



A RUTHMAN COMPANY

7550  
*CHOPPER*  
*SERIES*

**52 HEAVY DUTY  
POWER FRAME**

**INSTRUCTION MANUAL**

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# PRECAUTIONS

## **!WARNING!**

### **PERSONAL INJURY MAY RESULT IF PROCEDURES OUTLINED IN THIS MANUAL ARE NOT FOLLOWED**

- NEVER APPLY HEAT TO REMOVE IMPELLER. IT MAY EXPLODE DUE TO TRAPPED LIQUID.
- NEVER USE HEAT TO DISASSEMBLE PUMP. EXPLOSION COULD OCCUR DUE TO TRAPPED LIQUID.
- NEVER OPERATE PUMP WITHOUT COUPLING GUARD CORRECTLY INSTALLED.
- NEVER OPERATE PUMP BEYOND THE RATED CONDITIONS TO WHICH THE PUMP WAS SOLD.
- NEVER START PUMP WITHOUT PROPER PRIME (SUFFICIENT LIQUID IN PUMP CASING).
- NEVER OPERATE PUMP BELOW RECOMMENDED MINIMUM FLOW OR WHEN DRY.
- ALWAYS LOCK OUT POWER TO THE MOTOR BEFORE PERFORMING PUMP MAINTENANCE.
- NEVER OPERATE PUMP WITHOUT SAFETY DEVICES INSTALLED.
- NEVER OPERATE PUMP WITH DISCHARGE VALVE CLOSED.
- NEVER OPERATE PUMP WITH SUCTION VALVE CLOSED.
- DO NOT CHANGE CONDITIONS OF SERVICE WITHOUT APPROVAL OF AN AUTHORIZED GUSHER REPRESENTATIVE.

## PUMP SAFETY TIPS

### SAFETY APPAREL

- INSULATED WORK GLOVES WHEN HANDLING HOT BEARINGS OR USING BEARING HEATER.
- HEAVY WORK GLOVES WHEN HANDLING PARTS THAT HAVE SHARP EDGES, ESPECIALLY IMPELLERS.
- SAFETY GLASSES (WITH SIDE SHEILDS) TO PROTECT EYES, ESPECIALLY IN MACHINE SHOP AREAS.
- STEEL-TOED SHOES TO PROTECT FEET WHEN HANDLING PARTS, HEAVY TOOLS, ETC.
- ANY OTHER EQUIPMENT NEEDED TO PROTECT AGAINST HAZARDOUS/TOXIC FLUIDS.

### COUPLING GUARDS

- NEVER OPERATE A PUMP WITHOUT COUPLING GUARDS PROPERLY INSTALLED.

### FLANGED CONNECTIONS

- NEVER FORCE PIPING TO MAKE CONNECTION WITH A PUMP.
- USE ONLY FASTENERS OF PROPER SIZE AND MATERIAL.
- ENSURE THERE ARE NO MISSING FASTENERS.
- BEWARE OF CORRODED OR LOOSE FASTENERS.

### OPERATION

- DO NOT OPERATE BELOW MINIMUM RATED FLOW, OR WITH SUCTION/DISCHARGE VALVES CLOSED.
- DO NOT OPEN VENT OR DRAIN VALVES, OR REMOVE PLUGS WHILE THE SYSTEM IS PRESSURIZED.

### MAINTENANCE SAFETY

- ALWAYS LOCKOUT POWER
- ENSURE PUMP IS ISOLATED FROM THE SYSTEM AND PRESSURE IS RELIVED BEFORE DISASSEMBLING PUMP, REMOVING PLUGS, OR DISCONNECTING PIPING.
- USE PROPER LIFTING AND SUPPORTING EQUIPMENT TO PREVENT SERIOUS INJURY.
- OBSERVE PROPER DECONTAMINATION PROCEDURES.
- KNOW AND FOLLOW COMPANY SAFETY REGULATIONS.
- NEVER APPLY HEAT TO REMOVE IMPELLER.

