

# Membership Roster and Product Reference Guide

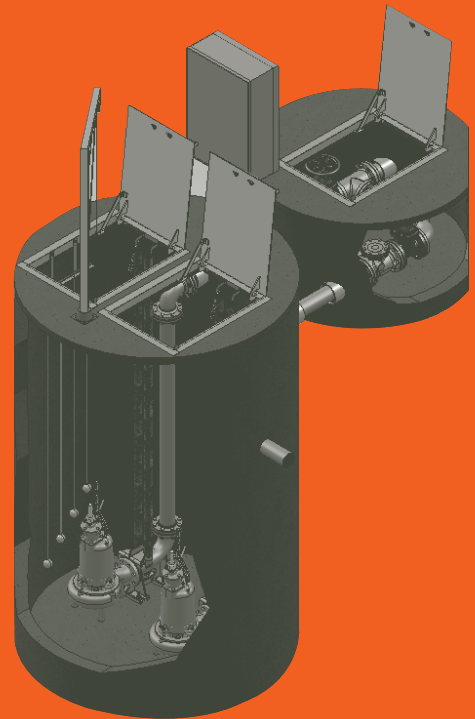


Submersible Wastewater Pump Association

*SWPA is "Forging the Future of the Submersible Wastewater Pump Industry."*

## Submersible Wastewater Pumping Systems Users And Specifiers Guide

2019



# Online SWPA Training Resource Center

Your on-demand CEU & training headquarters

\*\*\*  
brought to you by

PUMPS&SYSTEMS



## Courses

- The Systems Approach to Lift Station Design, Operation & Maintenance
- Grinder Pumps and Pressure Sewers
- Variable Frequency Drives
- Start-Up, Operation, Maintenance and Safety
- Pump System Optimization
- Cavitation and Air Entrainment – Advance Level Course
- Additional topics to be added: SCADA, Motors, Valves, Enclosures, Controls 101

## Resources

- Industry News and Articles
- Technical Articles
- Case Studies
- SWPA Manuals, Handbooks, etc.
- Schedule of SWPA Events

• Participants may earn Continuing Education Credits (CEUs)

**ALL CONTENT FREE TO SWPA MEMBERS!**



## FREE TO SWPA MEMBERS!



Training  
Resource  
Center

- ✓ On-Demand Webinars
- ✓ CEU Credits
- ✓ Training Manuals
- ✓ Learning Resources

One Convenient Place

Submersible Wastewater  
Pump Association



## Membership Roster and Product Reference Guide

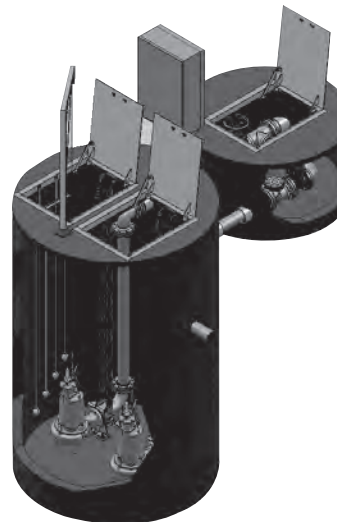


Submersible Wastewater Pump Association

*SWPA is "Forging the Future of the Submersible Wastewater Pump Industry."*



# Submersible Wastewater Pumping Systems Users And Specifiers Guide 2019



Digital copies of the 2019 Submersible Wastewater Pumping Systems  
Users & Specifiers Guide are available without cost at [www.swpa.org](http://www.swpa.org).



**Submersible Wastewater Pump Association**

---

***"Forging the Future of the Submersible Wastewater Pump Industry"***

Published by the Submersible Wastewater Pump Association, (SWPA) a national trade association serving the submersible wastewater pump industry, 350 North LaSalle Street, 9th Floor | Chicago, IL 60654.

Phone: 847.681.1868 | FAX: 312.475.9022 | E-Mail: [swpaexdir@sbcglobal.net](mailto:swpaexdir@sbcglobal.net) | Web Site: [www.swpa.org](http://www.swpa.org)

**COPYRIGHT © 2019 BY THE SUBMERSIBLE WASTEWATER PUMP ASSOCIATION (SWPA)**

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the Submersible Wastewater Pump Association.

## **TODAY'S ASSOCIATION TRENDS**

SWPA'S STRATEGIC CONCEPTS incorporate the trends having the greatest impact on trade Associations today include a changing leadership role; value and return on investment; responsiveness; change loops (actions that result from other actions); consolidations and mergers; globalization; and image building. These trends are directly related to each other. Within that context, SWPA has created a Strategic Vision, Strategic Intent, and a Mission Statement to meet the Association's purposes and objective, as defined in its bylaws.

### **STRATEGIC CONCEPTS**

IN THE CONDUCT of the affairs of any trade Association, there are three critical functions, which the elected leadership must address if the Association is to prosper and grow.

**THE FIRST** is the need to *identify* the common self-interests of the membership and the industry, thereby creating a *vision* for the Association.

**THE SECOND** is to develop, update and *approve* programs to serve those needs as the dynamic components of a strategic plan.

**THE THIRD** is to *implement* the strategic plan and monitor progress as staff and volunteer leaders carry those programs forward.

### **SWPA'S STRATEGIC VISION**

OUR STRATEGIC VISION for SWPA is an Association that thrives by assuming a leadership role through:

- *Information* (providing access),
- *Technology* (easy dissemination of the information),
- *Membership* (people will continue to join because of a sense of community) and
- *Interaction* (Associations provide the opportunity to interact face-to-face).

### **SWPA'S STRATEGIC INTENT**

SWPA'S STRATEGIC INTENT is to be the respected voice of the submersible wastewater pumping systems industry to influence the industry and the public.

### **SWPA'S MISSION STATEMENT**

THE MISSION of the Submersible Wastewater Pump Association is to enhance the global wastewater environment by informing, educating and providing leadership in the design, procurement and operation of submersible wastewater pumping systems.

### **SWPA'S PURPOSES AND OBJECTIVES**

SWPA'S PURPOSES AND OBJECTIVES are to promote increased use and consumption of Industry Products, to promote and provide for the welfare of the industry and to engage in all lawful activities appropriate for an industry trade association.

# **USING THIS ROSTER AND PRODUCT REFERENCE GUIDE**

THIS PUBLICATION IS A SUBMERSIBLE WASTEWATER LIFT STATION USERS' AND SPECIFIERS GUIDE TO THE MEMBERS OF THE SUBMERSIBLE WASTEWATER PUMP ASSOCIATION AND THE PRODUCTS THEY MANUFACTURE AND SELL.

**T**he *SWPA Membership Roster and Product Reference Guide* includes basic industry information as well as general information about the Association and its programs and services and member company listings by category – Pump Manufacturers, Component Manufacturers, and Associate Members. Each listing includes the company's main address, phone and fax numbers, Web Site, Product or Service Codes (see below), and sales and technical contact information.

*The SWPA Membership Roster and Product Reference Guide* also contains descriptive information about the Association's current and planned Technical Resources, our unique educational and training programs – all based on "The Systems Approach." – and advertising from SWPA member companies.

## **PRODUCT CATEGORIES AND CODES**

THE FOLLOWING PRODUCT CODES ARE USED IN THIS PUBLICATION TO IDENTIFY THE TYPES OF SUBMERSIBLE PUMPS AND COMPONENT PARTS AND ACCESSORY ITEMS MANUFACTURED AND SOLD BY SWPA'S MEMBER MANUFACTURERS AND THE SERVICES PROVIDED BY THE ASSOCIATION'S ASSOCIATE MEMBERS.

### **SUBMERSIBLE PUMPS**

(AP) Axial Flow Pumps	(GP) Grinder Pumps	(TP) Turbine Pumps
(CP) Centrifugal Pumps	(IP) Industrial Pumps	(OP) Other Pumps, as specified
(DP) Dry Pit Submersibles	(SH) Solids Handling	(CP) Chopper Pumps

### **COMPONENT PARTS AND ACCESSORIES**

(AC) Access Covers	(GR) Guide Rail Systems	(SS) Stainless Steel Enclosures
(AT) Alternators	(LA) Lift Station Accessories	(VA) Valves
(BS) Basins, Fiberglass	(PC) Phase Converters	(VFD) Variable Frequency Drives
(CC) Cords/Cables	(PM) Phase Monitors	(WW) Wet Wells
(CP) Control Components	(PS) Pipe Penetration Seals	(OO) Other component parts and accessory items, as specified.
(CT) Control Panels	(PB) Poly Basins and Accessories	
(EM) Electric Motors	(SE) Seals	

## **SERVICE CATEGORIES AND CODES**

THE FOLLOWING SERVICES CODES ARE USED BY SWPA TO IDENTIFY THE SERVICES RELATED TO INDUSTRY PRODUCTS PROVIDED BY SWPA'S ASSOCIATE MEMBERS.

(CE) Consulting Engineering Firm	(PUB) Publisher	(SYSTP) System Packager
(DIST) Distributor	(REP) Rep Organization	(O) Other Services as Specified
	(SVSTA) Service Station	

# CONTENTS

Today's Association Trends .....	3
Strategic Concepts .....	3
SWPA's Strategic Vision.....	3
SWPA's Strategic Intent .....	3
SWPA's Mission Statement .....	3
SWPA's Purposes and Objectives.....	3
Using This Roster and Product Reference Guide.....	4
Product and Services Categories and Codes .....	4
Membership Opportunities .....	6
Introduction.....	7
How SWPA is " <i>Forging the Future of the Submersible Wastewater Pump Industry</i> " .....	8
The Submersible Wastewater Pump Story .....	12
Selecting Submersible Pumps.....	14
Dry Pit Submersible Pumps .....	15
" <i>The Systems Approach</i> " .....	16
Educational Training Programs .....	18
Standards for Submersible Pump Applications .....	22
Standards Setting Organizations.....	24
SWPA's Technical Resources .....	25
SWPA Technical Resources Under Development .....	29
Notes on Operation and Maintenance .....	30
SWPA Technical Resources Order Form .....	31
Pump Manufacturer Member Listings .....	32
<b><i>Pump Manufacturer Members are manufacturers of submersible wastewater pumps for municipal and industrial applications that can efficiently handle solids.</i></b>	
Periodic Station Checks and Inspections .....	34
Typical Submersible Pump Station.....	35
Component Manufacturer Member Listings .....	36
<b><i>Component Manufacturer Members are manufacturers of component parts and accessory items for submersible wastewater pumps and systems utilizing such pumps.</i></b>	
SWPA's Industry Community.....	38
Associate Member Listings .....	39
<b><i>Associate Members are non-manufacturers providing services related to Industry Products and/or who provide services to users of Industry Products.</i></b>	
Advertisers' Index.....	43
Member Company Profiles and Advertising .....	44

## **MEMBERSHIP OPPORTUNITIES**

**SWPA IS “FORGING THE FUTURE OF THE SUBMERSIBLE WASTEWATER PUMP INDUSTRY” WITH A WIDE ARRAY OF MEMBERSHIP BENEFITS AND AN EXTENSIVE LIST OF MEMBERSHIP SERVICES.**

*SWPA brings value in a changing world. Membership is your vital connection to industry trends, outlooks and new business opportunities. As a SWPA member, you’ll...*

- ☞ Learn from your peers and expand your professional network.
- ☞ Interact and network with other industry leaders.
- ☞ Sharpen your skills and build relationships.
- ☞ Keep up with new laws and regulations and how they impact the industry.
- ☞ Assist in creating guidelines and tutorials that impact the industry.
- ☞ Increase your clout.
- ☞ Save time and money and find business partners.
- ☞ Anticipate and prepare for the future.
- ☞ Receive unique industry outlooks unavailable elsewhere.

*The many benefits and services of SWPA membership are available to:*

**PUMP MANUFACTURERS** - Business enterprises which are actively engaged in either the manufacture and sale of or the sale on substantially a nationwide basis in the United States of America of one or more Industry Products. (For membership purposes, SWPA defines Industry Products as: “*submersible wastewater pumps that can efficiently handle solids.*”)

**COMPONENT AND ACCESSORY MANUFACTURERS** - Firms, partnerships, corporations or other types of business enterprises which are actively engaged in the manufacturing of parts or equipment distributed on a nationwide basis for the types of submersible wastewater pumps manufactured by Pump Manufacturer members.

**NON-MANUFACTURERS (ASSOCIATE)** - Distributors, rep organizations, service stations, systems packagers, consulting engineering firms, trade publications and others providing services related to submersible wastewater pumps for municipal and industrial applications and/or who provide services to users of those products.

**TO LEARN MORE ABOUT SWPA MEMBERSHIP OPPORTUNITIES,VISIT THE SWPA WEB SITE AT  
WWW.SWPA.ORG OR CONTACT SWPA HEADQUARTERS AT 847.681.1868.**



# INTRODUCTION

**T**HE SWPA Membership Roster and Product Reference Guide presents basic industry information and information about the Association and its programs, services, and activities. In addition, it includes information about SWPA's member companies — the products the Association's Pump and Component Manufacturer Members sell and the services provided by SWPA's Associate Members (non-manufacturers), making this publication a true submersible wastewater pumping systems users' and specifiers' guide.

See page 4 for information about how to this publication, including the product codes used to identify the types of submersible pumps and component parts and accessories manufactured and sold by our Manufacturer Members as well as the codes used to identify the services related to Industry Products\* provided by SWPA's Associate Members. This publication also includes industry information as well as information about SWPA's major programs and activities, as follows:

**WHO WE ARE AND WHAT WE DO.** This Guide contains descriptions of the Association's mission, objectives, purposes, and information about SWPA's distinguished history and long list of achievements as well as an account of how and why the Association is *"Forging the Future of the Submersible Wastewater Pump Industry"*.

**THE SUBMERSIBLE WASTEWATER PUMP STORY.** A brief

---

**THE SWPA MEMBERSHIP ROSTER AND PRODUCT REFERENCE GUIDE IS PUBLISHED ANNUALLY AS A SERVICE TO THE SUBMERSIBLE WASTEWATER PUMP INDUSTRY. IT IS A SUBMERSIBLE WASTEWATER LIFT STATION AND GRINDER PUMP USER'S AND SPECIFIERS GUIDE TO THE INDUSTRY AND SWPA'S MEMBERS AND CONTAINS A WIDE VARIETY OF USEFUL INFORMATION.**

---

description about how submersibles have come to dominate the municipal lift station market.

**DRY PIT SUBMERSIBLES.** An explanation of dry well submersibles and the distinct advantages they offer over conventional dry pit installations to both the installer and the installer and the user.

**HOW "THE SYSTEMS APPROACH" OPTIMIZES PERFORMANCE.** *"The Systems Approach"* is a method that promotes better design though more comprehensive understanding of how all the components in a system interact with each.

**SWPA'S TECHNICAL RESOURCES.** Created by knowledgeable industry experts, these include unique books, pamphlets, white papers, and other materials about submersible

---

\*For Membership Purposes, SWPA defines Industry Products as "submersible wastewater pumps that can efficiently handle solids."

wastewater pumps and wastewater lift stations and grinder pumps and grinder pump stations.

**SWPA'S EDUCATIONAL TRAINING PROGRAMS.** SWPA holds an annual Pumping Systems and Controls Training Seminar. This event is packed with educational, hands on training. Educational training is on a host of Industry specific topics and also includes keynote speakers and topic presenters who are leaders in the Water and Wastewater Industry. In 2013, the Program was expanded to include "200 Level" courses for those who wish to expand their knowledge and participate in more advanced, intense training. These programs may also qualify for CEU credits and attendees receive SWPA technical resources and a course manual that includes all of the presentations.

**SELECTING SUBMERSIBLE PUMPS.** – A primer describing the considered in selecting submersible wastewater pumps for municipal and industrial applications.

**TEST STANDARDS APPLICABLE TO SUBMERSIBLE PUMP APPLICATIONS** — There are a number of National Standards applicable to submersible pump applications. Most are American National Standards Institute (ANSI) documents, published by the Hydraulic Institute (HI).

**SWPA'S "INDUSTRY COMMUNITY"** — SWPA created its Associate Member category because it understands that it is

*See Introduction, Page 11*

## **How SWPA Is “FORGING THE FUTURE OF THE SUBMERSIBLE WASTEWATER PUMP INDUSTRY”**

**A**S THE ASSOCIATION IS “*Forging the Future of the Submersible Wastewater Pump Industry*” by publishing a wide range of technical resources, presenting unique educational training seminars, working with recognized Standards Setting Organizations, and offering other programs and services, it is creating new initiatives to meet today’s – and tomorrow’s – informational and training needs.

**SWPA is the industry’s leader** in providing accurate, up-to-date, technical information about:

- Submersible wastewater pumps and the component parts and accessories in lift stations using solids-handling pump systems.
- Grinder pump stations for residential and commercial applications and the component parts and accessories in those installations.

**NOW IN ITS fifth decade of service** to the submersible wastewater pump industry, SWPA is recognized as *the* spokesperson and the premier informational and training resource for the submersible pump segment of the wastewater industry and looks proudly upon its long legacy of service.

SWPA attained that status by creating and utilizing a comprehensive network of resources. By mobilizing those resources, The Association has built an impressive list of achievements and accomplishments.

