	3 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>
<b>Models without Motors</b>													
GCBN2V, GCCV2V	1/4	1 <sup>29</sup> / <sub>32</sub>	-	3	6 <sup>9</sup> / <sub>16</sub>	-	-	-	-	-	-	3 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>
GCBN3V, GCCV3V	3/8	2 <sup>1</sup> / <sub>4</sub>	-	3	7	-	-	-	-	-	-	3 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>

(\*) NPT inlet and outlet (in inches).

(\*\*) This dimension may vary due to motor manufacturer's specifications.

**NOTE:** Dimensions have a tolerance of (+ or -) 1/8".

Manufacturer reserves the right to change dimensions without notification.

# SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

**⚠ WARNING** Check motor. It may be equipped with an automatic resetting thermal protector and may restart unexpectedly (see specifications chart). Protector tripping is an indication of motor overloading as a result of operating the pump at too high a pressure (over 100 PSI), too high of viscosity, too high of specific gravity, excessively high or low voltage, inadequate wiring, incorrect motor connections, too small a motor (sized incorrectly, not enough HP), or a defective motor or pump.

Do not handle pump with wet hands or when standing in water. Failure to follow the General Safety Information and all warnings could result in fatal electrical shock!

## Assembly

(If pump and motor are pre-assembled, skip assembly.)

1. Refer to Figures 2 and 3.
2. Remove the hex head machine screw from the "V" band clamp.
3. Slide the "V" band clamp away from the mating face (do not remove from the pump).
4. Match the pump mating face and motor mounting hub, while mating shafts and Oldham coupling (Ref. No. 24, Figure 7). **NOTE:** The small end of coupling goes into pump.

**Rotation:** When looking at the motor shaft end, proper motor pump rotation is clockwise (CW). Flow is left to right (See Figure 3). Reverse the flow by rotating the pump 180°. Standard models are equipped with pressure relief valves. It is important that the relief valve be on the discharge side of the pump. **NOTE:** Pump can be rotated 360°.

5. Slip the "V" band clamp over the pump and motor halves (See Figure 2) and tighten the hex head clamp screw to hold the assembly together.
6. Retighten the "V" band clamp screw as necessary. Use thread sealant if screw keeps coming loose.

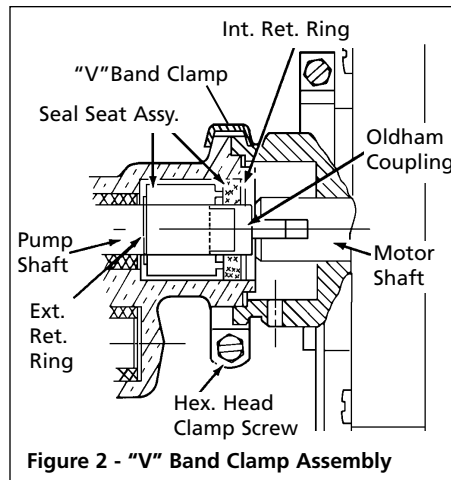


Figure 2 - "V" Band Clamp Assembly

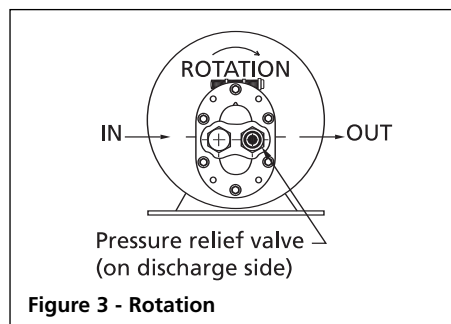


Figure 3 - Rotation

## Installation

**IMPORTANT:** In any installations where property damage and/or personal injury can occur when the pump is not operating due to power outages, discharge line freezing, or any other reason, a back-up system(s) and/or warning system(s) should be used.

In order to safely use this product, familiarize yourself with this pump and also with the liquid (chemical, etc.) that is going to be pumped through the unit. This pump is not suitable for many liquids.