# **FOREWARD**

THE DESIGN, CRAFTSMANSHIP, AND MATERIALS USED IN GUSHER PUMPS PROVIDES FOR OPTIMUM PERFORMANCE AND LONG, TROUBLE-FREE SERVICE. AS WITH ANY MECHANICAL DEVICE, PROPER USE AND PERIODIC MAINTENANCE WILL ENHANCE THE PERFORMANCE AND LIFE OF YOUR PUMP. THIS MANUAL IS PROVIDED AS A GUIDELINE FOR PROPER INSTALLATION, OPERATION AND MAINTENANCE. **THIS MANUAL MUST BE READ AND UNDERSTOOD BEFORE INSTALLING AND OPERATING ANY PUMP.**

**GUSHER PUMPS INC. SHALL NOT BE LIABLE FOR PHYSICAL INJURY, DAMAGE OR DELAYS CAUSED BY A FAILURE TO OBSERVE THE INSTRUCTIONS FOR INSTALLATION, OPERATION, AND MAINTENANCE CONTAINED IN THIS MANUAL.**

## **WARRANTY**

GUSHER PUMPS INC. WILL REPLACE OR REAIR, WITHIN ONE YEAR OF SHIPMENT FROM OUR PLANT, ANY PUMP IN OUR JUDGEMENT THAT HAS FAILED DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP, PROVIDED THE PUMP HAS BEEN PROPERLY INSTALLED AND MAINTAINED AND HAS NOT BEEN SUBJECT TO ABUSE. THESE PUMPS MUST RETURN TO GUSHER PUMPS INC. WITH COMPLETE HISTORY OF SERVICE FOR INSPECTION AND WARRANTY CONSIDERATION. GUSHER PUMPS INC. DOES NOT ACCEPT THE RESPONSIBILITY FOR TRANSPORTATION TO AND FROM OUR PLANT. FURTHERMORE, WE DO NOT ASSUME ANY RESPONSIBILITY FOR CONSEQUENTIAL DAMAGE OR LOSS OF PRODUCTION.

**WARRANTY IS ONLY VALID WHEN GENUINE GUSHER PARTS ARE USED.**

SUPERVISION BY AN AUTHORIZED GUSHER REPRESENTATIVE IS RECOMMENDED TO ENSURE PROPER INSTALLATION. ADDITIONAL MANUALS CAN BE OBTAINED BY CONTACTING YOUR LOCAL GUSHER REPRESENTATIVE OR BY CALLING 859-824-5001.

## **RECEIVING AND INSPECTION**

THE UTMOST CARE HAS BEEN TAKEN AT THE FACTORY TO ASSURE PROPER COUPLING ALIGNMENT AND IMPELLER ADJUSTMENT. HOWEVER, DUE TO CIRCUMSTANCES BEYOND OUR CONTROL, YOU MUST INSPECT THE PUMP UPON RECEIPT AND FOLLOW THE INSTALLATION INSTRUCTIONS COMPLETELY BEFORE START-UP.

### **RECEIVING**

1. ROTATE SHAFT BY HAND. IF IT DOES NOT ROTATE FREELY:
  - A. CHECK IMPELLER ADJUSTMENT.
  - B. CHECK FOR BENT COUPLING GUARD.
  - C. CHECK SLINGER (#12).
  - D. CHECK FOR BENT SHAFT (#1).
2. CHECK FOR CRACKED OR DAMAGED PARTS. IF UPON RECEIPT, YOU FIND THE PUMP DAMAGED, FILE A CLAIM WITH THE DELIVERING CARRIER.
3. IF DRIVE MOTOR HAS BEEN SUPPLIED, CHECK THE R.P.M. AND HORSEPOWER TO BE SURE IT IS CORRECT AS ORDERED.
4. CHECK THE PUMP NAME TAG TO BE SURE WE HAVE SHIPPED CORRECTLY AS ORDERED:
  - A. MODEL NUMBER
  - B. HEAD IN FEET (FT. HD.)
  - C. GALLONS PER MINUTE (G.P.M.)
  - D. CONSTRUCTION:
    1. ALL IRON.
    2. ALL IRON WITH STAINLESS STEEL SHAFT AND IMPELLER.
    3. ALL STAINLESS STEEL.
5. IF THERE IS ANYTHING THAT APPEARS TO BE INCORRECT, CALL THE FACTORY IMMEDIATELY.