---

**THE SUBMERSIBLE WASTEWATER PUMP ASSOCIATION (SWPA) IS A NATIONAL TRADE ASSOCIATION REPRESENTING AND SERVING MANUFACTURERS OF SUBMERSIBLE WASTEWATER PUMPS FOR MUNICIPAL AND INDUSTRIAL APPLICATIONS, MANUFACTURERS OF GRINDER PUMPS FOR RESIDENTIAL AND COMMERCIAL APPLICATIONS, MANUFACTURERS OF COMPONENT PARTS AND ACCESSORIES FOR SUBMERSIBLE WASTEWATER LIFT STATIONS AND GRINDER PUMP STATIONS, AND FIRMS PROVIDING SERVICES TO USERS OF THOSE PRODUCTS.**

---

**SWPA’S DEDICATED MEMBERS** and staff have worked diligently to position the Association as the premier resource for technical information on submersible wastewater lift station systems and grinder pump stations.

**THE TECHNICAL INFORMATION** created and distributed by SWPA is based on “*The Systems Approach*” and is intended to meet the needs of those who design, build, install, service, maintain and operate lift stations using solids-handling pumping systems in municipal and industrial applications and grinder pumps in residential and commercial applications.

“*The Systems Approach*” optimizes performance by promoting the proper design of a submersible pump lift station, which depends on many mutually inter-

dependent factors. This is accomplished by better understanding of wet well design, hydraulics, and all the components that make up these systems.

Within that context, our programs and activities are focused on these three areas:

**INDUSTRY GUIDELINES** – Working with Standards Setting and Code development organizations to encourage wider acceptance of submersible pumps in wastewater applications. These efforts are aimed at developing voluntary product guidelines for effective product use.

**EDUCATION** – Informing specifiers and users about the workings and benefits of submersible wastewater pumps, representing the interests of members of the Association in the public interest.

**PROMOTION** – Encouraging the use of submersible wastewater pumps in municipal and industrial applications to increase their acceptance and build the industry.

**SWPA’S PUMP MANUFACTURER MEMBERS** are manufacturers of submersible wastewater pumps for these markets. They represent the bulk of U. S. shipments of Solids-Handling, Dry Pit Submersible, and Grinder Pumps.

**SWPA’S COMPONENT MANUFACTURER MEMBERS** are manufacturers of component parts and accessory products for submersible pumps and pumping systems. They supply pump manufacturers as well as the after-

market.

**SWPA'S ASSOCIATE MEMBERS**

are non-manufacturers who provide services related to Industry Products, including distributors, rep organizations, consulting engineers, systems packagers, service stations, and publishers.

**SWPA** is the focal point of the industry's communications network, providing a forum for pooling of skills and know-how, and facilitating the exchange of information on common problems, issues and concerns.

**SWPA MAINTAINS** a data center, providing information to the trade and consumer press, industry-related business groups, users, and members.

**SWPA SERVES** the entire submersible wastewater pump industry. One of our most important goals is to increase the acceptance and sales of Industry Products.\*

**SWPA REPRESENTS** its members with groups involved in the selection, installation, and use of Industry Products\* — including engineers, specifiers, users, Standards Officials, and Code Authorities.

**SWPA ASSISTS** its members by providing information on subjects of general industry interest such as marketing trends and industry “drivers.”

**SWPA** is and has been a leader in the growing submersible wastewater pump industry since its inception in 1976.

---

\*For Membership Purposes, SWPA defines Industry Products as “submersible wastewater pumps that can efficiently handle solids.”

**STRATEGIC PARTNERSHIPS** – Most recently, SWPA has developed a series of Strategic Partnerships with other industry Associations, organizations, and publishers to help its members prosper and succeed.

In these Partnerships, the Association chooses to align itself with respected partners that are passionate about their respective organizations and committed to a wider range of influence through augmented networking opportunities. These relationships enhance SWPA's membership and membership services and benefits by allowing the Association to offer more tools and contents to help them thrive and prosper.

*We have a distinguished history, a wide ranging record of service and a long list of achievements and accomplishments including:*

***The Submersible Sewage Pumping Systems (SWPA) Handbook, 4th Edition (2012)***

— a 248 page technical volume that was developed by a task force of industry experts. This unique publication familiarizes and assists those responsible for designing, installing, maintaining, and operating lift stations using submersible solids-handling pumps.

The Fourth Edition is expanded and revised. It includes a new chapter on Submersible Motors, an expanded chapter on Grinder Pumps in Pressure Sewers, a new chapter on valves, updated charts and tables and much more.

The *SWPA Handbook* has been “The Bible” of the industry since it was introduced in 1984 in a soft cover version. There is no better reference tool. It has been published in hard cover format since 1986. Since its launch, more than 30,000 copies have been distributed throughout the world.

The Handbook is available in

e-book format on SWPA's website at [www.swpa.org](http://www.swpa.org).

**PUBLISHING THE *Field Start-Up and Check-Out Procedures Manual for Submersible Sewage Lift Stations*** -- A practical, 28-page text that presents step-by-step procedures, based on equipment available, for putting a new lift station into operation or tuning an existing stations...a distinctive “How To” guide with explanations for field personnel.

**CREATING A *Statistical Reporting Program*** that provides quarterly data on Solids-Handling, Dry Pit Submersible by discharge size, Grinder Pump shipments by horsepower, Chopper Pump shipments by horsepower, as well as semi-annual data on the destinations of those shipments.

**PRODUCING AN *Annual Industry Outlook Survey*** – Each Fall, SWPA conducts a survey of its members to gather information about expected industry performance for the coming year. Included are forecasts of pump shipments by types and sizes and projections for a wide range of component parts and accessories for submersible wastewater lift stations and grinder pump stations. The survey also solicits information on the expected “drivers” of industry sales, new product trends, and other information.

**DISTRIBUTING “*The Very Versatile Submersible*”** – A video training program that was created to inform viewers of the advantages and multiple uses of submersible wastewater pumping equipment.

This eight-minute course was designed for use at seminars, schools, and other meetings and



discusses some of the ways this versatile machine serves specifiers and users throughout the world.

**PUBLISHING THE SWPA Standardized Presentation Format for Pump and Motor Characteristics.** The format includes the minimum information needed by a specifier or designer to adequately evaluate using specific equipment for an individual application.

Information is presented in a consistent format to the designer or specifier can make an informed comparison between different brands or types of equipment.

A series of standardized pump/motor definitions of the terms that the data represents is an important element of this SWPA Technical Resource.

**CREATING A Grinder Pumps in Pressure Sewers Committee** whose mission is: *"To serve as a technical, marketing, and public relations information resource center to the membership, the industry, the marketplace, and the general public on grinder pumps in pressure sewer systems."*

The Committee's primary goals are to develop technically oriented products and services on pressure sewer systems and create and distribute marketing and public information materials such as these:

- A comprehensive **Press Information Kit** which includes a white paper entitled *"A Pressure Sewer Overview – A Proven Approach to Moving Wastewater from One Point to Another"*, a series of Frequently Asked Questions (FAQ's) and Answers about

grinder pumps and pressure sewers; and a series of Definitions, Drawings and Common Terminology.

- **Grinder Pumps in Pressure Sewers**, a primer to raise the awareness and describe the advantages of these products and how they are used.
- A generic Training Presentation entitled *"An Introduction To Grinder Pumps In Pressure Sewers"* that can be used for a general information presentation or a training tool. This tutorial is posted on the SWPA web site ([www.swpa.org](http://www.swpa.org)) in a downloadable pdf format.

**INTRODUCING** *state-of-the-art educational training programs* where attendees hear and interact with industry experts in the same place, at the same time, and tap into their extensive experience and wide-ranging expertise.

**SWPA'S ANNUAL 2-DAY TRAINING SEMINAR IS DIVIDED INTO TWO SEPARATE, BUT COMPLIMENTARY TRACKS...THE PUMPING SYSTEMS TRAINING SEMINAR TRACK** provides a comprehensive description of pumping system design and how the many components of a *total* submersible pumping system influence and affect each other. By attending these seminars, attendees learn better system design though understanding the impact of each component on the other and on the total system.

**SWPA'S CONTROLS SYSTEMS TRAINING TRACK** presents an up-to-date roadmap to the rapidly-changing world of pump station controls and control considerations.

This is an application and theo-

ry-oriented program where attendees learn to better understand the basics of lift station controls, control considerations and controls trouble-shooting.

The individual presentations provide technical information, address practical user concerns, describe common troubleshooting issues and present the tools available to solve them in existing or new control systems.

Since most pump systems last more than 15 years, excessive costs related to inefficiencies can accumulate if left unchecked. Optimum design and operation efficiency are in the best interests of all facilities using submersible pumps, which rely heavily on pumping systems for operation of critical processes.

Inefficient pumping systems can be large energy wasters. Effective maintenance and through system assessments can keep pumps performing at their best.

That is why both of these programs are based on *"The Systems Approach" to the Design, Construction, Operation and Maintenance.*

The overwhelming success of this unique, 2-day forum has allowed us to further expand the program to include a series of advanced topics. This additional Track will allow participants to take their learning to a higher level.

**PRESENTING** additional training programs on an "as needed" basis such as *"Hydraulic Design Of Rotodynamic Pumps — An Intensive Course For Hydraulic Pump Designers."*

**INTRODUCTION** *Continued from page 7*

in need of balanced input from the entire submersible wastewater pumping system “community” and that distributors, rep organizations, service stations, systems

packagers, consulting engineering firms, and others providing services related to Industry Products and/or who provide services to users of Industry Products represent a vitally important segment of this “community.”

Additional copies of this publication in hard bound or electronic format are available upon request from SWPA Headquarters. The publication is also posted on the SWPA Web Site at [www.swpa.org](http://www.swpa.org).

**SWPA** has once again partnered with *Pumps & Systems Magazine* to create the SWPA Training Resource Center, an on-line/on-demand video training curriculum accessible from either [www.swpa.org](http://www.swpa.org) or [www.pumpsandsystems.com](http://www.pumpsandsystems.com). Participants will earn SWPA Certificates of completion, which may be submitted for CEU/PDH credits. The site will also serve as a repository for Industry News and Articles, Technical Articles, Case Studies, SWPA Manuals, Handbooks, etc. as well as a calendar of SWPA events. All of this will be included in your SWPA Membership dues.

**FREE TO SWPA MEMBERS!**



Training  
Resource  
Center

- ✓ On-Demand Webinars
- ✓ CEU Credits
- ✓ Training Manuals
- ✓ Learning Resources

One Convenient Place

# Online SWPA Training Resource Center

Your on-demand CEU & training headquarters

**Courses**

- The Systems Approach to Lift Station Design, Operation & Maintenance
- Grinder Pumps and Pressure Sewers
- Variable Frequency Drives
- Start-Up, Operation, Maintenance and Safety
- Pump System Optimization
- Cavitation and Air Entrainment – Advance Level Course
- Additional topics to be added: SCADA, Motors, Valves, Enclosures, Controls 101
- And more topics updated and added quarterly

**Resources**

- Industry News and Articles
- Technical Articles
- Case Studies
- SWPA Manuals, Handbooks, etc.
- Schedule of SWPA Events

\*\*\*  
brought to you by

**PUMPS&SYSTEMS**



▲ Participants may earn Continuing Education Credits (CEUs)

**ALL CONTENT FREE TO SWPA MEMBERS!**

# THE SUBMERSIBLE WASTEWATER PUMP STORY

**S**IXTEN ENGLESSON is credited with developing the first submersible wastewater pump in Sweden. That pump was manufactured in 1956 and had a discharge connection and level regulator. It became popular in the early 1960s, when a guide-rail system was developed to lift the pump out of well pits for easy maintenance and repair.

Submersible pumps offer these advantages:

- Low initial cost since they involve only one pit and less auxiliary equipment is required than for dry well/wet well installations.
- Low operating costs based on Life Cycle Costing (LCC).
- Safe and quiet installations.
- A minimum of unsightly above-ground equipment.
- Reliable operation over a long life.

**A SUBMERSIBLE LIFT STATION** includes not only the pump-motor unit, but also sophisticated electrical and mechanical controls, piping, and a wet well with access frame and cover.

Submersible pumps are also widely used to handle suspended solids effectively and efficiently.

**SUBMERSIBLE SOLIDS-HANDLING WASTEWATER PUMPS** operate under water, are flood-proof, and are designed for single, wet-pit use. They can be removed easily for maintenance. They operate efficiently and quietly, are safe to install, and perform reliably for many years.

These pumps are used primarily for wet-pit wastewater lift stations

**ORIGINALLY USED IN EUROPE, SUBMERSIBLE WASTEWATER PUMPS BECAME POPULAR IN THE EARLY 1960s WHEN A GUIDE-RAIL SYSTEM WAS DEVELOPED TO LIFT THE PUMP OUT OF WELL PITS FOR EASY MAINTENANCE AND REPAIR.**

**THIS ENDED THE DIRTY AND SOMETIMES DANGEROUS TASK OF SENDING PEOPLE INTO THE WET PIT. SUBMERSIBLES ARE NOW THE DOMINANT PUMP IN THE MUNICIPAL LIFT STATION MARKET.**

and for industrial sump or process effluent applications.

**SUBMERSIBLE WASTEWATER PUMP MANUFACTURERS** have improved the performance of their products to a very high degree, optimizing design as well as manufacturing techniques. Today, submersible wastewater pumps are highly efficient, extremely reliable, long-lasting machines.

One common use for small pumps is to move effluent from a tank to disposal in septic tank systems. Large and small units are used in a variety of ways in the home, farm, motel, school, marine, commercial building, industrial plant, and municipal wastewater and stormwater systems.

Submersible pumps have been proven over more than a half-century, disproving those skeptics who originally asked how an electric motor-powered pump "could run under water". Submersibles are now used around the world to pump clear water, raw water, and wastewater. *Millions are in daily use.*

**GROWTH OF THE MARKET** for submersible wastewater pumping equipment has since been dramatic, as an increasing number of specifiers and users learned of its advantages.

There are two classes of submersibles. One is the smaller unit, used in home and light commercial applications. These normally handle up to 2-inch spherical solids and range from 1/3 to 2 horsepower. These are commonly called "sewage ejectors".

Larger submersibles are discussed here. They handle 2-1/4 inch and larger solids and have a minimum of 3-inch discharge. They are used in municipal and industrial applications, for pumping all types of wastewater.

**ADVANTAGE OF SUBMERSIBLES**  
Submersible wastewater pumps have a number of advantages to users.

**ONE OF THOSE MAJOR ADVANTAGE IS LOW INITIAL COST.** In wastewater pumping applications, only one pit is necessary, which reduces initial investment. There is no need, in most installations, for ventilation, lighting, or other equipment, which is normal for dry pits. Flooding problems are also eliminated.

**A SECOND IMPORTANT ADVANTAGE IS LOW OPERATING COST.** Compared to above-ground pumps, for example, submersibles are more efficient. Submersibles have the obvious hydraulic advantage of working in the water and not some distance above it. Submersibles never lose prime.



Submersibles have safety and noise reduction benefits, too, since the working installation is well below ground level. There is less chance for accidents from an exposed motor and there is a minimum of noise when the pump is operating.

**WITH SUBMERSIBLE PUMP APPLICATIONS,** there is a minimum of above-ground equipment -- usually only the control box and a frame for use in attaching the hoist for removal of the pumps. There is no unsightly pump or any need for a pump house.

Moreover, because wet wells are designed so incoming wastewater scours the bottom, there is little chance of emitting offensive odors.

**BUT THE MOST STRIKING ADVANTAGES OF SUBMERSIBLES ARE RELIABILITY AND LONG LIFE.** Submersibles are designed to operate efficiently under water. Submersibles run only when needed, reducing wear and power bills.

Suction pipe clogging and net positive suction head (NPSH) problems are also eliminated. The water cools the motor naturally, adding to its life span. Field service is simple and sure.

And, submersible pump manufacturers report that fewer than one-half of one percent of the pumps they ship are returned for replacement.

Submersible wastewater pumps are the fastest-growing products in the fast-growing wastewater and solids-handling field.

**PUMP FEATURES.** Here's an introduction to the selection and use of this fast-growing product.

*Description:* Submersible wastewater pumps are vertical,

direct-coupled, extra-heavy duty units, which operate under water and have a solids-handling capability.

While single pumps (simplex systems) are often installed, most applications require two pumps (duplex installations) to insure continued operation if one pump fails, to minimize wear on one pump and equalize it between two, and to provide extra capacity in times of extraordinary loads.

A submersible pumping system consists of the motor-pump unit together with automatic electrical controls.

**SYSTEM CONTROLS.** Controls can be simple or complex, depending on the application. The latter may consist of an entire factory-packaged station enclosed in a steel or fiberglass tank ready for installation and pipe-electrical hookup.

Submersibles are being specified increasingly in applications where self-priming, dry pit, straight centrifugal, vertical extended-shaft, and pneumatic ejector pumps once dominated.

*Discharge Size:* Depending on the impeller design, a 4-inch discharge pump will normally handle spherical solids from 2- to 3-inches.

Each manufacturer's literature specifies the maximum solids size, which can be handled by a particular pump. Normal discharge sizes for larger submersibles range from 3-inches to 14-inches and larger. The pump selected should be sized to the application.

*Motors:* Submersible pump motors can be sized to the application. They are normally available in 850, 1150, 1750, and even 3450 RPM designs, on 60-cycle power. Horsepower ratings range

up to 100 HP or larger.

Variable speed units are also available with the use of variable frequency and voltage power supplies. Again, depending on the application, motors operating on 200/208-volt, 230-volt, 460-volt, 575-volt and higher are available.