1. Locate the pump as close to the liquid source as possible, making the suction line as short and direct as possible.

**⚠ CAUTION** Ambient temperature around motor should not exceed 104°F (40°C).

2. Open drip-proof motors are designed to be used in clean, dry locations with access to an adequate supply of cooling air.
3. For outdoor installations, the motor must be protected by a cover that does not block air flow to and around the motor.
4. The motor should be securely fastened to a rigid surface, preferably metallic. For rigidity, use largest bolts that will fit through the base holes.

**⚠ WARNING** Do not use to pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in flammable and/or explosive atmospheres. When pumping hazardous or dangerous materials, use only in room or area designated for that purpose.

For your protection, always wear proper clothing, eye protection, etc. in case of any malfunction. For proper handling techniques and cautions, contact your chemical supplier, insurance company and local agencies (fire dept., etc.). Failure to comply with this warning could result in personal injury and/or property damage.

## PIPING

### SUCTION

1. Avoid excessive lengths or number of fittings and bends in the suction line.
2. Attach suction line to suction inlet.
3. It is recommended that same size pipe as pump ports be used or, in cases requiring lengthy piping, the next larger size pipe be used.
4. If suction lift is greater than what is indicated in the performance chart, attach a foot valve below liquid level at end of suction line to ensure positive priming. Also note: If fluid specific gravity is greater than 1.4 or viscosity greater than 500 SSU, a foot valve is also recommended.
5. If solid contaminants are suspected in a liquid, place a filter in the suction line.

# Bronze Models GCBN2V, GCBN3V, GCBN22V and GCBN33V Cast Iron Models GCCV2V, GCCV3V, GCCV22V and GCCV33V

6. Be certain all suction piping connections are airtight.

**NOTE:** Assure airtight pipe connections with the use of a pipe joint sealant.

## DISCHARGE

1. Attach discharge piping to the discharge outlet.

**▲ WARNING** *Support pump and piping during assembly and after installation. Failure to do so may cause piping to break, pump to fail, motor bearing failures, etc. All of which can result in property damage and/or personal injury.*

**NOTE:** Should the pump need to be self-draining, the pump head should be mounted in the vertical position with the suction port facing down. When pumping high viscosity fluids, the vertical position can be used with the suction port facing up and the pump mounted under the source. Increasing the suction pipe size and eliminating bends and elbows also assists in pumping high viscosity fluids. Max. viscosity is 500 SSU at 1725 RPM.

2. If a shut-off valve or handgun is required in discharge line, provide a pressure relief valve for pump protection.

**▲ WARNING** *Shutting off discharge without providing pressure relief can cause extreme over-pressure which can result in pump and/or motor failure. Do not exceed 100 PSI pump or system pressure.*

3. Operation under shut-off discharge conditions will overheat and damage pump.

**NOTE:** Globe valve or other restrictive valves should not be used as shut-off mechanism as they are restrictive in nature and will seriously affect pump performance.

4. After all piping and controls (not supplied with unit) have been installed, unit is ready for operation.

## Operation

**▲ CAUTION** *Do not run pump dry, as permanent damage to the pump gears, seal, and bearings will result. Suction pressure should never be greater than the discharge pressure.*

1. All pumps must be primed before start-up. Never operate a pump unless it is secured to a solid foundation.
2. Gear pumps are built to very close tolerances and this tolerance must not be altered. The liquids must, therefore, be free of all abrasives. Sand, silt, wettable powders, etc. must be avoided.

**NOTE:** Cast iron pumps are for oil-based fluids only.

3. When pumping a more viscous (beyond 500 SSU) liquid, a slower speed, a larger pipe size pump, and possibly a larger motor should be selected.

**NOTE:** See performance chart for Max. Torque.

4. Recheck motor rotation. Proper motor/pump rotation is clockwise (CW) looking at the motor shaft (See Figure 3).
5. On all models, the pressure relief valve is always on discharge side (See Figure 3).