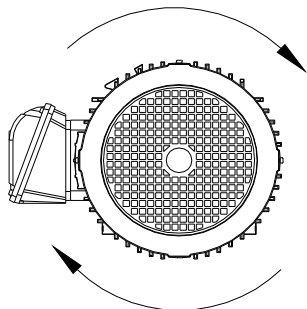
## INSTALLATION

AFTER CAREFUL PRELIMINARY INSPECTION, YOU MAY PROCEED WITH THE INSTALLATION OF THE PUMP INTO YOUR SYSTEM.

1. LOWER THE PUMP INTO SYSTEM.
2. MAKE SURE MOUNTING PLATE IS SETTING FIRMLY ON THE SUPPORT CHANNELS. (IT MAY BE NECESSARY TO USE METAL SHIMS TO LEVEL PLATE.)
3. SECURE MOUNTING PLATE BY USING HOLD-DOWN SCREWS IN ALL FOUR CORNERS. AGAIN, CARE MUST BE TAKEN TO MAKE SURE PLATE IS FIRM AND LEVEL. **DO NOT** FORCE BOWED PLATE LEVEL. USE METAL SHIMS IF NECESSARY.
4. MAKING PIPE CONNECTIONS:
  - A. EXTREME CARE MUST BE TAKEN TO SUPPORT ALL PIPING WITHOUT CAUSING ANY STRAIN ON THE PUMP.
  - B. INSTALL PIPE HANGER ON THE DISCHARGE PIPE SO THAT ALL PIPING WEIGHT IS SUPPORTED BY THE HANGER AND NOT BY THE PUMP OR THE CASING.
  - C. BOLT HOLES MUST LINE-UP WITHOUT PRYING TO INSERT BOLTS.
  - D. WHEN TIGHTENING FLANGE BOLTS, PIPE FLANGES MUST NOT BE FORCED TOGETHER.
  - E. CHECK VALVE SHOULD BE PLACED IN DISCHARGE LINE BETWEEN GATE VALVE AND PUMP DISCHARGE PIPE TO PREVENT LIQUID FROM RUNNING BACK THROUGH THE PUMP AND CAUSING REVERSE ROTATION. THIS IS EXTREMELY IMPORTANT IN APPLICATIONS WITH INTERMITTENT DUTY WHERE THE PUMP MAY BE ROTATING BACKWARDS WHEN SERVICE IS RESUMED. THIS WILL CAUSE DAMAGE TO THE PUMP AND THE DRIVE MOTOR.
  - F. PRESSURE GAUGE SHOULD BE LOCATED AT THE PUMP DISCHARGE, AS ALL PERFORMANCE DATA IS TAKEN AT PUMP DISCHARGE.
  - G. IF INTAKE PIPING IS USED TO PUMP THE TANK DOWN, IT MUST ALSO BE SUPPORTED INDEPENDENTLY OF THE PUMP.

5. REMOVE COUPLING GUARD AND ROTATE COUPLING BY HAND. PUMP SHOULD ROTATE FREELY AT THIS POINT. IF IT DOES NOT, CHECK FOR:

- A. PIPING STRAIN: WITHOUT EXCEPTION, PIPE MUST NOT REST ON PUMP IN ANY MANNER. (SEE ITEM #4 OF THE INSTALLATION SECTION.)
- B. IMPELLER ADJUSTMENT:
  1. DISCONNECT COUPLING (#32) AND REMOVE SLEEVE (#32A).
  2. LOOSEN THREE LOCKING SCREWS (#57).
  3. LOOSEN THREE ADJUSTING SCREWS (#55).
  4. LIGHTLY TAP SHAFT (8) UNTIL HOUSING (4) BOTTOMS ON TO HOUSING (9).