Motors may be single-phase or three-phase, as specified. Single-phase units are usually limited to 10 horsepower. Thus, submersibles can be tailored to specific requirements.

*Capabilities:* Like any pump, submersibles can also be tailored to the capacity requirements of the particular installation. For example, a specifier can ask for a high dynamic head, or can accept a lower head and obtain a higher gallons-per-minute flow rate - or can get both a higher head and a higher flow rate by increasing the horsepower rating.

Typically, dynamic heads range from 15 to 300 feet. Flow rates range from 10 to 2,500 gpm and larger pumps produce 10,000-gpm or more. The pump-motor unit can be tailored to installation needs. Many larger pumps can be used in conjunction with a variable speed drive (VSD) to further fit the performance to the application.

**CONTROL PANELS** are engineered for the particular installation. The heart of the control system for submersibles is the liquid level control, which activates and deactivates the pump(s) at specified levels within the wet well.

The simplest control system contains an On-Off magnetic contactor and disconnect. Systems normally have three sets of controls -- one for turning off the first pump, one for turning on the pump, and one for the high liquid alarm.

Duplex systems usually alternate pumps on each successive cycle. Duplex systems may also include an override control, which brings in the second pump when in-flow is unusually heavy or in case of failure of the first pump.

Control panels are installed above ground, and usually contain: pump disconnects; across-the-line starters with overload protection; hand-off-automatic selectors, elapsed time meters, and alarm systems for indicating high level conditions in the wet-well.

In addition, duplex systems provide for automatic sequencing and alternating of pumps.

Alternation allows for equal run time and wear of the pumps. Alarm systems vary but can be visual, audible or remote monitoring by telemetry devices or telephone lines.

**PUMP MANUFACTURERS** will assist designers determine which con-

trols are needed for a particular application, and then manufacture the control panel to this specification. All are built to NEMA (National Electrical Manufacturers Association) Standards and in accordance with the NEC (National Electric Code).

Wet pit installation is a major advantage of submersible wastewater pumps. Only one pit is required. The pump is usually installed on guide rails.

**SERVICING.** If field service or replacement is needed, the pump is easily lifted to the surface using guide rails.

When lowered into position, the pump outlet flange automatically seats with the discharge piping. There is no need for wrenches, special tools, or for anyone to enter the pit.

Most submersibles can be serviced in the field without disturbing the piping. This represents a

major cost savings to the user.

Complete packaged wastewater lift stations are available. These packages include everything from the tank to the pump-motor unit, guide rails, piping and valves, all controls, etc. – and are shipped ready for installation.

Access frames and covers are available for either wet pit or sump allocations. They are designed so the cover can be locked safely in the open or closed position.

Traffic-bearing covers are also available.

Many submersible pumps are being used as replacements in older systems.

For example, numerous submersibles pumps were used to replace typical, non-submersible centrifugal pumps after events like Hurricane Katrina at wastewater treatment plants and pump stations in the New Orleans area.

## **SELECTING SUBMERSIBLE PUMPS**

**S**UBMERSIBLE CENTRIFUGAL PUMPS come in different designs, each with specific characteristics and capabilities to meet various operating conditions. Pump capacity is determined primarily by the speed, size, and design of its impeller, which creates liquid head and flow through its rotating motion. Other factors in capacity are friction, leakage, and shock losses. The volute -- or stationary part of the pump -- guides the liquid being pumped through the discharge opening. The size of the impeller passages and the clearance between the impeller and the volute allows for the passage of solid particles in the liquid.

When pumping wastewater, a major design criteria is the ability of the pump to pass solids. Submersible wastewater pumps are often rated by the maximum size of a solid that they can pass ("sphere size"). This is a very rough measure of a pumps' ability to handle solids bearing liquids, in that the type and quantity of solids varies considerably between liquids. Most solids found in wastewater are compressible and can easily be broken apart, therefore limiting the value of the "sphere size" criteria. Until a standardized test for solids bearing liquids has been developed, user experience is the best base for matching a suitable pump design to an application.

The design of the approach piping and the sump should be done in a manner to minimize the deposition of solids. A minimum approach flow/velocity of about 2.5 ft/sec (0.8 m/s) is required in the suction piping to prevent solids from settling and combining with other solids to form a larger solid with a size capable of clogging the pipe, valve, or pump.



## **DRY-PIT SUBMERSIBLES**

**S**UBMERSIBLE PUMPS, originally developed for use in applications where the pump unit will be submerged in the pumped liquid, are now widely used in dry well stations where the wet well is separated from the dry pump chamber.

**DRY WELL SUBMERSIBLES** offer distinct advantages over conventional dry pit installations to both the installer and the user. Their compact design, installation versatility, and resistance to damage from flooding make them ideal for use in both new and retrofit pumping stations.

In today's challenging environment, municipalities are faced with financial issues due to an aging infrastructure and a reduction in service personnel due to funding reductions from federal, state, and local budgets.

Large pump stations are typically the conventional dry-pit / wet-pit design with a motor located floors above the pump connected by a shaft.

This design requires increased manpower for maintenance and can present problems with excessive vibration to the pump, motor, and structure. The dry-pits are prone to flooding as evidenced by the weather in recent years.

Manufacturers have designed a submersible motor that will run wet or dry, require little or no maintenance and with no vibration problems for the pump station.

**DRY-PIT SUBMERSIBLES** offer municipalities reduced initial costs, reduced installation costs, and reduced maintenance costs when used as a replacement for conventional dry-pit / wet-pit

---

**SWPA DEFINES A DRY PIT SUBMERSIBLE PUMP AS: A SUBMERSIBLE PUMP, ORIGINALLY DEVELOPED FOR USE IN APPLICATIONS WHERE THE PUMP UNIT WILL BE SUBMERGED IN THE PUMP LIQUID, BEING USED IN A DRY WELL STATION WHERE THE WET WELL IS SEPARATED FROM THE DRY PUMP CHAMBER.**

---

solids handling line shaft pumps. Dry-pit submersibles are also more efficient and more reliable.

**DRY-PIT SUBMERSIBLES** also offer installation advantages: submersible motor that will run wet or dry, require little or no maintenance and with no vibration problems for the pump station.

**DRY-PIT SUBMERSIBLES** offer installation advantages:

- No damage from flooding.
- No vertical shafting.
- No coupling alignment.
- No packing or seal water leakage.
- No seal water.
- No hazardous rotating components
- No dry well cooling.

**DRY-PIT SUBMERSIBLES** also offer system advantages:

- Simpler controls.
- More frequent starts allowed.
- Wider range of operation.

- Reduced vibration.
- Simpler support design.
- Increased utilization of available space.
- Elimination of shaft losses.
- More efficiency.

**SWPA MEMBERS REPORT** that the dry pit submersible pumps being purchased today are getting larger in horsepower and discharge sizes and that coastal users are purchasing more and more of these products because of storm drainage.

Ideal for either new stations or retrofitting existing stations, dry pit submersibles offer unmatched versatility and flexibility for wastewater pumping stations. Their compact, self-contained design offers significant savings in installation costs over conventional, coupled dry pit pumps.

The fully submersible, integrated motor offers trouble-free pumping, even in the event the dry well is flooded. With a wide range of sizes, motor powers, and impeller types available, dry pit submersibles offer alternatives to conventional, coupled pumps in nearly every type of wastewater pumping application.

**IN SUMMARY**, dry-pit submersibles offer reduced initial costs, reduced installation costs, and reduced maintenance costs when used as a replacement for conventional dry-pit / wet-pit solids handling line shaft pumps. Dry-pit submersibles are also more efficient and more reliable.

## **“THE SYSTEMS APPROACH”**

**S**UBMERSIBLE WASTEWATER pump manufacturers have improved the performance of their products to a high degree, optimizing design and manufacturing techniques. Today, submersible wastewater pumps are highly efficient, extremely reliable, long-lasting machines.

Submersible wastewater pumps, which are often purchased as individual components, provide a service only when operating as part of a total system. The proper design of that system — a submersible pump lift station — depends on many mutually dependent factors because these pumping stations are complex and their design requires considerable engineering expertise. By better understanding wet well design, hydraulics, and all of the components that make up these systems, “bottom-line” performance is optimized.

**“THE SYSTEMS APPROACH”** encourages careful analysis of the end-use requirements to determine if the pump and each of the system components is efficiently sized and configured to meet the end use-requirements; screening the system to help optimize improvement opportunities; calculating life cycle costing for maximum energy efficiency; and finding symptoms that could lead to inefficiencies.

**THE PUMP’S TASK** -- All pumping systems are comprised of a pump, driver, pipe system, and operating controls. The pump’s task in the system is to deliver a liquid through pipes or ducts to a remote point against the system

---

**“THE SYSTEMS APPROACH” OPTIMIZES PERFORMANCE BY PROMOTING THE PROPER DESIGN OF A SUBMERSIBLE PUMP LIFT STATION, WHICH DEPENDS ON MANY MUTUALLY INTERDEPENDENT FACTORS. THIS IS ACCOMPLISHED BY BETTER UNDERSTANDING OF WET WELL DESIGN, HYDRAULICS, AND ALL THE COMPONENTS THAT MAKE UP THESE SYSTEMS.**

---

pressure.

When transporting fluid, the pump installation is sized to handle a maximum flow, which, in practice, often never occurs. The energy and materials consumed in accomplishing this task depend on the design of the pump, the design of the installation, and the way the entire system is operated and maintained.

**TO UNDERSTAND** a complex pumping system like a submersible wastewater pump lift station, *it must be realized that all of the system components are interdependent and must be carefully matched to each other and remain so throughout their working lives.* Those system components typically include the source and designation sumps or tanks, individual pipelines, pumps, valves, and items that control the rate or direction of flow.

This is why one of SWPA’s strategic initiatives is to expand its publishing and educational activities and promote “*The Systems Approach*” when designing, maintaining, operating, and

maintaining a submersible wastewater lift station.

**MOST OF THE ASSOCIATION’S** current technical resources describe the components of a lift station and how they work. These descriptions are being expanded to include detailed information on how the components are integrated into the system and how they interact with the other parts and pieces to make the total system work to peak efficiency and effectiveness. In addition, these current descriptions are being expanded to explain how each component affects the others such as the valves’ affects on the pump and the pump’s affect on the valves.

By publishing and promoting “*The Systems Approach*” information, SWPA is helping consulting engineers, specifiers, users, and others gain a better understanding of the pump, valves, control panels, VFDs, basins, mechanical seals, and other components and how they interact for optimum performance, minimum maintenance, and long life.

**THIS FOCUS ON** SWPA’s “*Systems Approach to Lift Station and Grinder Pump Station Design, Operation and Maintenance of Submersibles*” is encouraging and promoting better system design through a more comprehensive understanding of the impact of each component on each other and on the total system.

SWPA’s efforts in this area are helping consulting engineers, specifiers, users, and others identify and understand what they must know about the total

system to select the proper components for a given design.

**BENEFITS OF “THE SYSTEMS APPROACH”** – “*The Systems Approach*” promotes proper design by:

- Determining the proper horsepower and impeller sizing of pumps.
- Determining the proper power requirements.
- Sizing the wet well, frame and covers, valves, and other ancillary equipment.

“*The Systems Approach*” determines system responsibility because:

- Complex systems with multiple component parts such as pumps, control systems, valves, and special start/stop units require unit responsibility.
- Unit responsibility eliminates the questioning of cause of failure and isolates it under a single source.

- Reduces the time element for repairs.

“*The Systems Approach*” optimizes performance of the pumping system because it assures that the matching of multiple pieces of equipment will operate to provide the best performance.

“*The Systems Approach*” establishes a standard format for submittals and approvals since it:

- Provides standard pump charts.
- Provides pump test standards.
- Provides engineering, application and operations manuals.

“*The Systems Approach*” assures matching multiple pieces of equipment for optimum performance.

**COMPONENT STANDARDS AND GUIDELINES** – Developing test standards and performance and design guidelines for each component of a lift station and presenting educational training programs

about each will be an integral part of these efforts in the years ahead.

**SWPA WILL CONTINUE** its strategic initiative of creating Technical Resources promoting and focusing on “*The Systems Approach*” by working closely with established Standards and Code development organizations to create new Test Standards as well as performance and design guidelines for all of the components of a submersible lift station and grinder pump station. These efforts will be aimed at developing voluntary product guidelines for effective product use.

The Association continues to work with Code development organizations to insure the Industry’s needs are met.

“*The System’s Approach*” is also being used as the basis for the Association’s expanding educational and training programs, including its Annual Pumping Systems Training and Controls Training Seminars as well as its on-line training programs.

## EDUCATIONAL TRAINING PROGRAMS

**A**S AN ESSENTIAL ELEMENT of its strategic initiative to promote “*The Systems Approach*” (see page 16), SWPA’s comprehensive educational and training programs focus on this approach.

**SWPA and *Pumps and Systems Magazine* produce a multi-part webinar series on the systems approach to lift station design. CEU/PDH credits will be issued for completion. The webinars will be presented free of charge. For more information, contact SWPA Headquarters at 847-681-1868 or visit [www.swpa.org](http://www.swpa.org).**

**ANNUAL PUMPING SYSTEMS TRAINING SEMINAR** – Following its introduction in 2002 SWPA’s Pumping Systems Training Seminar fast became an industry event, attracting consulting engineers, designers, specifiers, users, distributors, reps, product managers, technical managers, engineering managers, sales and marketing managers, product specialists – and many others with an interest in the design, applications, and use of submersible wastewater pumping systems for municipal and industrial applications from as far away as Alaska, Mexico and Puerto Rico.

This one-of-a kind program presents a comprehensive description of pumping system design and how the components of a *total system* influence and affect each other.

The proper design of these systems depends on many mutually dependent factors because they are complex and require considerable engineering expertise.

**AS AN ESSENTIAL ELEMENT OF ITS STRATEGIC INITIATIVE TO PROMOTE “THE SYSTEMS APPROACH” SWPA PRESENTS AN ANNUAL TRAINING SEMINAR – A PUMPING SYSTEMS AND CONTROLS TRAINING SEMINAR, AS WELL AS A NEW, STATE-OF-THE-ART ON-LINE/ON-DEMAND TRAINING RESOURCE CENTER THROUGH A PARTNERSHIP WITH *PUMPS & SYSTEMS MAGAZINE*.**

Attendees learn about better system design through understanding the impact of each component on the other and on the total system.

The featured presentation that sets the stage for the entire program is entitled “*The Systems Approach* to question: “*What is The Systems Approach*” and *Construction*, describes, in *Lift Station Design, Operation and Maintenance*.” This presentation answers the details, how it benefits the design engineer, manufacturer, sales representative, contractor, and the end user. The program typically includes sessions such as these:

**LIFT STATION VALVING** – The session addresses the design and selection of check valves, air valves, and plug valves for wastewater lift stations. The types of valves on the market is examined and, more importantly, how they interact within the system is analyzed.

**MECHANICAL SEALS FOR SUBMERSIBLE MOTORS** – Attendees learn about the use of mechanical seals as they apply to

submersible wastewater pumps.... the typical installation of seals as it relate to submersible pumps; basic seal components and terminology; seal styles and types; standard mechanical seal materials, and common causes for mechanical seal failures.

**AC MOTORS FOR SUBMERSIBLE PUMPS** – The focus of this session is on the construction, rating, and application of submersible motors...motor construction features including basic design of the motor, winding and insulation materials, and cooling systems ... motor ratings such as efficiency, power factor, torque, etc...explosion proof motors, and insulation classes.

**ELECTRICAL STARTING METHODS FOR SUBMERSIBLE PUMP STATIONS** – During this session, attendees learn the considerations for the selection of electrical starting equipment for submersible pump systems. The most practical approaches of direct across the line start, reduced voltage, and variable speed systems as they relate to “The Systems Approach,” are emphasized.

**APPLYING VARIABLE FREQUENCY DRIVES (VFDS) TO SUBMERSIBLE PUMPS** – This session describes how pumps operate in variable speed applications and what is critical for successful variable speed pump stations. Discussions focus on the proper pump selection, potential for energy savings, rules of thumb for VFD applications, NEMA MG1 part 31 requirements and other aspects of applying VFDs to submersible



motors.

#### **PUMP STATION CONTROL**

**CONSIDERATIONS** – The typical elements of pump control panels and an overview of components and options available is presented.

**AN OVERVIEW ON THE BASICS OF PLC CONTROLS** – Attendees learn how they are used, how they come about, and where they're going. This session also provides an introduction to PLC technology by illustrating its evolution from its earliest beginnings to its modern state. Also provided is insight into where the field is going, and what can be expected. Included in this session is a discussion of benefits, applications, HMI, SCADA systems, common networks, and the IEC-61131-3 Program Standard.

**DESIGN EXAMPLE** – This session puts it all together by presenting a step-by-step example of how-to design a typical, small, circular wet well pump station.

**GRINDER PUMPS IN PRESSURE SEWERS** – A primer to raise the awareness and describe the advantages of these products and to report on how they are used.

**CASE HISTORIES** – During this session, representatives from SWPA member pump and component manufacturer member companies – the industry's leaders – describe particularly challenging or unusual installations.

**ANNUAL CONTROLS TRAINING SEMINAR** – SWPA introduced its Second Annual educational and training program – *A Controls*

*Training Seminar* – in 2008. This in-depth program is designed for water and wastewater pump station service personnel, pump station operations personnel; water and wastewater service personnel who work with submersible wastewater pumping systems on a daily basis and those who work for Pump/ Rep Service organizations.