## PRESSURE RELIEF VALVE

6. Standard model rotary gear pumps are supplied with a built-in pressure relief valve. The valve may be adjusted and used to set system operating pressure, or used as a system relief valve to prevent pump and motor damage that can occur when discharge line is closed off. This relief valve is not factory set. Extended operation (over one minute) under shut-off conditions could cause pump to overheat, leak, and damage itself.
7. To increase the relief valve pressure setting, remove protective cap,

loosen lock nut, then turn the set screw (Figure 4 & 7, Ref. No. 18) in (clockwise). Turning the set screw out (counterclockwise) will reduce the pressure setting. When desired pressure is achieved, tighten lock nut and reinstall protective cap.

8. The pressure relief valve can be converted to an external relief. This will allow the relief to dump back to tank and allow longer periods of relief without pump damage. However, this is not a full-line relief valve, and in cases where frequent extended relief valve operation is anticipated, a full-line size relief valve should be piped in the discharge line and connected either back to the tank or well downstream of the pump suction inlet.

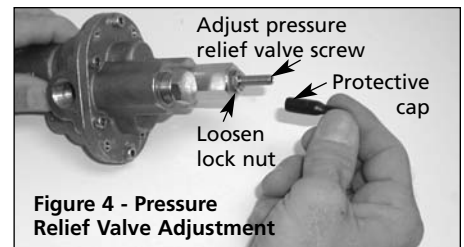


Figure 4 - Pressure Relief Valve Adjustment

9. To convert the relief valve to external relief, remove the 1/4 NPT pipe plug from the pump cover (Figure 5 & 7, Ref. No. 13) and discard. This plug is next to the relief valve. In the bottom of the 1/4 NPT hole, there is a second drilled and tapped

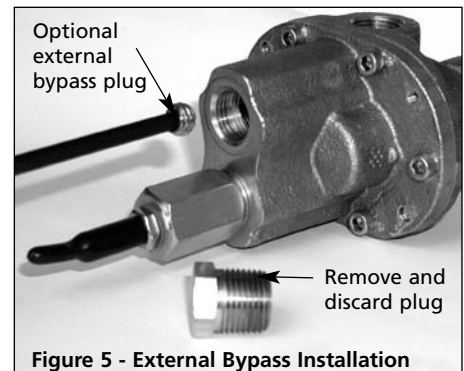


Figure 5 - External Bypass Installation

# SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

## Operation (Continued)

hole of 1/4 size. An optional external bypass plug (Figure 5 & 7, Ref. No. 14 included) should be inserted in this hole and bottomed out. The open 1/4 NPT port must now be piped back to the tank or well downstream of the pump suction.

10. For operation of the pump with pressure relief valve in reverse rotation, the motor may be reversed, allowing for reverse rotation. Standard models are equipped with pressure relief valves and the pump can be run in reverse, however, the pressure relief valve will not function. For continuous reverse rotation, the cover plate must be rotated 180°. This is accomplished by removing the six cover plate screws, rotating the cover plate, and reattaching the screws. The relief valve should now be on the opposite side. This will allow operation of the pump with a functioning pressure relief valve in reverse rotation.

## Maintenance

**⚠ WARNING** *Make certain that the power source is disconnected before attempting to service or disassemble any components! If the power disconnect is out of sight, lock it in the open position and tag to prevent application of power.*

### GENERAL

Check the pump for proper operation daily, weekly, monthly, etc. If anything has changed (pump noise, motor noise, leaks, etc.) since the pump was new, the pump should be removed, examined and repaired if necessary. This is a difficult motor/pump to repair, therefore, only qualified electricians or service technicians should attempt to repair this unit. Improper repair and/or assembly can cause problems with the electric motor used with this unit. See General Safety Information.

Retighten the "V" band clamp screw as necessary. Use Loctite or similar thread sealant if screw keeps coming loose.

Rotary gear pumps must be drained completely if subject to freezing temperature and should not be operated until temperature permits.