ROTATION FROM  
MOTOR END

5. TIGHTEN THREE LOCKING SCREWS (#57) UNTIL THEY TOUCH RETAINER (#1).
6. TIGHTEN ADJUSTING SCREWS (#55) AND JAMB NUTS (#56).
7. ROTATE COUPLING BY HAND TO BE SURE IMPELLER (#17) DOES NOT RUB. IF IMPELLER RUBS, REPEAT STEPS #1 THROUGH #6.
8. CONNECT COUPLING.

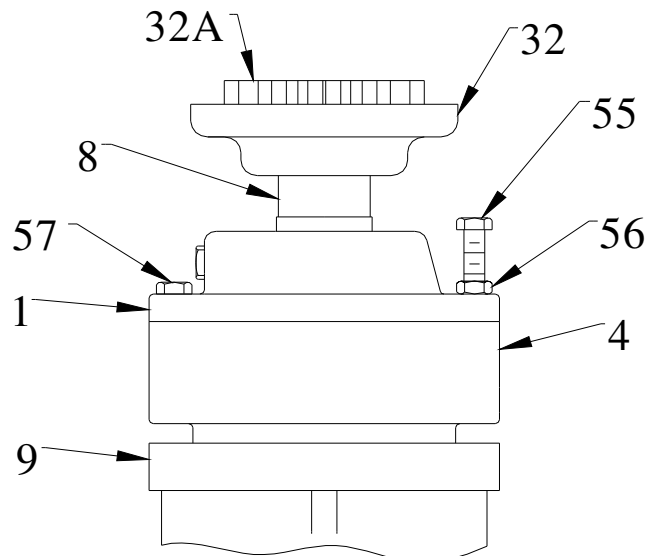
- C. SLINGER ADJUSTMENT: THE SLINGER (#12) IS SET AT THE FACTORY AND NORMALLY CAUSES NO PROBLEMS, BUT SHOULD BE CHECKED WHEN UNIT IS INSPECTED UPON ARRIVAL AT YOUR PLANT SITE AND BEFORE UNIT IS LOWERED INTO POSITION IN YOUR SYSTEM.

5. MAKE ELECTRICAL CONNECTION TO CONFORM WITH STATE AND LOCAL CODES. (IT IS ADVISED TO USE APPROXIMATELY 4' LENGTH OF FLEXIBLE CONDUIT TO FACILITATE REMOVAL OF MOTOR, IF REPAIR IS REQUIRED.)