This is also an ideal educational opportunity for representatives of submersible pump manufacturers, submersible lift station component manufacturers, distributors, service shops, and consulting and specifying engineers who need a better understanding of the basics of controls and controls trouble-shooting.

To gain the most from this program, attendees should have a basic knowledge of controls.

This Program is application and theory oriented and is beneficial to anyone who needs to understand the basics of lift station controls, controls applications, and controls troubleshooting. The individual presentations provide essential technical information, address practical user concerns, describe common troubleshooting issues and the tools available to solve those issues in control systems already installed as well as updates to existing systems and planned new systems and feature demonstrations, hands-on problem-solving and start-up procedures.

Attendees learn about State-of-the Art Control Systems and control considerations to give water and wastewater operators and engineers *total* command over their systems that was unimaginable only a few short years ago.

This modern pump and controls technology can help municipalities weather economic crisis and save precious dollars.

SWPA's Controls Training Seminar, too, is a one-of-a kind program and provides an up-to-date roadmap to the rapidly-changing world of pump station controls and control considerations and related topics.

The featured presentation that sets the stage for this program is also on "The Systems Approach" but focuses on controls and control considerations.

The program typically includes sessions such as these:

**SCHEMATIC TRAINING, SYMBOLS, AND TROUBLESHOOTING** – An introductory look into reading and interpreting electrical schematics. Topics covered include basic electrical theory, definitions of common schematic symbols and their usage, and schematic notation standards. Techniques for troubleshooting a control system using the electrical schematic presented.

**ENCLOSURE SOLUTIONS THAT FACTOR IN THE ENVIRONMENT** – This session highlights many enclosure solutions Attendees may not have thought of before but after participating in this session, will help be better prepared to select the best enclosure at the best price for the application and environment required.

#### **MOTORS, MOTOR STARTING OPTIONS AND MOTOR**

#### **PROTECTION ALTERNATIVES** –

This session begins with an overview that helps Attendees understand AC motors and AC motor

operations and teaches them how to evaluate motor ratings, including efficiency, power factor, torque, etc. Other important motor and motor-related covered include motor compatibility with controls, motor starting options and motor protection.

**VARIABLE FREQUENCY DRIVES (VFDS) WITH SUBMERSIBLE PUMPS** – Its all about energy ... and so much more. Learn how submersible pumps, like most pumps, are being controlled from VFDs which serve multiple purposes for most applications including speed regulation and help eliminate or reduce inrush current which helps save energy. This session also teaches how today's VFDs are getting smarter then ever before in that they can offer application specific functions, including constant pressure or constant flow control and pumping protection.

**TYPES OF CONTROLS/CONTROL DEVICES** – This session reviews and describes devices used inside control panels as well as external devices, types of controls including components typically found in control panels such as phase monitors, alternators, electronics, etc. and their application plus troubleshooting approaches and troubleshooting techniques for these controls and control devices.

**PROGRAMMABLE LOGIC CONTROLLERS (PLC) AND THEIR APPLICATIONS** – Building a control architecture on a stable platform that can be scaled to the application requirements is critical in Life Cycle Cost management, reliability, maintainability, and overall system viability.

This session also covers key areas of PLC/Process Control

applications, the interconnectivity required, and the benefits of a consistent control platform, across the water system enterprise.

#### **DEDICATED PUMP CONTROLLERS**

– This session begins with an explanation of the term "Dedicated Controllers" and then goes on to address selection criteria and discusses advantages and disadvantages of using a dedicated pump controller.

#### **PUMP STATION MANAGERS, COMMUNICATIONS AND SCADA**

– This session is divided into three distinct sections: The first focuses on the key characteristics of a pump station manager and when to use these types of controllers. During the second section, we discuss the various types of communications to a pump station control system. The final segment presents an overview of the key components of a SCADA system.

#### **START-UP AND TUNING A STATION**

– This is a wrap-up session that addresses mechanical and electrical issues such as generator testing, the pump end, level measurement, starter types, tuning to minimizing starts and stops and forcing alternatives, the required paperwork for starting and/or tuning a station, and related issues. As a reference tool, Attendees receive a complimentary copy of SWPA's *Startup & Field Check-Out Procedures Manual for Submersible Sewage Lift Stations*. **AS A RESULT OF PREVIOUS YEARS' SUCCESS, SWPA HAS COMBINED BOTH PROGRAMS INTO A SEMI-ANNUAL, MULTI-DAY FORUM** – Attendees hear and interact with numerous experts and their peers in the same place, at the same time, and tap into their *exten-*

*sive* experience and wide-ranging expertise. SWPA Technical Resources are provided and there's a special Media Area.

#### **CEU CREDITS ARE AVAILABLE**

– SWPA issues certificates to Attendees at its Annual Pumping Systems and Controls Training Seminar for completion of the course for submission to their respective state agencies for CEU credits.

#### **TECHNICAL RESOURCES ARE INCLUDED**

– Included in the registration fees for SWPA's two Annual Training Seminars are copies of the Associations' applicable Technical Resources AND an a comprehensive Attendee Book with Session Summaries, Speaker Biographies and contact information, their PowerPoint Presentations, and other Industry information and information about the Association.

#### **SPECIAL MEDIA AREA OFFERED**

– There is also a special "Media Area" at each of SWPA's Semi-Annual Training Seminars where SWPA's Pump Manufacturers and Component Parts and Accessory Manufacturers display their products and provide complimentary product literature and other resource information related to the programs' contents.

**IN ANOTHER** expansion of its educational and training programs in support of "The Systems Approach," SWPA has expanded its partnership with *Pumps & Systems* Magazine and created the SWPA Training Resource Center (TRC). The SWPA TRC is an on-line/on demand technical resource that includes video

curriculum on such Important Industry topics as: The Systems Approach to Lift Station Design, Operation & Maintenance, Grinder Pumps & Pressure Sewers, Variable Frequency Drives (VFD's), Pump System Optimization, Cavitation and Air Entrainment — an advanced course, SCADA — an advanced course, Motors, Valves, Safety and Enclosures, Controls 101, and more. SWPA members can view

these 30 min. to 1-hour training webinars, complete with Q&A at the end and the ability to send SWPA additional questions free of charge. Non-members will pay a fee. Once a course is completed, SWPA will issue a Certificate of Completion, which you may submit to your local governing body for CEU/PDH Credits.

The SWPA TRC site also includes Industry News and Technical

Articles, Case Studies, SWPA Manuals, Handbooks and more.

## REGISTRATION FORM

COMPLETE AND RETURN THIS FORM AND WE'LL ADD YOU TO OUR DISTRIBUTION LIST TO RECEIVE INFORMATION ABOUT SWPA'S UPCOMING TRAINING SEMINARS AND OTHER EVENTS AS WELL AS NOTICES ABOUT NEW TECHNICAL PUBLICATIONS AND SPECIAL OFFERS FOR EXISTING PUBLICATIONS.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_ FAX \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

*Company Description (Please check the appropriate box(es) so we can better Serve you:*

- ☐ End User
- ☐ Service Shop
- ☐ Consulting/Specifying Engineer
- ☐ Distributor

- ☐ Rep Organization
- ☐ Systems Packager
- ☐ Pump Manufacturer
- ☐ Component Manufacturer
- ☐ Other, please specify \_\_\_\_\_

**Use this space to tell us about subjects, topics, speakers and other elements you would like to see SWPA include during future Training Seminars, including subject matter for additional future programs:**

---



---



---

# STANDARDS FOR SUBMERSIBLE PUMP APPLICATIONS

**A**PPROVAL OF AN AMERICAN NATIONAL STANDARD requires verification by ANSI (the American National Standards Institute) that the requirements of due process, consensus, and other criteria for approval have been met by a Standards developer. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests.

Consensus requires that all views and objections are considered, and that a concerted effort has been made toward their resolution. The use of an American National Standard is completely voluntary. The ANSI Canvas process requires that a Standard be reaffirmed on a five-year cycle.

**THE ANSI/HI STANDARD FOR SUBMERSIBLE PUMP TESTS (ANSI/HI 11.6-2012)** provides valuable information on procedures for centrifugal submersible pump performance testing.

ANSI/HI 11.6-2001 was developed through collaboration between SWPA and the Hydraulic Institute (HI). This Standard was created to meet one of the long-standing, major challenges in the wastewater pump industry: *the development and acceptance of a test standard written specifically for submersible pumps*. It was updated in 2012.

**ANSI/HI SUBMERSIBLE PUMP TESTS** primarily apply to tests of centrifugal submersible pumps driven by induction motors. Fundamentally based on the

**THERE ARE A NUMBER OF NATIONAL STANDARDS APPLICABLE TO SUBMERSIBLE PUMP APPLICATIONS. MANY ARE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) DOCUMENTS, PUBLISHED BY THE HYDRAULIC INSTITUTE (HI).**

ANSI/HI Centrifugal Pump Test Standard (ANSI/HI 11.6), this Standard was initiated by a SWPA Test Standards Subcommittee, was processed and approved for submittal to ANSI by HI, and is now accepted and utilized by all segments of the pump industry.

The Standard underwent review in accordance with ANSI's five-year review procedures, and after 6 years, the updated test standard was officially issued in 2012.

**ANSI/HI 11.6-2001, 2012 SUBMERSIBLE PUMP TESTS**, describes submersible pump tests and covers terminology and these types of tests:

- Performance test.
- Hydrostatic test.
- Net Positive Suction Head (NPSH) test.
- Submersible motor integrity test
- Vibration test.
- Instrumentation.
- Model test.

The Appendix to the Standard presents formulas and examples.

*For further information about this Standard and others listed on*

*these pages, contact the individual sponsoring organizations at the addresses and web sites listed on page 24.*

**SOME OTHER ANSI/HI STANDARDS THAT APPLY TO ROTODYNAMIC (CENTRIFUGAL) PUMPS INCLUDE:**

**ANSI/HI NUMBER/NAME OF STANDARD:**

**1.1-1.2** – *Centrifugal Pumps for Nomenclature and Definitions.*

**1.3** – *Rotodynamic (Centrifugal Pumps for Design and Application.*

**1.4** – *Centrifugal Pumps for Installation, Operation and Maintenance.*

**1.6** – *Centrifugal Pump Tests.*

**5.1-5.6** – *Sealless Centrifugal Pumps for Nomenclature, Definitions, application, operation and Tests.*

**9.1-9.5** -- *Pumps – General Guidelines for Types, Definitions, Application, Sound, Measurement and Decontamination.*

**9.6.2** – *Centrifugal and Vertical Pumps for Allowable Nozzle Loads.*

**9.6.4** – *Centrifugal and Vertical Pumps for Vibration Measurement and Allowable Values.*

**9.6.5** – *Centrifugal and Vertical Pumps for Condition Monitoring.*

**9.6.7**—*Effects of Liquid Viscosity on Rotodynamic Pump Performance.*

**9.8** – *Pump Intake Design.*

**11.2-12.6** –*Rotodynamic (Centrifugal) Slurry Pump (Including Slurry Pump Test)*

**FACTORY MUTUAL (FM) STANDARDS** are typically used for explosion proof pumps.



**COMPONENT AND OTHER STANDARDS** – There are also Standards that apply to Component parts and accessories for submersible pumps and solids-handling lift stations as well as for grinder pumps in pressure sewer systems and the component parts and accessories in those installations. These include

#### VALVE STANDARDS

**THE AMERICAN WATER WORKS ASSOCIATION (AWWA)** publishes the following Standards that apply to Valves used in Pumping Systems.

- **ANSI/AWWA C504-06, RUBBER-SEATED BUTTERFLY VALVES**
- **ANSI/AWWA C507-05, BALL VALVES**
- **ANSI/AWWA C512-07, AIR VALVES**
- **ANSI/AWWA C517-05, ECCENTRIC PLUG VALVES**
- **ANSI/AWWA C518-01, SWING CHECK VALVES**
- **ANSI/AWWA M51, MANUAL OF PRACTICE FOR AIR VALVES**
- **ASME B16.10, FACE-TO-FACE AND END-TO-END DIMENSIONS OF VALVES**

**THE MANUFACTURERS STANDARDIZATION SOCIETY (MSS)** publishes the following Standard that applies to Valves used in Pumping Systems.

- **MSS SP-58, PIPE HANGERS AND SUPPORTS**
- **MSS SP-71, GRAY IRON SWING CHECK VALVES**
- **MSS SP-92, MSS VALVE USER GUIDE**

- **MSS SP-96, GUIDELINES ON TERMINOLOGY FOR VALVES AND FITTINGS**
- **MSS SP-128 DUCTIBLE IRON GATE VALVES**
- **MSS SP-136 DUCTIBLE IRON SWING CHECK VALVES**

#### CONTROL PANEL STANDARDS --

Here's a brief summary of the primary Standards and Codes used by SWPA Member Control Panel Manufacturers that are applicable to Industrial Control Panels.

**UL508A** is titled Industrial Control Panels (published by Underwriter's Laboratories). The requirements in this Standard cover industrial control panels intended for a variety of uses. It covers panels intended to be installed in ordinary (non hazardous) locations in accordance with the National Electric Code (NEC) (NFPA 70).

**THE CANADIAN STANDARDS** covering these same types of panels are C22.2 No 14-M95 Industrial Control Equipment, C22.2 No. 94-M91 Special Purpose Enclosures, and C22.2 73-1953 Electrically Equipped Machine Tools and published by the Canadian Standards Association (CSA).

**INDUSTRIAL CONTROL PANELS** that are intended to be installed in hazardous locations as defined by the NEC must meet an additional set of requirements. These requirements are defined in UL Standard UL698.

**PANELS** that are not installed in a hazardous location, but have circuit extensions that go into hazardous locations, are covered by

UL698A. The hazardous locations covered by this standard are Class I, II, III Division I hazardous (classified) locations as defined by NEC article 500. The circuit extensions that go into hazardous locations are typically control circuits. This Standard requires the panel to include intrinsically safe and physical barriers for separation of the circuits that are going into the hazardous location.

**NEC ARTICLE 500** covers electrical requirements for equipment and wiring for hazardous (classified) locations, Class I, II, and III.

**NEC ARTICLE 409** is titled Industrial Control Panels and contains requirements for industrial control panels for general use. This article does contain references to other applicable NEC articles. For example article 409 references article 500 – 505 for equipment in Hazardous (classified) locations.

**THE NEC** may require equipment to be listed and labeled. This means that the product must be reviewed and approved by an organization that is acceptable to the authority having jurisdiction and meets other requirements spelled out in the NEC. Organizations such as UL, CSA, TUV, ETL and others meet these requirements. These organizations require the listed equipment to have a label which identifies the organization which provided the approval.

*A list of the major Standards Setting Organizations whose work impacts on SWPA, its members and the submersible wastewater pump industry appears on the following page:*

## **STANDARDS SETTING ORGANIZATIONS**

LISTED BELOW ARE THE MAJOR STANDARDS SETTING ORGANIZATIONS WHOSE WORK IMPACTS ON SUBMERSIBLE WASTEWATER PUMPS, LIFT STATIONS AND THEIR COMPONENTS AS WELL AS GRINDER PUMPS IN PRESSURE SEWERS FOR RESIDENTIAL AND COMMERCIAL APPLICATIONS AND THEIR COMPONENT PARTS AND ACCESSORIES. FOR ADDITIONAL INFORMATION ON APPLICABLE STANDARDS, CONTACT THESE ORGANIZATIONS DIRECTLY.