To store the pump, place a small quantity of light oil or some other storage preservative compatible with your application in the pump and rotate the shaft very slowly to work the oil throughout the gears and the body.

### DISASSEMBLY AND ASSEMBLY

Refer to Figure 7 for parts identification during disassembly and assembly. [Assumes pump is separated from motor and that Oldham coupling (Ref. No. 24) is removed.]

1. Remove screws (Ref. No. 3) and cover (Ref. No. 2). Refer to INSPECTION procedures below.
2. Lift out idler shaft (Ref. No. 8).
3. Remove internal retaining ring (Ref. No. 12) from drive end of the pump body (Ref. No. 1) using TruArc-type internal snap-ring pliers.
4. Carefully pry out ceramic seat (Ref. No. 11) and then seal (parts of seal seat assembly using a suitable hooked tool).



# Bronze Models GCBN2V, GCBN3V, GCBN22V and GCBN33V Cast Iron Models GCCV2V, GCCV3V, GCCV22V and GCCV33V

**NOTE:** If seal rubber has become bonded to the shaft, use a pliers to remove the seal (Ref. No 10) and replace with a new seal assembly. Refer to INSPECTION procedures below.

5. Remove the seal assembly spring and metal seat.
6. Remove external retaining ring (Ref. No. 9) from the shaft (Ref. No. 5) using external snap-ring pliers (2½" legs).
7. Remove the gear assembly and drive shaft (Ref. No. 4 & 5).

## Pump Inspection

Inspect components for signs of excessive wear.

Excessive wear of the pump will usually show up as degradation of performance. This can be seen by the flow dropping off under pressure, excessive noise and/or excessive wear inside the pump. Gear pump components are precision fit. When the gears are worn, so is the body, shafts, bushings or shaft pockets and housing. At that point, the pump head should be replaced.

8. Assemble the pump in reverse order of disassembly. Tighten cover screws (Ref. No. 3) in opposing sequence. As the cover (Ref. No. 2) is incrementally tightened, the shaft (Ref. No. 5) should be periodically turned. This ensures cover-to-body alignment and prevents binding of shaft.

9. Assemble pump to motor. (See Assembly 3 through 5.)
10. All pumps must be primed before start-up and the seal chamber needs to be filled.

**CAUTION** Do not run pump dry, as permanent damage to the pump gears, seal, and bearings will result. Suction pressure should never be greater than the discharge pressure.

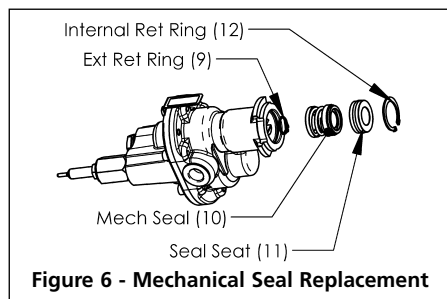


Figure 6 - Mechanical Seal Replacement

**Mechanical Seal Replacement** (Refer to Figures 6 & 7 for parts identification.)

1. Remove pump from motor, if not already done.
2. Remove snap ring (Ref. No. 12). Pry out seal seat (Ref. No. 11). Pull mechanical seal (Ref. No. 10) off shaft. (See Assembly 3 through 5.)
3. Reinstall new mechanical seal (Ref. No. 10) on drive shaft using water as a lubricant. Do not push on carbon face of new mechanical seal. Push with a hallowed out wood dowel or piece of cardboard.

4. Install seal seat (Ref. No. 11), with water as a lubricant, on the O-ring with shiny white ceramic face facing the carbon seal (Ref. No. 10) without touching either of the seal faces. Scratching the seal faces will cause the seal to leak. Using anything other than water as a lubricant, when installing seal and seat, may cause seal to leak.

**NOTE:** The carbon and ceramic seal faces spin against each other providing for the functional seal. The seal ceramic seat o-ring is not the functional seal, but its purpose is to hold the seal ceramic seat in place.