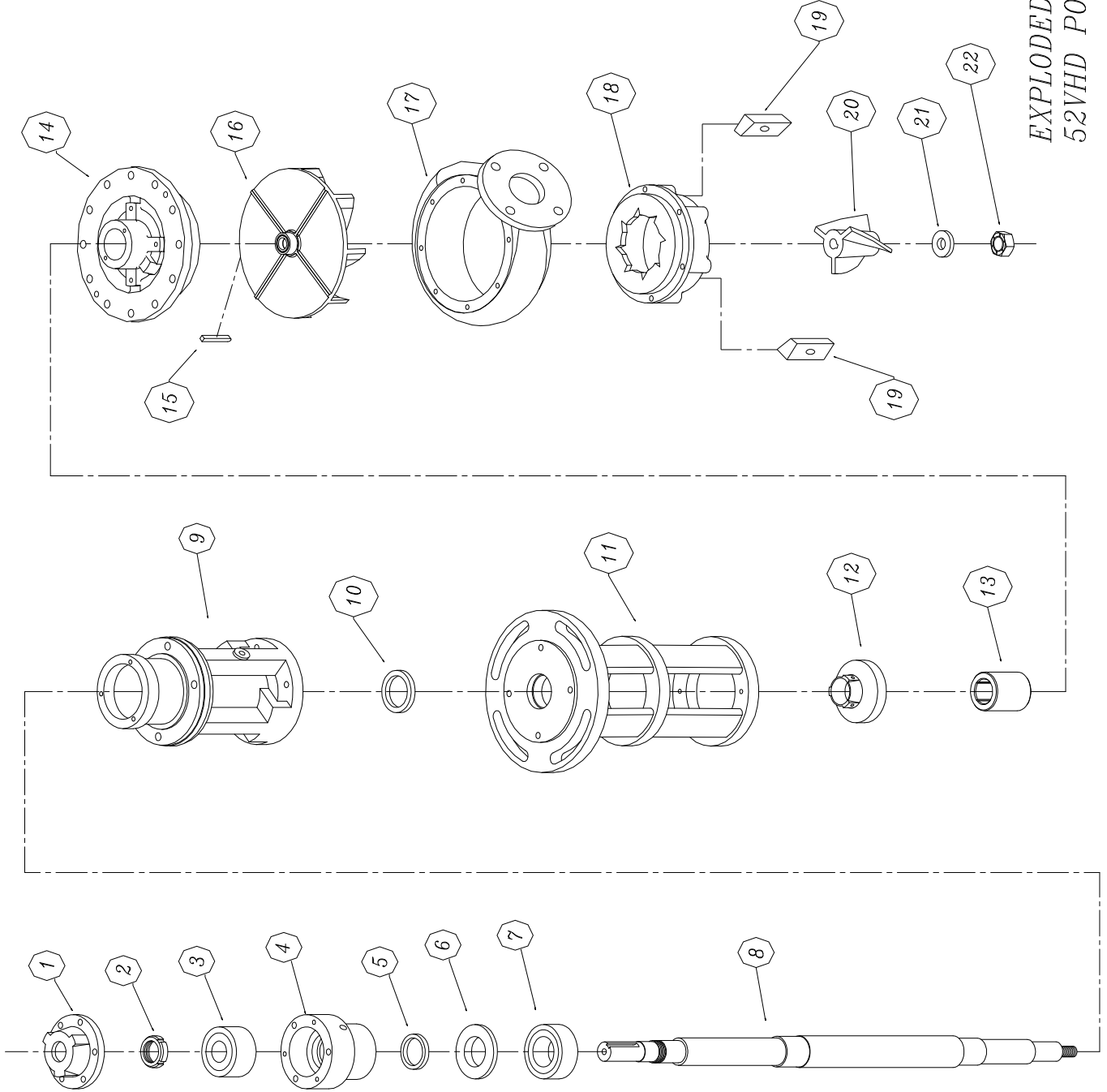
UPON INITIAL START-UP, PUMPS MAY SEEM TO RUN TIGHT AND HOT. THIS IS CAUSED BY BREAKING-IN OF OIL SEALS AND BALL BEARINGS. PUMP WILL OPERATE NORMALLY AFTER APPROXIMATELY 150 HOURS OF SERVICE. BALL BEARINGS SHOULD NOT RUN OVER 225 DEGREES FAHRENHEIT. WHEN CHECKING TEMPERATURE USE A PYROMETER.

## MAINTENANCE

1. LUBRICATION: ALL PUMPS ARE LUBRICATED AT THE FACTORY AND SHOULD NOT REQUIRE ADDITIONAL LUBRICATION AT START-UP. A WELL PLANNED MAINTENANCE SCHEDULE CAN ONLY BE DEvised AFTER CAREFUL OBSERVATION OF THE PUMP FOR THE FIRST SIX MONTHS OF OPERATION AND THE LUBRICATION THAT HAS BEEN REQUIRED. EACH PUMP INSTALLATION IS UNIQUE AND REQUIRES A DIFFERENT LUBRICATION SCHEDULE COMPATIBLE WITH THAT SPECIFIC OPERATION. USE CHEVRON SRI #2 BALL BEARING GREASE. **DO NOT OVER GREASE** AS IT WILL CAUSE BALL BEARINGS TO RUN HOT.
2. TO LUBRICATE:
  - DO NOT LUBRICATE WHILE SHAFT IS IN MOTION.**
    - A. LOCATE ZERK FITTINGS ON PARTS (#1) AND (#9).
    - B. FILL WITH GREASE UNTIL FRESH GREASE FLOWS FROM OPENING.