### **ASMA – AMERICAN SOCIETY OF MECHANICAL ENGINEERS**

Three Park Ave., New York, NY 10016-5990  
Phone: 212/591-8530 | Fax: 212/591-7196  
Web Site: [www.asme.org](http://www.asme.org)

### **ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE**

25 W. 43rd Street, 4th Floor, New York, NY 10036  
Phone: 212/642-4980 | FAX: 212/302-1286  
Web Site: [www.ansi.org](http://www.ansi.org)

### **AWWA – AMERICAN WATER WORKS ASSOCIATION**

666 West Quincy Avenue, Denver, CO 80235-3098  
Phone: 303/794-7711 | FAX ; 303/347-0804  
[www.awwa.org](http://www.awwa.org)

### **CSA – CANADIAN STANDARDS ASSOCIATION**

178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

Phone: 416/747-4000 | FAX: 416/747-4149

Web Site: [www.csa-intl.org](http://www.csa-intl.org)

*Conformance to applicable CSA Standards is required in Canada for virtual all Standards is required to sell in that country*

### **FM – FACTORY MUTUAL RESEARCH CORPORATION**

1151 Boston-Providence Turnpike, P. O. Box 9102  
Norwood, MA 02062

Phone: 781/762-4300 | FAX: 781/762-9375

Web Site: [www.fmglobal.com](http://www.fmglobal.com)

### **HI – HYDRAULIC INSTITUTE**

6 Campus Drive, 1st Floor North,  
Parsippany, NJ 07054-3802

Phone: 973/267-9700 | FAX: 973/267-9055

Web Site: [www.pumps.org](http://www.pumps.org)

### **IEEE – INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS, INC.**

445 Hoes Lane P.O. Box 1752, Piscataway, NJ 08855-1331

Phone: 800/678-IEEE (4333) | FAX: 732/981-9667

Web Site: [www.ieee.org](http://www.ieee.org)

### **MSS – MANUFACTURING STANDARDIZATION SOCIETY**

127 Park Ave., NE, Vienna, VA 22180

Phone: 703/281-6613 | FAX : 703/281-6671

Web Site: [www.mss-hq.org](http://www.mss-hq.org)

### **NEMA – NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION**

1300 North 17th Street, Suite 184, Rosslyn, VA 22209

Phone: 703/841-3200 | FAX: 703/841-5900

Web Site: [www.nema.org](http://www.nema.org)

### **NEC – NATIONAL ELECTRICAL CODE**

#### **PUBLISHED BY NFPA – NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**

P. O. Box 9101, 1 Batterymarch Park

Quincy, MA 02269-9101

Phone: 617/770-3000 | FAX: 617/770-0700

Web Site: [www.nfpa.org](http://www.nfpa.org)

### **NSF INTERNATIONAL**

P. O. Box 130140, NSF Building

789 N. Dixboro, Ann Arbor, MI 48105

Phone: 734/769-8010 | FAX: 734/769-0109

Web Site: [www.nfs.org](http://www.nfs.org)

### **UL – UNDERWRITERS LABORATORIES**

333 Pfingsten Road, Northbrook, IL 60062

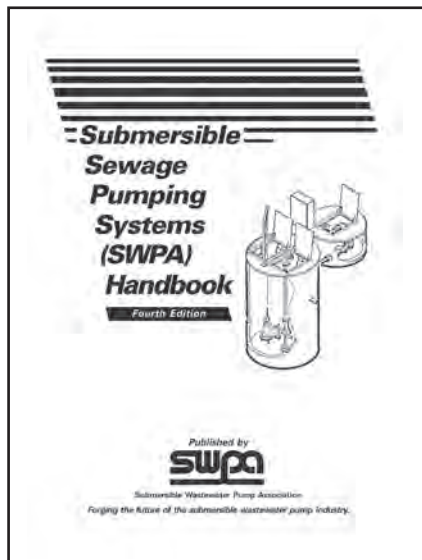
Phone: 847/272-8800 | FAX: 847/272-8129

Web Site: [www.ul.com](http://www.ul.com)

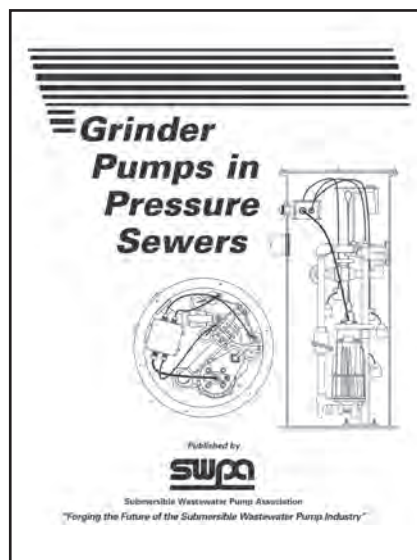
*Conformance to applicable UL Standards is required in the U. S. for virtually all installation.*

## **SWPA's Technical Resources**

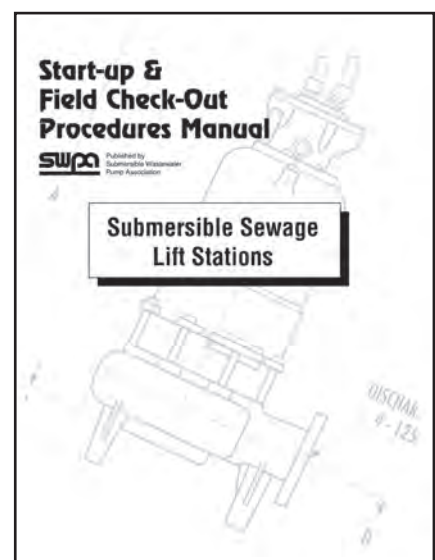
THERE ARE A NUMBER OF TECHNICAL RESOURCES AND INFORMATIONAL ITEMS YOU CAN USE TO LEARN MORE ABOUT SUBMERSIBLE WASTEWATER PUMPS AND THE SUBMERSIBLE WASTEWATER PUMP INDUSTRY; OBTAIN ESSENTIAL INFORMATION FOR SPECIFYING SUBMERSIBLE WASTEWATER PUMPS, AND ASSIST YOU WITH THE DESIGN, INSTALLATION, AND PROPER OPERATION OF SUBMERSIBLE WASTEWATER PUMPING SYSTEMS AND GRINDER PUMP STATIONS. THE MOST SIGNIFICANT OF THESE RESOURCES ARE PUBLISHED BY SWPA AND ARE DESCRIBED ON THE FOLLOWING PAGES.



THE “BIBLE” OF THE INDUSTRY SINCE 1984...THERE’S NO BETTER REFERENCE TOOL.



A MUST FOR UNDERSTANDING AND USING PRESSURE SEWER TECHNOLOGY.



A DISTINCTIVE “HOW TO” GUIDE WITH EXPLANATIONS FOR PERSONNEL IN THE FIELD.

## **SWPA's CURRENT TECHNICAL RESOURCES**

***For ordering information, see page 31.***

SWPA'S TECHNICAL RESOURCES, described below, are based on “*The Systems Approach*” to the Design, Construction, Maintenance and Operation of Lift Stations and Grinder Pump Stations.

### **SUBMERSIBLE SEWAGE PUMPING SYSTEMS (SWPA) HANDBOOK – 4TH EDITION**

THE *SWPA HANDBOOK* is a landmark publication. It presents fundamentals and addresses some of the more sophisticated aspects of submersible wastewater pump systems and their components. This unique publication presents more than 80 tables, charts, diagrams, photographs, and other visuals to greatly enhance its value.

A Glossary of System Terms and a Glossary of Electrical Terms are included.

Also included is a variety of resource materials, including friction loss tables for various pipe and fitting configurations and *SWPA's Standardized Presentation Format for Pump and Motor Characteristics* – an evaluation tool that presents the minimum data needed to evaluate using a specific pump for a specific application is also included.

*SWPA Handbook* is intended to familiarize and assist those responsible for designing, installing, and operating lift stations using submersible solids-handling pumping systems. It emphasizes the design, installation, and operation of a system of carefully integrated components.

*Here are descriptions of The Chapters, Glossaries, and Appendixes*

**Fundamentals and Components** – Wet wells. Types and sizes of stations. Site selection considerations.

**Sizing the System** – Planning the sewage system. How to size the lift station.

**Submersible Electric Motors** – These unique motors are designed to operate while the pump/motor assembly is fully submerged in liquid. This chapter addresses features of submersible pumps and important ratings and performance criteria of AC Squirrel Cage Induction motors.

**Selection of Submersible Pumps** – Submersible system components. Factors in selecting the right pump.

**Dry Pit Submersible Pumps** – General Description; Advantages; Applications; Pump Station Design; Pump Mounting Arrangements; and Electrical Design.

**Grinder Pumps and Pressure Sewers** – Applications. Advantages. Design criteria. Equipment. Construction. Operation and Maintenance.

**Controls for Submersible Pumps** – Power Supply; Voltages and Phases available and Why?; Standby Power Sources; Motor Controllers; Level Control Systems; Hazardous Area Applications; Operation Sequences, Auxiliary Equipment; Auxiliary Equipment; and Grinder Pump Controls.

**Variable Speed Pumping** – Basic information. Considerations and design guidelines about variable speed pumping and variable frequency drives. Descriptions of each contributing component of the variable speed pumping system, how it interacts with other components. Advantages and disadvantages of applying such a design to submersible pumping equipment.

**Valves for Pumping Systems** – Check valves, shut-off valves and air valves are important for the proper operation and maintenance of submersible wastewater lift stations. This chapter addresses the complex analysis of system operation and valve performance characteristics.

**Mechanical Controls and Components** – Valve types and uses. Selecting access covers.

**Installation, Start-Up, Operation and Maintenance** – Procedures and checklists for installations, start-up, periodic maintenance and troubleshooting.

**Glossaries** – System and electrical terms.

**Appendixes** – Pump and electrical system references, including friction loss tables.

### **GRINDER PUMPS IN PRESSURE SEWERS**

SINCE THE EARLY 1970S, pressures sewer systems have been an effective method to move residential wastewater through the small diameter pipes of a wastewater collection system where other methods are less economical and less feasible.

This SWPA Technical Resource is a must for understanding and using pressure sewer technology. It describes the use of pressure sewer technology to solve challenging wastewater disposal requirements where other methods may be less economically feasible or environmentally acceptable.

Extremely low operating and maintenance (O&M) costs have been documented. Data is now available from a plethora of successful systems -- some in operation since the early 1970s. By taking advantage of the experience which these systems offer, a new system can be planned which will provide excellent performance, high reliability, and reasonable O&M costs.

It describes:

- The keys to understanding the differences between conventional gravity sewer systems and pressure sewer systems, the piping network and the reduction of solids size in the wastewater. Pressure sewer systems use grinder pumps to reduce the solids present to particles, which can easily be moved through small diameter pipes.
- The use of pressure sewer system technology to solve challenging sewage disposal requirements where other methods may be less economically feasible or environmentally acceptable.
- How the application of grinder pumps and pressure sewer systems is a cost-effective, permanent answer to allow more sites, existing and new, to have access to a public sewer system.

Pressure sewer systems using grinder pumps are particularly useful in new construction of subdivisions and second home communities and in existing communities with aging septic tanks.

The problems of aging septic tanks and unsatisfactory soil conditions and an increased emphasis on environmental issues can be economically solved with pressure sewers. Pressure sewers are compatible with other collection system techniques.



- A General Description of Grinder Pumps in Pressure Sewers
- Advantages To Using Pressure Sewer Systems
- System Design Criteria
- Equipment Requirements
- Up Front Planning
- Installation and Start-Up
- Operations and Maintenance

IN ITS APPENDIX, *Grinder Pumps in Pressure Sewers* includes a Pressure Sewer Systems Glossary; Grinder Pump definitions, Drawings and Common Terminology; a Basin Installation Reference Guide, and an extensive Bibliography of additional sources of information about these products.

#### START-UP AND FIELD CHECK-OUT PROCEDURES MANUAL FOR SUBMERSIBLE SEWAGE LIFT STATIONS

This practical, 28-page Manual includes procedures for flow and performance evaluation based on equipment available.

Based on field research, SWPA's Technical Committee determined that a "how to" training guide with an explanation of "here's why you're doing it" for use when starting up a submersible sewage lift station was needed for personnel in the field. This Manual was developed in response to that need.

SWPA's *Start-Up and Field Check-Out Procedures Manual for Submersible Sewage Lift Stations* describes different levels of procedures, based on equipment typically available to start-up personnel in the field, to be used in conjunction with the pump manufacturers start-up and check-out document and *Pump Instruction and Operation Manual* – *not in place of it*.

It presents step-by-step procedures to put a lift station into service and lists start-up and check-out procedures at three separate levels, based on equipment available. These are:

- Using a Multimeter.
- Using a Multimeter and a Clamp-On Ammeter.
- Using a Voltmeter, a Clamp-On Ammeter, and a Megommeter.

It also presents:

- Procedures for flow and performance evaluations were also developed based on equipment available. *These procedures are:*

- Flow Evaluation Using a Watch Displaying Seconds
  - Performance (Flow and Head) Evaluation Using a Watch Displaying Seconds and a Pressure Gauge
- In addition to the step-by-step procedures to put a lift station into service, the Manual also includes:
- A listing of periodic station checks and inspections;
  - Notes on operation and maintenance,
  - A sample Start-Up Report Form,
  - A drawing showing a typical submersible pump station.
  - SWPA's *Common Terminology for the Components of a Typical Submersible Pump Station*;
  - Glossaries of System and Electrical Terms.
  - A listing of selected standards setting organizations.

**THE VERY VERSATILE SUBMERSIBLE** – This SWPA Training Video discusses some of the ways this proven machine serves pump specifiers and users throughout the world. It is...

- An eight-minute presentation that describes the versatile submersible as "*a finely tuned machine designed to operate within the liquid being pumped. It moves suspended solids as well as liquids. The submersible takes little space...operates at a high hydraulic efficiency ...and is easily maintained and serviced.*"
- A video training tool aimed at informing the viewer of the advantages and multiple uses of submersible wastewater pumping equipment.

Distributors, contractors, specifiers, users, wastewater facilities managers, regulatory agencies, standards setting organizations, classes at engineering schools, and others interested in learning more about submersible wastewater pumps for municipal and industrial applications can use "*The Very Versatile Submersible*" to provide sound background information or as a discussion starter.

**STANDARDIZED PRESENTATION FORMAT FOR PUMP AND MOTOR CHARACTERISTICS\*** – SWPA has developed a *Standardized Presentation Format for Pump and Motor Characteristics* for a pump or family of pumps.

The required information included in the presentation format is the minimum data needed by a specifier or designer to adequately evaluate using a specific submersible wastewater pump for a specific application.

**SWPA MEMBERS MAY USE** the Association's Logo with the designation ***“Approved Curve and Data Format”*** in conjunction with statements that their performance curve(s) provide a minimum number of data categories and the minimum design information as recommended by the Association. Pump manufacturers, at their discretion, may include additional information. SWPA assumes no responsibility for any other manufacturer claims made relating to the pump performance curve(s) or for the correctness of the information presented.

The following statement is to be included on any performance curve(s) carrying the SWPA Member Logo. *“SWPA Data Categories Presented – Data on this sheet supply design information as the minimum recommended by the Submersible Wastewater Pump Association (SWPA) and is defined in accordance with SWPA’s Standardized Definitions for Pump and Motor Characteristics. The accuracy of the data is the responsibility of (company name).”*

At the pump manufacturer’s choice, the presentation may be in a one-page or two-page format, including a performance curve(s) and the minimum pump and motor data design as recommended by SWPA.

Each company seeking approval to use the ***“Approved Curve and Data Format”*** logo, is required to file a formal application which includes a *Statement of Compliance*, attesting that the company’s Chief Engineer or Technical Manager: “Has reviewed our performance curve(s) and appropriate minimum data as prescribed by SWPA and to the best of our ability and knowledge all sheets for which we are seeking approval to display the SWPA Member Logo are in compliance with the SWPA recommendations for minimum data to be included and that the data is presented as defined by *SWPA’s Standardized Pump/Motor Definitions*.”

Each application and accompanying curve and data presentation is reviewed by the Association’s Technical Committee to insure that the minimum recommended data and information are included.

Those that meet the minimum requirements are then permitted to use the logo and accompanying

language, indicating conformance with the SWPA *Standardized Presentation Format*.

**BY USING THE SWPA Standardized Presentation Format**, pump manufacturers present data in a consistent arrangement so the designer or specifier can make an informed comparison between different brands or types of equipment. A major component of the presentation format is a series of *Standardized Pump/Motor Definitions* developed by the Association. They define the terms that the data represent. (*Motor characteristics terms are as defined by NEMA motors and generators No. MGI-1978, NEC-1990, IEEE Std. 100-1992.*)

**COMMON INDUSTRY TERMINOLOGY** – As part of its Common Terminology Project, SWPA has developed a “Master List” of System and Electrical definitions and a series of drawings with call-outs and accompanying nomenclature related to submersible wastewater pumps, submersible wastewater pump stations, and grinder pump stations:

- **SYSTEM TERMS AND DEFINITIONS<sup>1\*</sup>**
- **ELECTRICAL TERMS AND DEFINITIONS<sup>1\*</sup>**
- **COMMON TERMINOLOGY AND DEFINITIONS OF A TYPICAL SUBMERSIBLE LIFT STATION<sup>1\*</sup>**
- **COMMON TERMINOLOGY AND DEFINITIONS FOR A TYPICAL GRINDER PUMP STATION<sup>1</sup>**

**PRESS INFORMATION KIT ABOUT GRINDER PUMPS IN PRESSURE SEWERS\*** – SWPA’S Press Information Kit On Grinder Pumps in Pressure Sewer Systems includes a white paper entitled “A Pressure Sewer Overview – A Proven Approach to Moving Wastewater from One Point to Another”, a series of Frequently Asked Questions (FAQ’s) and answers about grinder pumps and pressure sewers, and a compilation of Grinder Pump Definitions, Drawings, and Common Terminology.

Grinder pumps are used to power small diameter pressurized sewer systems in areas where gravity piping is uneconomical or impractical. Grinder systems work especially well in hilly or rocky terrain. They sharply reduce construction and equipment costs.

In fact, grinder pumps make it possible to serve many developments and communities in terrain where service was previously impractical.

**THE WHITE PAPER’S EXECUTIVE SUMMARY** begins by saying: “For many years, pressure sewer systems have been an effective method to move residential wastewater through small diameter pipes to collec-

tion facilities where other methods are less economical or less feasible.”

The keys to understanding the differences between conventional gravity sewer systems and pressure sewer systems are the piping network and the reduction of solids size in the wastewater.

**THERE ARE 21 FAQs** (and answers) that include definitions, cost and power explanations, system descriptions, life expectancy and other topics of interest to engineers, builders, developers and homeowners. The definitions and drawings establish a common terminology for centrifugal and progressing cavity style grinder pumps.

**AN INTRODUCTION TO GRINDER PUMPS IN PRESSURE SEWERS\* (NEW)** – A generic Training Presentation designed to be used as an introduction to pressure sewer systems to educate engineers, builders, developers, homeowners, young consulting engineers inexperienced in grinder pump systems and system design, industry groups without knowledge of grinder pump systems and others.