5. Reinstall the snap ring (Ref. No. 12).

**Relief Valve Disassembly and Assembly** (Refer to Figure 7 for parts identification.)

1. Standard models are equipped with a pressure relief valve. Remove the relief valve cap (Ref. No. 15) and O-ring (Ref. No. 19).
2. Remove the spring (Ref. No. 22) and piston (Ref. No. 23). A worn or broken relief valve is a sign of excessive pump wear. The pump head should be replaced.
3. Assemble the relief valve in reverse order.

**To order parts, contact a SHURflo Distributor or Order Direct.**  
**Distributors can be found at [www.shurfloindustrial.com](http://www.shurfloindustrial.com).**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

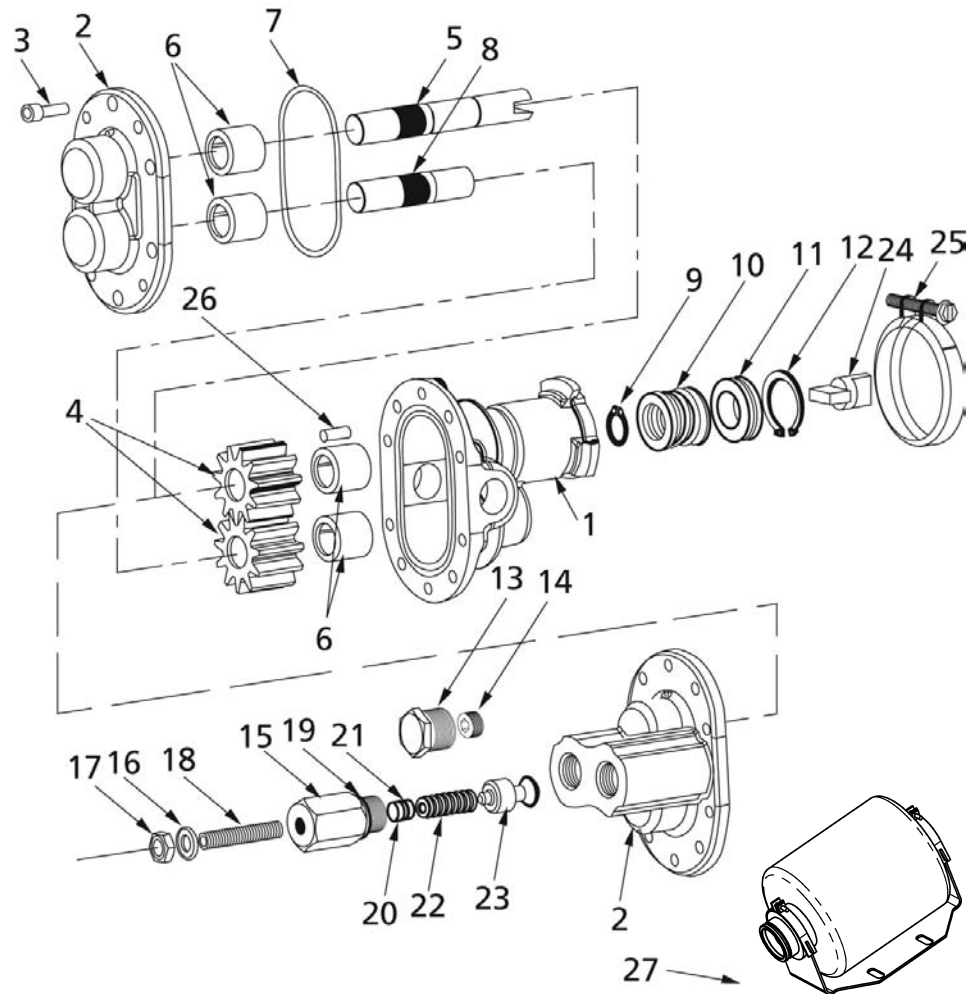


Figure 7 - Repair Parts Illustration

**NOTE:** Seals and the coupling components can be replaced. If the performance or function of the pump is impaired due to wear or other causes, it is strongly advised that the pump head be replaced. Note that seals and o-rings used in each material type are interchangeable. The Viton components from the cast iron models can be used in the bronze, and the Buna in the bronze models can be used in the cast iron models.