PART NO.	DESCRIPTION
1	BALL BRC. RETAINER
2	LOCK NUT
3	THRUST BALL BRC.
4	TELESCOPING BALL BRC. HOUSING
5	OIL SEAL
6	GREASE & RADIAL BRC. RETAINER
7	RADIAL BALL BRC. SHAFT
8	BALL BRC. HOUSING
9	OIL SEAL
10	STEM
11	SLINGER
12	THROTTLE BUSHING
13	STEM PLATE
14	KEY
15	IMPELLER
16	IMPELLER HOUSING
17	INTAKE
18	CUTTER BLADE
19	CHOPPER
20	IMPELLER RETAINING WASHER
21	IMPELLER RETAINING NUT
22	



EXPLODED VIEW FOR CHOPPER  
52VHD POWER FRAME

MODEL	#16	#17	#18	#20				
3 INCH	25961	27961	33961	29961				
4 INCH	25962	27962	33961-1	29961-1				
#1	#2	#3	#4	#5	#6	#7	#8	#9
14003	68100	41308-DR	51019	83000	14079	41211	100961	51231
#10	#11	#12	#13	#14	#15	#19	#21	#22
83006	17005-13	58002	62001-C	21961	71100	71961	68510	68137

## APPROXIMATE GREASING INTERVALS FOR GUSHER PUMPS

### 52VHD POWER FRAME

<u>TEMP. DEG. F.</u>	<u>1725 R.P.M.</u>	<u>3450 R.P.M.</u>
150 DEG.	5760 HRS.	2880 HRS.
175 DEG.	2880 HRS.	1440 HRS.
200 DEG.	1440 HRS.	720 HRS.
225 DEG.	720 HRS.	360 HRS.

\*USE CHEVRON SRI #2 OR SHELL DOLIUM 'R' BALL BEARING GREASE OR EQUIVILENT. REMOVE ALL OLD GREASE ONCE A YEAR AND CLEAN BALL BEARINGS AND BALL BEARING HOUSING WITH KEROSENE OR CARBON TETRACHLORIDE BECAUSE OF OXIDATION AND HARDENING OF THE GREASE OVER LONG PERIODS OF TIME.

\*THIS IS AN APPROXIMATE LUBRICATION CHART FOR STANDARD PUMP OPERATION. CONSULT THE FACTORY FOR ANY ADVERSE OPERATION.

### !WARNING!

DO NOT LUBRICATE WHILE SHAFT IS IN MOTION.

DO NOT OVERGREASE.