**SUBMERSIBLE WASTEWATER PUMPING SYSTEMS USERS AND SPECIFIERS GUIDE** – A submersible wastewater lift station *Users' and Specifiers Guide* to SWPA's manufacturer members and the products they produce and sell and our Associate Members and the services they provide. It includes basic industry information as well as general information about the Association and its programs and services.

It includes member company listings by category – Pump Manufacturers, Component Manufacturers, and Associate Members. Each member company listing includes the company's main address, phone number, fax number, Web Site, Product and Service Codes, as well as sales and technical contact information for each company with phone numbers and e-mail addresses.

**THE SWPA Membership Roster and Product Reference Guide** also includes advertising from member companies, information about the current and planned Technical Resources published by the Association, and our unique educational and training programs – all based on “*The Systems Approach*.”

*Additional copies are available upon request from SWPA Headquarters or on [www.swpa.org](http://www.swpa.org).*

---

*\* These items are downloadable from the SWPA Web Site at [www.swpa.org](http://www.swpa.org)*

*1. SWPA recognizes and acknowledges that there is other appropriate nomenclature for many of these terms and terminology. However, to coordinate and insure the consistency of terms, terminology and definitions within all SWPA publications as well as between SWPA publications and accepted Industry Standards and guidelines, the Association uses terms, terminology, and definitions from this “Master List”.*

## SWPA TECHNICAL RESOURCES UNDER DEVELOPMENT

**T**O EXPAND its publishing efforts to meet the current, ongoing, and future needs of the industry it serves, and in accordance with its strategic initiatives, SWPA is developing new Technical Resources based on “*The Systems Approach*.”

Submersible wastewater pump stations contain a number of complex interdependent components that must be properly matched to each other to ensure long, satisfactory and economic life.

**BECAUSE OF THIS NEED**, when in print each of these publications will present fundamentals with an emphasis on the design, construction, installation, operation and maintenance of a *system* of carefully integrated components. Using this approach will assist consulting engineers, specifiers, users, and others gain a better understanding of the interaction between the pump, valves, control panels, VFDs, basins, mechanical seal materials and other com-

ponents and how they interact to produce a *system* to create optimum performance, minimum maintenance, and long life.

**Visit the SWPA Web Site at [www.swpa.org](http://www.swpa.org) for information and special pre-publication offers on these Technical Resources as they near publication.**

**SUBMERSIBLE SEWAGE PUMPING SYSTEMS (SWPA) HANDBOOK 4TH EDITION** – with over 30,000 copies sold world wide, the 4th Edition of “The Industry Bible” was released in the fourth quarter of 2012. It includes a new chapter on Motors, expanded information on the Fundamentals & Components to “The Systems Approach,” updated information on Selection of Submersible Pumps, a completely new chapter on Grinder Pumps in Pressure Sewers, updated charts, tables and more. Look for a version in Spanish coming soon. An e-book version is also available at the Association's website, [www.swpa.org](http://www.swpa.org).

**SUBMERSIBLE SEWAGE PUMPING SYSTEMS (SWPA) HANDBOOK – CONDENSED EDITION** – A tutorial/guideline, based on the *Submersible Sewage Pumping Systems (SWPA) Handbook, 4th Edition* that will serve as an introduction to the design and proper application of submersible wastewater pumps and the many inter-dependent components and accessories that are used in solids-handling lift stations and grinder pump stations. It promotes an increased understanding of submersible pump design and the proper application of these products.

**SYSTEM COMPONENT GUIDELINES** (*separate publications on major components in a wastewater pumping system*) – SWPA initiatives also call for creating a series of publications based on the Association's established product codes and "*The Systems Approach*," that will be performance based tutorials/guidelines for designing, installing, operating, and maintaining the major components in a submersible wastewater pumping system. These publications will provide descriptive information on the components in the system and how those components interact with, impact upon, and affect each other, including equipment guidelines, in a standardized format. Each publication in the series will utilize components of the SWPA Common Terminology Project.

These publications will be tutorial/ guidelines, providing the reader with specific information about "*What you need to know when specifying, designing, constructing, operation and maintaining*" the inter-dependent components in a submersible wastewater systems.

They will present fundamentals with an emphasis on the design, construction, installation, operation, and maintenance of a *system* of carefully integrated components and will contain technical and specialized information intended to be used by professionals who design, install, operate, and maintain submersible wastewater pump stations; qualified design engineers, professional installers; and others.

**SUBMERSIBLE WASTEWATER PUMPING SYSTEMS MANUAL** (*Engineering, Applications and Component Integration for Use in Submersible Wastewater Pump Stations*) – This upcoming SWPA Technical Resource will be a comprehensive manual covering all aspects of a submersible wastewater pumping system, including the entire design, operation, and maintenance of a lift station and will be based on "*The Systems Approach*."... and a compilation of SWPA's Technical Resources – including reference materials, guidelines, tutorials, training materials, and other informational items.

## **NOTES ON OPERATION AND MAINTENANCE**

**R**egular inspection and preventive maintenance will insure continued, reliable operation of the entire submersible pump station. All stations, pumps, and operating equipment should be inspected at least once a year, and more frequently under severe operating conditions. All equipment in the station should be backed by manufacturers' service manuals. This material should be carefully read and filed and should be consulted whenever servicing is required.

In conducting regular inspections and preventative maintenance, be sure to follow the manufacturer's recommendations (pump, control panels, valves, etc.).

Note and read all safety precautions before performing any operation or maintenance procedure and take appropriate safety precautions to minimize the risk of accidents in connection with any service work.

Before starting work, make sure the pump and the control panel are isolated from the power supply and that neither can be energized.

*Like all products using electrical current, submersible wastewater pumps can result in harm if not used with **extreme caution** and in strict accordance with the manufacturer's instructions and in accordance with local building codes and ordinances.*

For additional information on Operation and Maintenance, including: A "Trouble Checklist" of common problems and their probable causes, Safety Precautions and Recommended Inspections consult *Submersible Sewage Pumping Systems (SWPA) Handbook – 4th Edition*.



# SWPA TECHNICAL RESOURCES ORDER FORM

(YOU MAY ALSO ORDER ONLINE @ [WWW.SWPA.ORG](http://WWW.SWPA.ORG))

**DISCOUNTS ARE AVAILABLE FOR NON-MEMBER ORDERS OF 25 OR MORE COPIES AND TO EDUCATIONAL INSTITUTIONS FOR ANY SWPA TECHNICAL RESOURCE. FOR INFORMATION ON THESE DISCOUNTED PRICES, CONTACT SWPA HEADQUARTERS.**

**RETURN THIS COMPLETED ORDER FORM, ALONG WITH YOUR CHECK OR CREDIT CARD INFORMATION TO:**

**SUBMERSIBLE WASTEWATER PUMP ASSOCIATION**

**350 NORTH LASALLE STREET, 9TH FLOOR • CHICAGO, IL 60654**

**FOR INFORMATION, CALL (847.681.1868) • FAX (312.475.9022) OR E-MAIL ([SWPAEXDIR@SBCGLOBAL.NET](mailto:SWPAEXDIR@SBCGLOBAL.NET))**

**PAYMENT IN U. S. FUNDS MUST ACCOMPANY THIS ORDER. ALLOW 1 WEEK FOR DELIVERY.**

Send me \_\_\_\_\_ copy (ies) of the ***Submersible Sewage Pumping Systems (SWPA) Handbook Fourth Edition*** @ \$36.95 per copy plus \$5.00 shipping and handling per copy for U.S. Shipments (\$7.00 per copy for Canadian shipments.\*)

Send me \_\_\_\_\_ copy (ies) of the ***Grinder Pumps in Pressure Sewers*** @ \$10.95 per copy plus \$4.00 shipping and handling per copy for U.S. Shipments (\$6.00 per copy for Canadian shipments.\*)

Send me \_\_\_\_\_ copy (ies) of the ***Start-Up and Field Check-Out Procedures Manual for Submersible Sewage Lift Stations*** @ \$5.00 per copy plus \$3.00 shipping and handling per copy for U.S. Shipments (\$4.50 per copy for Canadian shipments.\*)

***\* Contact SWPA Headquarters for S&H costs to other destinations. Standard shipments are sent via USPS. Overnight and 2nd Day Air shipping available at an additional charge. Contact SWPA headquarters for details.***

**Incomplete or incorrect information can delay shipments.**

My check for \$ \_\_\_\_\_ is enclosed.

Name \_\_\_\_\_

Company \_\_\_\_\_

Street Address (No P.O. Boxes, Please) \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Phone (AC \_\_\_\_ ) \_\_\_\_\_

E-mail \_\_\_\_\_ Date \_\_\_\_\_

## **For Credit Card Purchases:**

☐ Charge my credit card \$ \_\_\_\_\_

Type of Card: ☐ Visa ☐ Mastercard ☐ AMEX ☐ Discover

Name on Card \_\_\_\_\_

Address on Card Account \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Account # \_\_\_\_\_

Exp. Date \_\_\_\_\_ Security Code \_\_\_\_\_

**To better serve you, please check the appropriate box(es) describing your company:**

☐ Consulting Engineer

☐ Distributor

☐ Rep Organization

☐ Service Shop

☐ Systems Packager

☐ Pump Manufacturer

☐ Component Manufacturer

☐ User

☐ Educational Institution

☐ Other (Please Specify):

\_\_\_\_\_

## **PUMP MANUFACTURER MEMBERS**

**SWPA's PUMP MANUFACTURER MEMBERS ARE MANUFACTURERS OF SUBMERSIBLE WASTEWATER PUMPS FOR MUNICIPAL AND INDUSTRIAL APPLICATIONS THAT CAN EFFICIENTLY HANDLE SOLIDS.**

---

### **CRANE PUMPS & SYSTEMS**

**420 Third Street, Piqua, OH 45356**

**Phone: 937/214-5325 ■ FAX: 937/773-9715**

Web Site: [www.cranepumps.com](http://www.cranepumps.com)

*Products:* CP, DP, GP, IP, SH, TP, OP (Sewage Injector and Effluent Pumps), AC, AT, BS, CC, CH, CP, CT, EM, GR, LA, PC, PM, PS, PB, SE, SS, VA, VFD, WW, OO (Liquid Level Controls)

*Sales Contact:* Walt Erndt, VP/GM.

937/778-3504. FAX: 937/778-5969.

[werndt@cranepumps.com](mailto:werndt@cranepumps.com)

---

### **EBARA**

**1651 Cedar Line Drive, Rock Hill, SC 29730**

**Phone: 803/327-5005 ■ FAX: 803/327-5097**

Web Site: [www.pumpsebara.com](http://www.pumpsebara.com)

*Products:* CP, DP, GP, IP, SH, OP

*Sales Contact:* Wes Haskell, Director of Sales.

803/327-5005. [whaskell@pumpsebara.com](mailto:whaskell@pumpsebara.com)

---

### **ENVIRONMENT ONE CORPORATION**

**2773 Balltown Road, Niskayuna, NY 12309**

**Phone: 518/346-6161 ■ FAX: 518/346-6188**

Web Site: [www.eone.com/sewer](http://www.eone.com/sewer)

*Products:* GP, CT

*Sales Contact:* Chris Greco, Director of Sales.

[cgreco@eone.com](mailto:cgreco@eone.com)

*Technical Contact:* Clark Henry, VP of Engineering.

[chenry@eone.com](mailto:chenry@eone.com)

---



---

### **FRANKLIN ELECTRIC (LITTLE GIANT)**

**9255 Coverdale Rd., Fort Wayne, IN 46809**

**Phone: 888/885-8989 ■ FAX: 260/827-5654**

Web Site: [www.franklinengineered.com](http://www.franklinengineered.com) /

[www.littlegiant.com](http://www.littlegiant.com)

*Products:* CP, GP, IP, SH, AC, AT, BS, CC, CP, CT, GR, LA, PC, PM, PB, SE, SS, VA, VFD

*Sales Contact:* Chris Nelson, Director Sales.

260/827-5491. [chris.nelson@fele.com](mailto:chris.nelson@fele.com)

*Technical Contact:* Amy Rainer, Product Manager-Engineered Products.

405/440-1403. [arainer@fele.com](mailto:arainer@fele.com)

*Technical Contact Little Giant:* Randy Tucker, Sr.

Business Portfolio Manager,

405/440-1347. [rtucker@fele.com](mailto:rtucker@fele.com)

---

### **THE GORMAN RUPP CO.**

**600 S. Airport Rd., Mansfield, OH 44903**

**Phone: 419/755-1011 ■ FAX: 419/755-1251**

Web Site: [www.grpumps.com](http://www.grpumps.com)

*Products:* DP, IP, SH, OP (self-priming centrifugal, rotary gear), CP, CT, LA

*Sales Contact:* Vince Baldasare, Sales Manager, Engineered Systems. 419/755-1271.

FAX: 419/755.1208. [vbaldasare@gormanrupp.com](mailto:vbaldasare@gormanrupp.com)

*Technical Contact:* Vince Baldasare

---

### **GOULDS WATER TECHNOLOGY A XYLEM BRAND**

**2811 East Bayard Street, Suite A**

**Seneca Falls, NY 13148**

**Phone: 315/239-2980 ■ FAX: 315/568-7644**

Web Site: [www.completewatersystems.com](http://www.completewatersystems.com)

*Products:* CP, GP, IP, SH, TP, AC, AT, BS, CC, CP, CT, EM, GR, LA, PS, PB, SE, SS, VA, VFD, WW

*Sales Contact:* William Gell, Product Manager, Wastewater. 315/239-7004.

[william.gell@xyleminc.com](mailto:william.gell@xyleminc.com)

*Technical Contact:* Joe Steinberg, Assistant Product Manager, Wastewater. 315/239-2419.

[joe.steinberg@xyleminc.com](mailto:joe.steinberg@xyleminc.com)

---

**GRUNDFOS/WATER UTILITY****3905 Enterprise Court****Aurora, IL 60504****Phone: 630/236-5500 ■ FAX: 630/236-5511**Web Site: [www.grundfos.com](http://www.grundfos.com)*Products:* CP, DP, IP, SH, AC, BS, CC, CP, CT, EM, GR, LA, PM, PB, WW*Sales Contact:* Rob Montengro, Vice PresidentSales. [rmontengro@grundfos.com](mailto:rmontengro@grundfos.com)*Technical Contact:* Russell Smith, Business Development Manager, Wastewater. 224/500-6388  
[rusmith@grundfos.com](mailto:rusmith@grundfos.com)**HOMA PUMP TECHNOLOGY****Fountain Lake Commerce Park, 390 Birmingham Blvd., Ansonia, CT 06401****Phone: 203/736-8890 ■ FAX: 203/736-8899**Web Site: [www.homapump.com](http://www.homapump.com)*Products:* CP, DP, GP, SH, OP, CH, AC, BS, CC, CP, CT, EM, GR, LA, PB, SE, SS, VA*Sales Contact:* John Lord, National Sales & Business Development Manager.[JLord@homapump.com](mailto:JLord@homapump.com)*Technical Contact:* Ryan Sura, Senior Application Engineer. [RSura@homapump.com](mailto:RSura@homapump.com)**KSB, INC.****4415 Sarellen Road, Richmond, VA 23231****Phone: 804/222-1818 ■ FAX: 804/226-6961**Web Site: [www.ksb.us.com](http://www.ksb.us.com)*Products:* AP, CP, DP, GP, IP, SH, TP, O (Mixed Flow Submersible)*Sales Contact:* Sherry Heinly, North America Region Marketing Manager, Ext. 8353[sherry.heinly@ksb.com](mailto:sherry.heinly@ksb.com)*Technical Contacts:* Andre Saravalli, Product Manager, [andre.saravalli@ksb.com](mailto:andre.saravalli@ksb.com).Luis Maturana, Vice President of Water and Wastewater. [luis.maturana@ksb.com](mailto:luis.maturana@ksb.com)**LIBERTY PUMPS, INC.****7000 Apple Tree Avenue, Bergen, NY USA 14416****Phone: 800/543-2550 ■ FAX: 585/494-1839**Web Site: [www.libertypumps.com](http://www.libertypumps.com)*Products:* CP, GP, SH, OP, AC, AT, BS, CP, CT, GR, LA, PB, SH, WW*Sales Contacts:* Paul Lahr, National Sales ManagerEngineered Products. [paul.lahr@libertypumps.com](mailto:paul.lahr@libertypumps.com)

Randall Waldron, VP of Sales and Marketing.

[randy.waldron@libertypumps.com](mailto:randy.waldron@libertypumps.com)

Jeff Goodenberry, Technical Customer Service Supv.