# Bronze Models GCBN2V, GCBN3V, GCBN22V and GCBN33V Cast Iron Models GCCV2V, GCCV3V, GCCV22V and GCCV33V

## Repair Parts List

Ref. No.	Description	Part No. For Model:								Qty.
		GCBN2V	GCBN3V	GCCV2V	GCCV3V	GCBN22V	GCBN33V	GCCV22V	GCCV33V	
1	Body	NA	NA	NA	NA	NA	NA	NA	NA	1
2	Cover (relief valve standard)	NA	NA	NA	NA	NA	NA	NA	NA	1
Opt.	Plain Cover (non-relief) ***	23570S	23570S	23574	23574	23570S	23570S	23574	23574	1
3	Soc. Head Screw	NA	NA	NA	NA	NA	NA	NA	NA	6
4	Gear	NA	NA	NA	NA	NA	NA	NA	NA	2
5	Drive Shaft	NA	NA	NA	NA	NA	NA	NA	NA	1
6	Bushing	NA	NA	NA	NA	NA	NA	NA	NA	4
7	O-ring (standard)	18927	18927	19276	19276	18927	18927	19276	19276	1
Opt.	O-ring Buna-N	NA	NA	18927	18927	NA	NA	18927	18927	-
Opt.	O-Ring Viton	19276	19276	NA	NA	19276	19276	NA	NA	-
8	Idler Shaft	NA	NA	NA	NA	NA	NA	NA	NA	1
9	Ext. Ret. Ring	NA	NA	NA	NA	NA	NA	NA	NA	1
10 & 11	Mech. Seal & Seat Assy. (std.)	24604S	24604S	24608S	24608S	24604S	24604S	24608S	24608S	1
Opt.	Buna Mech Seal & Seat Assy.	NA	NA	24604S	24604S	NA	NA	24604S	24604S	-
Opt.	Viton Mech Seal & Seat Assy.	24608S	24608S	NA	NA	24608S	24608S	NA	NA	-
12	Int. Ret. Ring	NA	NA	NA	NA	NA	NA	NA	NA	1
13	Pipe Plug**	NA	NA	NA	NA	NA	NA	NA	NA	1
14	External Bypass Relief Plug*	NA	NA	NA	NA	NA	NA	NA	NA	1
15	Relief Valve Cap	NA	NA	NA	NA	NA	NA	NA	NA	1
16	Washer	NA	NA	NA	NA	NA	NA	NA	NA	1
17	Hex Nut	NA	NA	NA	NA	NA	NA	NA	NA	1
18	Set Screw - 18-8 SS	NA	NA	NA	NA	NA	NA	NA	NA	1
19	O-ring	NA	NA	NA	NA	NA	NA	NA	NA	1
20	O-ring Retainer	NA	NA	NA	NA	NA	NA	NA	NA	1
21	O-ring	NA	NA	NA	NA	NA	NA	NA	NA	1
22	Spring - 302 SS	NA	NA	NA	NA	NA	NA	NA	NA	1
23	Piston - 303 SS	NA	NA	NA	NA	NA	NA	NA	NA	1
24	Oldham Coupling	19564	19564	19564	19564	19564	19564	19564	19564	1
25	V-Band Clamp	14050	14050	14050	14050	14050	14050	14050	14050	1
26	Dowel Pin	NA	NA	NA	NA	NA	NA	NA	NA	2
27	Carbonator Motor†	NA	NA	NA	NA	13857S	13858CS	13857S	13858CS	1
Opt.	Replacement Pump Head	GCBN2V	GCBN3V	GCCV2V	GCCV3V	GCBN2V	GCBN3V	GCCV2V	GCCV3V	1

Mech. seal and seat sold as set only (Ref. Nos. 10 & 11) – carbon ceramic faces with 18-8 SS components.