### MAINTENANCE HISTORY

SERIAL NO. \_\_\_\_\_

MODEL NO. \_\_\_\_\_ IMP. DIA. \_\_\_\_\_

OPERATING COND. \_\_\_\_\_ GPM @ \_\_\_\_\_ FT. HEAD

HP \_\_\_\_\_ SPEED/RPM \_\_\_\_\_

START-UP DATE \_\_\_\_\_ AMPS AT START-UP \_\_\_\_\_

PRESSURE AT START-UP \_\_\_\_\_



**GUSHER PUMPS IS A DIVISION  
OF RUTHMAN COMPANIES**

**RUTHMAN COMPANIES**

**CORPORATE HEADQUARTERS**

1212 STRENG STREET  
CINCINNATI, OH. 45233

**PHONE:** 513-559-1901

**FAX:** 513-559-0035

**WEB:** [www.ruthmancompanies.com](http://www.ruthmancompanies.com)

**GUSHER PUMPS OF DRY RIDGE**

22 RUTHMAN DRIVE  
DRY RIDGE, KY. 41035

**PHONE:** 859-824-5001

**FAX:** 859-824-3011

**WEB:** [www.gusher.com](http://www.gusher.com)

**GUSHER PUMPS OF WILLIAMSTOWN**

115 INDUSTRIAL DRIVE  
WILLIAMSTOWN, KY. 41097

**PHONE:** 859-824-3100

**FAX:** 859-824-7248

**WEB:** [www.gusher.com](http://www.gusher.com)

**GUSHER PUMPS OF CALIFORNIA**

8226 SALT LAKE AVENUE  
CUDAHY, CA 90201

**PHONE:** 323-773-0847

**FAX:** 323-773-8462

**EMAIL:** [gusherca@aol.com](mailto:gusherca@aol.com)

**GUSHER PUMPS OF NEW CASTLE**

403 NORTH NINTH STREET  
NEW CASTLE, IN. 47362

**PHONE:** 765-529-5624

**FAX:** 765-521-0008

**EMAIL:** [gusherpumpnc@gmail.com](mailto:gusherpumpnc@gmail.com)

**BSM PUMP CORP.**

180 FRENCHTOWN ROAD  
NORTH KINGSTOWN, RI 02852

**PHONE:** 401-471-6350

**FAX:** 401-471-6370

**WEB:** [www.bsmpump.com](http://www.bsmpump.com)

**Ruthman...  
Another Word for Innovation**



It began in 1913, servicing mechanical components of the steamboats on the Ohio River. The company founder, Alois Ruthman, was a man of vision and saw part of the future of the company was in the development of a reliable industrial pump.

In 1924, with the conception of the first vertical ball bearing seal-less centrifugal pump, Ruthman Pump and Engineering furthered the design on a unit with a one piece motor driven shaft. The pump was called "Gusher", giving birth to the trade name Gusher Pumps, and the coining of the term "coolant pump".

Wanting to carry on the tradition of quality and reliability started by his father, Thomas R. Ruthman joined the company in 1949. In the early 1990's Thomas R. Ruthman's son, Thomas G. Ruthman joined the company, continuing this same tradition. Maintaining the reputation of Gusher Pumps by innovation and customer service, the company has grown to service companies worldwide.

**NAGLE PUMPS**

1249 CENTER AVENUE  
CHICAGO HEIGHTS, IL 60411

**PHONE:** 708-754-2940

**FAX:** 708-754-2944

**WEB:** [www.naglepumps.com](http://www.naglepumps.com)

**WAGNER PROCESS EQUIPMENT**

3727 METRO DRIVE, SUITE B  
STOCKTON, CA 95215

**PHONE:** 209-931-0100

**FAX:** 209-931-7910

**WEB:** [www.wagnerprocess.com](http://www.wagnerprocess.com)

**GREAT LAKES PUMP & SUPPLY CO.**

1075 NAUGHTON

TROY, MI. 48083

**PHONE:** 248-528-9100

**FAX:** 248-528-9015

**WEB:** [www.greatlakespump.com](http://www.greatlakespump.com)

**PROCESS SYSTEMS, INC.**

**MICHIGAN, MAIN HEADQUARTERS**

23633 PINWOOD

WARREN, MI. 48091

**PHONE:** 586-757-5711

**FAX:** 586-758-6996

**WEB:** [www.psi4pumps.com](http://www.psi4pumps.com)

**INDIANA**

485 N STATE ROUTE 3431

SOUTH MELLOTT, IN. 47958

**PHONE:** 765-295-2206

**FAX:** 765-295-2243

**WEB:** [www.psi4pumps.com](http://www.psi4pumps.com)

**WORLDWIDE:**

**RUTHMANN PUMPEN**

THOMAS-EDISON-STR. 11

52499 BAESWEILER, GERMANY

**TEL:** 0049 (0) 2401-80 489 0

**FAX:** 0049 (0) 2401-80 489 20

**WEB:** [www.ruthmannumpen.de](http://www.ruthmannumpen.de)

**GUSHER PUMPS SHANGHAI**

上海格晞尔泵有限公司

913 CHANGLIN RD. SUITE 4012

SHANGHAI, CHINA 200443

上海市长临路913号4012室

**PHONE:** +86 021 55151993

**FAX:** +86 021 56422332

**WEB:** [www.gusher.cn](http://www.gusher.cn)