[jeffrey.goodenberry@libertypumps.com](mailto:jeffrey.goodenberry@libertypumps.com)

Dave Williams, Director of Engineering

[david.williams@libertypumps.com](mailto:david.williams@libertypumps.com)**MODY PUMPS, INC.****2166 Zeus Ct., Bakersfield, CA 93308****Phone: 661/392-7600 ■ FAX: 661/392-7601**Web Site: [www.modypump.com](http://www.modypump.com)*Products:* AP, CP, DP, GP, IP, SH, TP, OP*Sales Contact:* Randy Crawford, Director of Business Development. Phone: 541/610-4749[randy@modypump.com](mailto:randy@modypump.com)*Technical Contact:* Alex Clemente, Product Design Engineer. [alex@modypump.com](mailto:alex@modypump.com)**PENTAIR****5500 Wayzata Blvd., Minneapolis, MN 55416-1261****Phone: 763/545-1730 ■ FAX: 763/656-5400**Web Site: [www.pentair.com](http://www.pentair.com)*Products:* AP, AC, BS, CP, DP, GP, IP, SH, TP, OP, CC, CH, CT, EM, GR, LA, PC, PM, PB, SE, SS, VA, VFD, VW*Sales Contact:* Jason Goldberg, North America Sales Director. 612/244-9842. [jason.goldberg@pentair.com](mailto:jason.goldberg@pentair.com)*Technical Contact:* Roger Turley, Senior Director Engineering. 612/244-9842.[roger.turley@pentair.com](mailto:roger.turley@pentair.com)

Brian Alexander, Product Marketing Manager.

262/728-7566. [brian.alexander@pentair.com](mailto:brian.alexander@pentair.com)**SULZER****140 Pond View Drive, Meriden, CT 06450****Phone: 203/238-7000 ■ FAX: 203/514-4364**Web Site: [www.sulzer.com](http://www.sulzer.com)*Products:* AP, CP, DP, GP, IP, SH, AC, BS, CP, CT, GR, LA, PC, PM, PB, SE, SS*Sales Contacts:* Robert Wright, National Distribution Manager. 203/443-3786[Robert.wright@sulzer.com](mailto:Robert.wright@sulzer.com)*Technical Contact:* Chris Olofsson, Product & Aftermarket Engineering Manager. 203/514-4294[Christopher.olofsson@sulzer.com](mailto:Christopher.olofsson@sulzer.com)**VAUGHAN COMPANY, INC.****364 Monte Elma Road, Montesano, WA 98563****Phone: 360/249-4042 ■ FAX: 360/249-6155**Web Site: [www.chopperpumps.com](http://www.chopperpumps.com)*Products:* CP, DP, IP, SH, OP, AC, CP, CT, EM, GR, LA, PC, VFD*Sales Contact:* Stephanie Vaughan. Ext. 227.[stephanie@chopperpumps.com](mailto:stephanie@chopperpumps.com)

**WEIL PUMP, A WILO COMPANY**

W57 N14363 Doerr Way, P.O. Box 887  
Cedarburg, WI 53012

Phone: 262/377-1399 ■ FAX: 262/377-0515

Web Site: [www.weilpump.com](http://www.weilpump.com)

Products: CP, DP, GP, IP, SH, AC, AT, BS, CC, CP, CT, EM, GR, LA, PM, SE, SS, VA, VFD, WW

Sales Contact: Doug James, Sales Manager.

262/377-1399. [doug.james@wilo-usa.com](mailto:doug.james@wilo-usa.com)

Technical Contact: Tim Bade, Technical Sales Manager.

262/377-1399. [tim.bade@wilo-usa.com](mailto:tim.bade@wilo-usa.com)

**WILO USA LLC**

9550 W. Higgins Rd., Suite 300

Rosemont, IL 60018

Phone: 888/945-6872 ■ FAX: 888/945-6873

Web Site: [www.wilo-usa.com](http://www.wilo-usa.com)

Products: CP, DP, GP, IP, SH, OP, CP, CT, EM, VA, VFD

Sales Contact: Joe Jackson, Director of Sales.

801-699-6004. [joe.jackson@wilo-usa.com](mailto:joe.jackson@wilo-usa.com)

Technical Contact: Nick Morris, Application Sales Engineering Manager.

229-584-0244. [nick.morris@wilo-usa.com](mailto:nick.morris@wilo-usa.com)

**XYLEM FLYGT PRODUCTS**

14124 South Bridge Circle, Charlotte, NC 28273

Phone: 704/409-9750 ■ FAX: 704/409-9800

Web Site: <http://www.flygt.com/en-us> or [www.xyleminc.com/us](http://www.xyleminc.com/us)

Products: AP, CP, DP, GP, IP, SH, TP, OP (Choppers) AC, BS, CC, CP, CT, GR, LA, PM, PB, SS, VA, VFD, WW

Sales Contacts: Julia Beilsmith, Market Manager.

[julia.beilsmith@xyleminc.com](mailto:julia.beilsmith@xyleminc.com)

Kristel Zaman, Senior Marketing Manager.

[kristel.zaman@xyleminc.com](mailto:kristel.zaman@xyleminc.com)

**ZOELLER ENGINEERED PRODUCTS**

3649 Cane Run Road, Louisville, KY 40211-1961

Phone: 800/928-7867 ■ FAX: 502/774-3624

Web Site: [www.zoellerengineered.com](http://www.zoellerengineered.com)

Products: CP, DP, GP, SH, AC, AT, BS, CT, GR, LA, PB, PS, SS, VA, WW

Sales Contact: Deron Oberkorn, Product Line

Manager. Ext. 8258. [derono@zoeller.com](mailto:derono@zoeller.com)

Technical Contact: Steve Doolittle, Product

Marketing Manager. Ext. 8215. [steved@zoeller.com](mailto:steved@zoeller.com)

## **PERIODIC STATION CHECKS AND INSPECTIONS**

**W**eekly station checks should be performed and data recorded in the Station Log Book. Certain visual inspections should be made, amperage readings should be taken and recorded, and megohmmeter checks should be made.

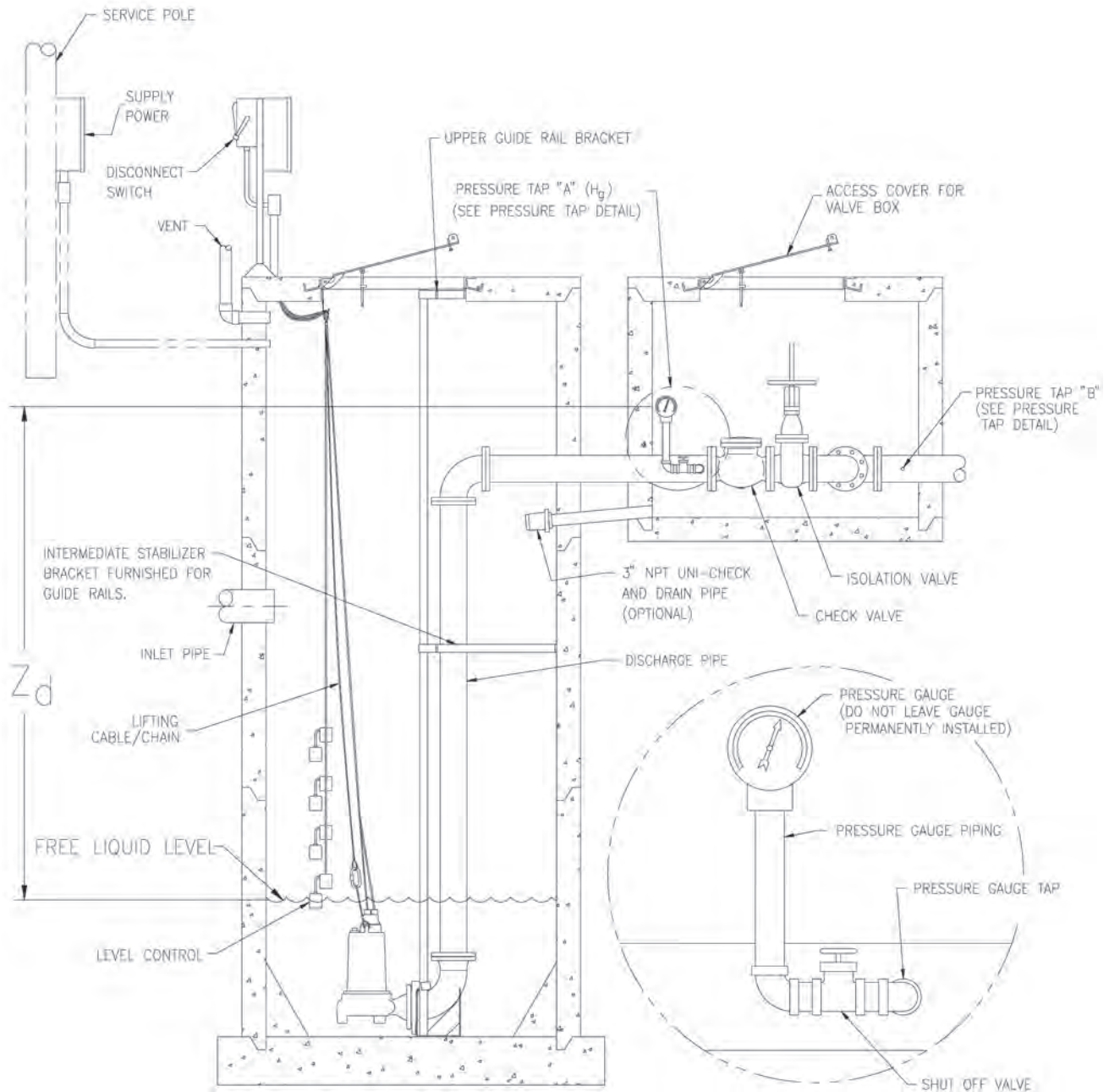
It is recommended that a *Station Log Book* be created to record and maintain this data, based on the needs and specifics of the individual station. There is no universally accepted format for a Station Log Book and no pre-formatted forms for recording station data. *Whatever format is used, it is recommended that the Station Log Book be kept at the station in the control panel.*

A daily planner type book, available in most office supply stores, offers an ideal format for a *Station Log Book*. For most stations, a standard, wirebound book, 4-7/8" x 8" page size, dated for a full year, with one weekday per page, Saturday and Sunday combined, is sufficient.

This format and size is ideal to use for recording station information and maintaining a record of periodic maintenance done on the station.

The lined format allows space for comments about the station's operation which need to be noted. This might not be easily accomplished on a pre-formatted form. The value of the *Station Log* is in consistently utilizing the book and noting all important information so it can be used for analysis and comparison.

# TYPICAL SUBMERSIBLE PUMP STATION



PRESSURE TAP DETAIL



## **COMPONENT MANUFACTURER MEMBERS**

**COMPONENT MANUFACTURER MEMBERS ARE MANUFACTURERS OF COMPONENT PARTS AND ACCESSORY ITEMS FOR SUBMERSIBLE WASTEWATER PUMPS AND SYSTEMS UTILIZING SUCH PUMPS.**

---

### **CHESTERTON**

**860 Salem Street, Groveland, MA 01834**

**Phone: 978/469-6326**

Web Site: [www.chesterton.com](http://www.chesterton.com)

Sales Contact: John Sousa, OEM Business  
Development Manager – Central U.S.

978/764-8757. [sousajd@chesterton.com](mailto:sousajd@chesterton.com)

---

### **CONERY MFG. INC.**

**1380 Enterprise Parkway, Ashland, OH 44805**

**Phone: 419/289-1444 ■ FAX: 419/281-0366**

Web Site: [www.conerymfg.com](http://www.conerymfg.com)

*Products:* GR, LA

Sales Contact: Tim Swaisgood, General Manager.  
[tswaisgood@conerymfg.com](mailto:tswaisgood@conerymfg.com)

Chris Shafer, Vice President

[cshafer@conerymfg.com](mailto:cshafer@conerymfg.com)

---

### **FLOMATIC CORPORATION**

**15 Pruyn's Island Drive, Glens Falls, NY 12801**

**Phone: 518/761-9797 ■ FAX: 518/761-9798**

Web Site: [www.flomatic.com](http://www.flomatic.com)

*Products:* VA

Sales Contact: Nick Farrara, Vice President of Sales.  
518/761-9797, Ext. 204. FAX: 518/761-9798.  
[nick@flomatic.com](mailto:nick@flomatic.com)

*Technical Contact:* Brian Allen, Design Engineer.  
518/761-9797, Ext. 238. FAX: 518/761-9798.  
[allen@flomatic.com](mailto:allen@flomatic.com)

---

### **MOTOR PROTECTION ELECTRONICS (MPE)**

**2464 Vulcan Road, Apopka, FL 32703**

**Phone: 407/299-3825 ■ FAX: 407/294-9435**

Web Site: [www.mpeelectronics.com](http://www.mpeelectronics.com)

*Products:* AT, CP, LA, PM

Sales Contact: John Evans, President.

[john\\_evans@mpeelectronics.com](mailto:john_evans@mpeelectronics.com)

*Technical Contact:* Chris Parker, Engineering  
[chris\\_parker@mpeelectronics.com](mailto:chris_parker@mpeelectronics.com)

---

---

### **OHIO ELECTRICAL CONTROL, INC.**

**2395 Rock Rd., Ashland, OH 44805**

**Phone: 419/289-1553 ■ FAX: 419/289-5555**

Web Site: [www.oecinc.net](http://www.oecinc.net)

*Products:* AT, CP, CT, LA, PC, PM, SS, VFD, OO

*Sales Contact:* Bob McMullen, President.

[bob@oecinc.net](mailto:bob@oecinc.net)

Jennay Cacchio, Vice President.

419/289-1553. [jennay@oecinc.net](mailto:jennay@oecinc.net)

*Technical Contact:* Dave Baker, Engineering  
Manager. 419/289-1553. [dave@oecinc.net](mailto:dave@oecinc.net)

*Sales:* Leslie Blankenship, Vice President.

[leslie@oecinc.net](mailto:leslie@oecinc.net)

---

### **SJE RHOMBUS**

**22650 County Highway 6, P.O. Box 1708**

**Detroit Lakes, MN 56502**

**Phone: 888/434-5753 ■ FAX: 218/847-4617**

Web Site: [www.sjrhombus.com](http://www.sjrhombus.com)

*Products:* AT, CP, CT, LA, PC, PM, SS, VFD

*Sales & Technical Support:* Jeremy Drinkwine,  
Custom Panel Business Development.

Office: 218/847-1317 Ext. 3345, Cell: 218/850-2491  
[jeremy.drinkwine@sjeinc.com](mailto:jeremy.drinkwine@sjeinc.com)

---

### **ROCKWELL AUTOMATION, INC.**

**1201 South Second St., Milwaukee, WI 53204**

**Phone: 414/382-2000**

Web Site: [www.rockwellautomation.com/  
industries/water](http://www.rockwellautomation.com/industries/water)

*Products:* CP, CT, VFD

*Sales Contact:* Christa Bankay, Commercial Project  
Manager. 519/244-5320. [cdbankay@ra.rockwell.com](mailto:cdbankay@ra.rockwell.com)

*Technical Contact:* Kelvin Hurdle, W/WW  
Industrial Manager. 602/697-7372

[kjhurdle@ra.rockwell.com](mailto:kjhurdle@ra.rockwell.com)

---

---

**SCHNEIDER ELECTRIC / SQUARE D**

**8001 Knightdale Blvd., Knightdale, NC 27545**

**Phone: 919/217-6464 ■ FAX: 919/266-4460**

Web Site: [www.schneider-electric.us/pump](http://www.schneider-electric.us/pump)

*Products:* CP, CT, PC, PM, VFD, OO (Variable frequency drives, soft starters, motor starters, circuit breakers, disconnects, programmable logic controllers, sensors and other electrical and electronic devices used in conjunction with the submersible pump industry.)

*Segment Contact:* Jack Creamer, Segment Manager-Pumping Equipment. 919/949-3018 or [jack.creamer@schneider-electric.com](mailto:jack.creamer@schneider-electric.com)

*Sales Contact:* Michael Gaza, Business Development Manager-Pumping Equipment. 484/248-0497 or [michael.gaza@schneider-electric.com](mailto:michael.gaza@schneider-electric.com)

*Technical Contact:* Jo Lockard, Application Development Manager. 919-266-8818  
[jo.lockard@schneider-electric.com](mailto:jo.lockard@schneider-electric.com)

---

**TOPP INDUSTRIES INC.**

**P.O. Box 420, Highway 25 North**

**Rochester, IN 46975**

**Phone: 800/ 354-4534 ■ FAX: 574/223-6106**

Web Site: [www.toppindustries.com](http://www.toppindustries.com)

*Products:* AC, BS, GR, LA, PS, PB, SE, WW, OO (Structural Foam Basins and Prefabricated Lift Stations)

*Sales Contacts:* Ed Kelso, Sales.

574/224-8653. [ekelso@toppindustries.com](mailto:ekelso@toppindustries.com)

*Technical Contact:* Judy Terry, Engineered Sales and Customer Service. 574/224-8653.  
[jterry@toppindustries.com](mailto:jterry@toppindustries.com)

---



---

**VAL-MATIC VALVE & MFG. CORP.**

**905 Riverside Drive, Elmhurst, IL 60126**

**Phone: 630/941-7600 ■ FAX: 630/941-8042**

Web Site: [www.valmatic.com](http://www.valmatic.com)

*Products:* VA

*Sales Contact:* Diane Meyer, Marketing Manager. 630/993-4022. FAX: 630/993-4087

[dmm@valmatic.com](mailto:dmm@valmatic.com)

*Technical Contact:* Ed Gardner, Account Manager. 630/993-4018. FAX 630/941-8042  
[edg@valmatic.com](mailto:edg@valmatic.com)

---

## SWPA's INDUSTRY "COMMUNITY"

**S**WPA created its Associate Member category (non-manufacturers) because the Association understands that it is in need of balanced input from the entire submersible wastewater pumping system "community" and that distributors, reps, consulting and specifying engineering firms, service stations, systems packagers, publishers, and others providing services related to Industry Products\* and/or who provide services to users of Industry Products represent a vitally important segment of this "community."