When converting to a different seal/seat material, remember to order the o-ring (Ref. No. 7) of the same material.

(\*) For external relief only (not installed from manufacturer, loose in packaging)

(\*\*) For internal relief only (standard, installed from manufacturer)

(\*\*\*) Optional cover without pressure relief valve porting. Bronze covers (models with "S" suffix) come with bushings installed. Cast iron covers do not require bushings.

(†) See Specifications chart for motor specifications.

(NA) Not Available

# Limited Warranty on SHURflo Carbonator-Mount Rotary Close-Coupled External Gear Pumps

SHURflo warrants to the original purchaser of its products (the "Purchaser") that such products will be free from defects in material and workmanship under normal use for the period of six (6) months, and accessories will be free from defects in material and workmanship under normal use for the period of ninety (90) days.

"Normal use" does not include use in excess of recommended maximum speeds, pressures, vacuums and temperatures, or use requiring handling of fluids not compatible with component materials. This warranty does not cover freight damage, freezing damage, normal wear and tear, or damage caused by misapplication, fault, negligence, alterations, or repair that affects the performance or reliability of the product.

**THIS WARRANTY IS EXCLUSIVE. SHURflo MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

SHURflo's obligation under this warranty is, at SHURflo's option, to either repair or replace the product upon return of the entire product to the SHURflo factory in accordance with the return procedures set forth below. **THIS IS THE EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.**

**IN NO EVENT SHALL SHURflo BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, WHETHER FOR BREACH OF ANY WARRANTY, FOR NEGLIGENCE, ON THE BASIS OF STRICT LIABILITY, OR OTHERWISE.**

Only authorized distributors can return products for Warranty. Contact your distributor or visit [www.shurfloindustrial.com](http://www.shurfloindustrial.com) to find a distributor for product support.

Distributors can obtain an RMA # and contact person's name by contacting SHURflo's customer service at 800-854-3218 (Ext. 6788 or Ext. 6651).

## Return Procedures for Distributors

All pumps or products must be flushed of any chemical (ref. OSHA Section 0910.1200 (d)(e)(f)(g)(h) and hazardous chemicals must be labeled before being shipped\* to SHURflo for service or warranty consideration. SHURflo reserves the right to request a Material Safety Data sheet from the Purchaser for any pump or product SHURflo deems necessary. SHURflo reserves the right to "disposition as scrap" pumps or products returned which contain unknown substances, or to charge for any and all costs incurred for chemical testing and proper disposal of components containing unknown substances. SHURflo requests this in order to protect the environment and personnel from the hazards of handling unknown substances.

Be prepared to give SHURflo full details of the problem, including the following information:

1. Model number, purchase date and from whom you purchased your pump.
2. A brief description of the pump problem, including the following:
  - Liquid pumped. State the pH and any non-soluble materials, and give the generic or trade name.
  - Temperature of the liquid and ambient environment.
  - Suction lift or vacuum (measured at the pump).
  - Discharge pressure.
  - Size, type, and mesh of the suction strainer.
  - Drive type (gas engine/electric motor; direct/belt drive; tractor PTO) and rpm of pump.
  - Viscosity (of oil, or other than water weight liquid).
  - Elevation from the pump to the discharge point.
  - Size and material of suction and discharge line.

SHURflo may request additional information, and may require a sketch to illustrate the problem. Distributors should contact the factory to receive a return material authorization before sending the product. All pumps returned for warranty work should be sent shipping charges prepaid to:

[RMA# and Contact Person]  
SHURflo  
375 Fifth Avenue NW  
New Brighton, Minnesota 55112

\*Carriers, including U.S.P.S., airlines, UPS, ground freight, etc., require specific identification of any hazardous materials being shipped. Failure to do so may result in a substantial fine and/or prison term. Check with your shipping company for specific instructions.



**SHURflo**<sup>®</sup>



**Pentair Water**

**FLOW TECHNOLOGIES GROUP**

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