The "community of interest" and influence associated with these products is much larger than the manufacturers of the pumps and the component parts and accessories for lift stations and grinder pump stations.

To continue to be successful in today's rapidly changing business environment, associations like SWPA need broad-based input to make sound decisions and to ensure that its programs and services meet not only its members' expectations but also market expectations.

To assist in promoting the interests of the entire industry, Associate Members are invited to serve on SWPA's committees, subcommittees, and working groups where their knowledge, expertise, and input are vital in creating balanced educational and training products.

Their participation in these programs and activities broadens SWPA's perspective of to the full submersible wastewater pump industry supply chain, the

---

**SWPA CREATED ITS ASSOCIATE MEMBER CATEGORY BECAUSE THE ASSOCIATION UNDERSTANDS THAT IT IS IN NEED OF BALANCED INPUT FROM THE ENTIRE SUBMERSIBLE WASTEWATER PUMPING SYSTEMS "COMMUNITY" AND THAT NON-MANUFACTURERS REPRESENT A VITALLY IMPORTANT SEGMENT OF THIS "COMMUNITY."**

---

community of interest and including end-users; to broaden influence associated with submersible wastewater pumps; and to bring new resources and experience to the Association and help achieve a better balance of interest.

This is of particular importance as SWPA develops additional Standards, industry guidelines, educational training programs, and technical publications in accordance with its strategic initiative to promote *"The Systems Approach"*.

### THE ROLE OF THE DISTRIBUTOR

One of the principal players in this "community" is the distributor (or sometimes referred to as the rep), who plays a vital role in the application, sale, and service of submersible wastewater pumps.

Distributors don't manufacture pumps and they may or may not install pumps, but their role is nonetheless a vital one in our market. It is the responsibility of the distributor to sell pumps and (end users, installer, etc.).

Distributors target a predeter-

mined geographic market area or industry segment as agreed upon between the distributor and the manufacturer(s) they represent. Traditionally, the most profitable relationships are those with exclusivity of representation.

Through strong distribution, a manufacturer can reach vast markets armed with the local knowledge and other intangibles outlined below without in-house overhead of a direct sales force. The costs of the sales process is primarily shouldered by the distributor during the pursuit of the sale, thus allowing the manufacturer to invest more heavily in product development and production improvements.

Distributors earn sales (and therefore profits) through the proper application of their resources which include engineering principles (mechanical, hydraulic, chemical, and electrical), local system knowledge (historical as well as predictive), successful relationships (with engineers, contractors, owners, etc.), and specific product capabilities (by brand, style, etc.).

The distributor relies upon these intangibles (intellectual properties) to secure sales of tangible products. In a market that seems commodity driven, wastewater pump sales are still an engineered field.

---

*\* For membership purposes, SWPA defines Industry Products as: Industry Products are defined as submersible wastewater pumps that can efficiently handle solids.*



## **ASSOCIATE MEMBER LISTINGS**

**Associate Members are non-manufacturers providing services related to Industry Products and/or who provide services to users of industry products.**

### **ALLEN'S ELECTRICAL & PLUMBING**

225 JC Cannady Rd., Statesboro, GA 30458

Phone: 912/764-9975 ■ FAX: 912/681-2970

Company Description: O

Sales Contact: Barney Allen, Jr. Owner.

barney@bulloch.net

### **B&M TECHNICAL SERVICES, INC.**

364 Industrial Drive, P.O. Box 48

Coloma, WI 54930

Phone: 715/228-7604 ■ FAX: 715/228-3418

Web Site: www.bmtechservice.com

Company Description: REP, SVSTA, SYSTP

Sales/Technical Contact: Phil Gruber, President.

608/547-2407. phil@bmtechservice.com

### **BLAKE EQUIPMENT CO., INC.**

4 New Park Road, East Windsor, CT 06088

Phone: 860/218-1006 ■ FAX: 860/243-3996

Web Site: www.blakeequip.com

Company Description: DIST, SVSTA, SYSTP

Sales and Technical Contact: Robert Klybas, Vice

President. bob.klybas@bghusa.com

Christine Russo, Sales & Manufacturing.

860/218-1006. christine.russo@bghusa.com

### **BROWN & CALDWELL**

1600 Duke St., Suite 310, Alexandria, VA 22314

Phone: 703/739-4212 ■ FAX: 860/528-8057

Web Site: www.brwnncald.com

Company Description: CE

Contact: Jay Kirk 703/340-1074.

jkirk@brwnncald.com

### **BURNS & McDONNELL**

3650 Mansell Rd., Suite 300, Alpharetta, GA 30022

Phone: 770/510-4541 ■ FAX: 770/587-4772

Web Site: www.burnsmcd.com

Products: CE

Sales Contact: Matt Bracewell, Regional Manager

Water. 770-510-4541. mbracewell@burnsmcd.com

### **CDM SMITH**

One Cambridge Place, 50 Hampshire Street,  
Cambridge, MA 02139

Phone: 617/452-6000 ■ FAX: 617/452-8000

Web Site: www.cdmsmith.com

Services: CE

Technical Contact: Ernie Sturtz, P.E., BCEE

850/386-9507. sturtzec@cdmsmith.com

### **PETE DUTY & ASSOCIATES, INC.**

1121 Drayton Street, Newberry, SC 29108

Phone: 864/918-1619

Company Description: DIST

Sales/Technical Contact: Chris Caldwell.

964/918-1619. chis@petedutysc.com

### **EMPOWERING PUMPS & EQUIPMENT – DIGITAL MEDIA MARKETING**

2205 – C 7th Street

Tuscaloosa, AL 35406

Phone: 205/391-8422

Web Site: www.empoweringpumps.com

Company Description: (Services) Digital Marketing  
Media for Industrial Companies

Sales & Technical Contact: Charli K. Matthews,  
CEO & Founder. 205/391-8422.

charli@empoweringpumps.com

### **ENGINEERED EQUIPMENT SALES**

1814 South Third Street, St. Louis MO 63104

Phone: 314/646-0074 ■ FAX: 314/646-0078

Company Description: REP

Sales Contact: Michael D. Busse, President

### **G.A. FLEET ASSOCIATES**

55 Calvert St., Harrison, NY 10528

Phone: 914/835-4000 ■ FAX: 914/381-7931

Web Site: www.gafleet.com

Company Description: REP, DIST, SYSTP, SVSTA, O

Sales Contact: Cinar Akman, Associate.

914-381-7939. cakman@gafleet.com

**GANNETT FLEMING, INC.****207 Senate Ave., Camp Hill, PA 17011****Phone: 717/763-7211 ■ FAX: 717/763-8150**Web Site: [www.gfnnet.com](http://www.gfnnet.com)*Company Description:* CE*Sales Contact:* David Gryger, Project Engineer.  
717/763-7212 Ext. 2054.*dgryger@gfnnet.com**Technical Contact:* Tim Glessner717/763-7212 EXT 2673. *t.glessner@gfnnet.com***HARMON & Co., INC.****195 White Oak Hill Rd., Poland, ME 04274****Phone: 207/998-8100 ■ FAX: 207/998-2484***Company Description:* REP*Sales Contact:* Greg Harmon, President.207/998-8100. *greg.harmonco@gmail.com***METROPOLITAN INDUSTRIES, INC.****37 Forestwood Drive, Romeoville, IL 60446-1343****Phone: 815/886-9200**Web Site: [www.metropolitanind.com](http://www.metropolitanind.com)*Contact:* Tim Merkel. 419/979-9069*tmerkel@metropolitanind.com***METROPOLITAN WATER RECLAMATION  
DISTRICT OF GREATER CHICAGO  
(MWRD)****111 E Erie St., Chicago, IL 60611****Phone: 704/504-3111 ■ FAX: 704/504-3499**Web Site: [www.mwrdr.org](http://www.mwrdr.org)*Company Description:* Water Reclamation District*Engineering Contact:* Brett Garelli*Brett.garelli@mwrdr.org***MILBY COMPANY****6201 S. Hanover Rd., Elkridge, MD 21075****Phone: 410-796-7700 ■ FAX: 410/796-7739**Web Site: [www.milbycompany.com](http://www.milbycompany.com)*Company Description:* REP, DIST, SYST, SVSTA, O*Sales/Technical Contact:* Dan Latta, Development  
Manager. 410/796-7700. *dlatta@milbyco.com***MODERN PUMPING TODAY****312 Lorna Square, Birmingham, AL 35216****Phone: 205/795-0232**Web Site: [www.modernpumpingtoday.com](http://www.modernpumpingtoday.com)*Company Description:* magazine, website,*Editorial Contact:* Jay Campbell, Editor.*Jay@modernpumpingtoday.com***PRECISION PUMP & VALVE SERVICE, INC.****P. O. Box 7027, 517 Old Goff Mountain Road,  
Charleston, WV 25356****Phone: 304/776-1710 ■ FAX: 304/776-0303**Web Site: [www.ppvs.com](http://www.ppvs.com)*Company Description:* DIST, SERV*Sales Contact:* James Landfried, Municipal Sales.*jlandfried@ppvs.com**Technical Contact:* James Lawson, SalesEngineering. *jlawson@ppvs.com***PREFERRED SOURCES, INC.****930 Culp Rd., Pineville, NC 28134****Phone: 704/504-3111 ■ FAX: 704/504-3499***Company Description:* REP, SVSTA, SYSTP*Sales Contact:* Scott Taylor, Sales Manager.980/721-4872. *ScottTaylor@preferredsources.com**Technical Contact:* Josh Amon, Vice President.

704/504-3111, Ext. 200.

*JoshAmon@preferredsources.com***PUMPS & SYSTEMS MAGAZINE****1900 28th Avenue South, Birmingham, AL 35209****Phone: 205/212-9402 ■ FAX: 205/314-8272**Web Site: [www.pumpsandsystems.com](http://www.pumpsandsystems.com)*Company Description:* magazine, website, podcasts,  
enewsletters, webinars, eblasts, content marketing*Sales Contact:* Derrell Moody, Account Executive*Dmoody@pump-zone.com**Editorial Contact:* Alecia Archibald, Senior Editor.*Aarchibald@cahabamedia.com***SMITH PUMP COMPANY, INC.****301 M & B Industrial, Waco, TX 76712****Phone: 254/776-0377 ■ FAX: 254/776-0023**Web Site: [www.smithpump.com](http://www.smithpump.com)*Company Description:* DIST*Sales and Technical Contact:* L. Granger Smith,President. *granger@smithpump.com***SOUTHEASTERN PUMP****1368 SW 12th Avenue, Pompano Beach, FL 33069****Phone: 954/781-8400 or 800/396-4182****FAX: 954/781-8434**Web Site: [www.sepump.com](http://www.sepump.com)*Company Description:* DIST, REP, SYST*Sales and Technical Contact:* John Veerling

(M, T), President.

*jveerling@sepump.com*

---

**TECHNICAL SALES CORPORATION**

4621 N. Hale Ave., Tampa, FL 33614

Phone: 813/876-9256 ■ FAX: 813/874-1194

Web Site: [www.tsctampa.com](http://www.tsctampa.com)

Company Description: DIST, SVSTA, SYST

Sales Contact: Ben Larsen, President.

[ben@tsctampa.com](mailto:ben@tsctampa.com)

---

**CHARLES R. UNDERWOOD, INC.**

2189 Everett Dowdy Road, Sanford, NC 27330

Phone: 919/775-2463 ■ FAX: 919/708-7232

Company Description: CE, DIST, SVSTA

Sales & Technical Contact: Clay Phillips

919/775-2463. [cphillips@crupumps.com](mailto:cphillips@crupumps.com)

---

**WATERMARK ENGINEERED PRODUCT SALES, INC.**

17220 Harger Court, Noblesville, IN 46060

Phone: 317/219-4333 ■ FAX: 317/219-3370

Web Site: [www.watermarkeps.com](http://www.watermarkeps.com)

Company Description: REP, SYSTP

Sales Contact: Brad Boyer, Owner.

317/219-4324. [bboyer@watermarkeps.com](mailto:bboyer@watermarkeps.com)

Technical Contact: Joel Warden. 317/219-4325.

[jwarden@watermarkeps.com](mailto:jwarden@watermarkeps.com)

---



---

**WHITNEY EQUIPMENT COMPANY**

21222 30th Drive SE, Suite 110

Bothwell, WA 98021

Phone: 425/486-9499 ■ FAX: 425/485-7409

Company Description: DIST, REP, SVSTA, SYSTP

Sales/Technical Contact: Jason Morse

503/310-9893. [jmorse@weci.com](mailto:jmorse@weci.com)

---

**WWEMA**

P.O. Box 17402, Washington, DC 20041

Company Description: 0

Contact: Vanessa Leiby, Executive Director.

703/444-1777. [vanessa@wwema.org](mailto:vanessa@wwema.org)

---





## ADVERTISERS INDEX

**SWPA MEMBER ADVERTISING APPEARS ON THE FOLLOWING PAGES IN A STANDARDIZED TWO-PAGE FORMAT.**

**A PROFILE, INCLUDING, A COMPANY DESCRIPTION\*, SALES AND TECHNICAL CONTACT PERSONS AND THE COMPANY'S LOGO, APPEARS AT THE TOP OF THE LEFT-HAND PAGE WITH ADVERTISING ON THE BOTTOM HALF OF THE LEFT-HAND PAGE AND THE FULL RIGHT-HAND PAGE.**

---

CONERY MANUFACTURING, INC. ....	44
CRANE PUMPS & SYSTEMS.....	46
EBARA.....	48
EMPOWERING PUMPS.....	50
ENVIRONMENT ONE CORPORATION.....	52
G.A. FLEET ASSOCIATES.....	54
FLOMATIC CORPORATION.....	56
XYLEM FLYGT PRODUCTS.....	58
FRANKLIN ELECTRIC COMPANY.. ..	60
THE GORMAN RUPP COMPANY .....	62
GOULDS WATER TECHNOLOGY A XYLEM BRAND .....	64
GRUNDFOS WATER UTILITY.....	66
HOMA.....	68
KSB, INC. ....	70
LIBERTY PUMPS, INC. ....	72
MILBY COMPANY .....	74
MODY PUMPS, INC. ....	76
MOTOR PROTECTION ELECTRONICS (MPE) .....	78
OHIO ELECTRIC CONTOL, INC.....	80
PENTAIR.....	82
PUMPS & SYSTEMS MAGAZINE.....	84
ROCKWELL AUTOMATION, INC. ....	86
SCHNEIDER ELECTRIC/SQUARE D .....	88
SJE RHOMBUS.....	90
SULZER.....	92
TOPP INDUSTRIES INC. ....	94
VAL-MATIC VALVE & MFG. CORP.. ..	96
VAUGHAN COMPANY, INC.....	98
WEIL PUMP, A WILO COMPANY .....	100
WILO USA LLC .....	102
ZOELLER ENGINEERED PRODUCTS.....	104

---

*\* The individual company descriptions have been supplied by the advertiser. SWPA assumes no liability for the accuracy of any of the statements or claims presented in that information.*

**CONERY MANUFACTURING, INC.**

1380 Enterprise Pkwy.

Ashland, OH 44805

Phone: 419/289/1444

FAX: 419/281/0366

Web Site: [www.conerymfg.com](http://www.conerymfg.com)*Products:* CP, GR, LA, PM, PS, VA*Sales Contact:* Tim Swaisgood

tswaisgood@conerymfg.com

Conery Manufacturing has been providing quality products for water and wastewater pumping stations for over 38 years. We have built strong customer relationships based upon quality products, quick and accurate shipments, and competitive pricing. From our proven line of float switches to our universal Freeflo Base Elbows, we are ready to provide you with the hardware and information to make your project a success. Find out what makes Conery Manufacturing different.

The image shows a collection of industrial products from Conery Manufacturing. At the top left is the Conery MFG INC logo. To the right is a small, teardrop-shaped float switch with a smiling face. Below these, a row of various industrial components is displayed, including different models of float switches and base elbows. At the bottom, a row of seven small icons represents different product types: a float switch, a chain, a black float switch, a white float switch, a base elbow, a teardrop float switch, and a bracket.

***Engineered Quality Built for You.***



ENGINEERED  
**QUALITY**  
BUILT FOR YOU



**CRANE PUMPS & SYSTEMS**

420 Third Street

Piqua, OH 45356

Phone: 937/214-5325

FAX: 937/773-2238

Web Site: [www.cranepumps.com](http://www.cranepumps.com)

*Products:* CP, DP, GP, IP, SH, TP, OP (Sewage Injector and Effluent Pumps), AC, AT, BS, CC, CH, CP, CT, EM, GR, LA, PC, PM, PS, SE, SS VA, VFD, WW OO (Liquid Level Controls)

*Sales Contact:* Walt Erndt, VP/GM of Municipal.  
937/778-3504. [werndt@cranepumps.com](mailto:werndt@cranepumps.com)

Crane Pumps & Systems is a manufacturer of high quality pumps, systems, accessories and services. With brands you trust, we provide solutions for commercial building, residential building, industrial, municipal and military markets. With over a century of experience CP&S serves the ever changing needs in today's pumping marketplace. Our commitment to excellence is carried through to the manufacturing, sales, distribution and service components of our business. Finding solutions and creating better processes make CP&S who we are. Our slogan "Everyone. Everywhere. On time. Every time" fuels our employees to strive to bring the most durable and sustainable pumps to market.



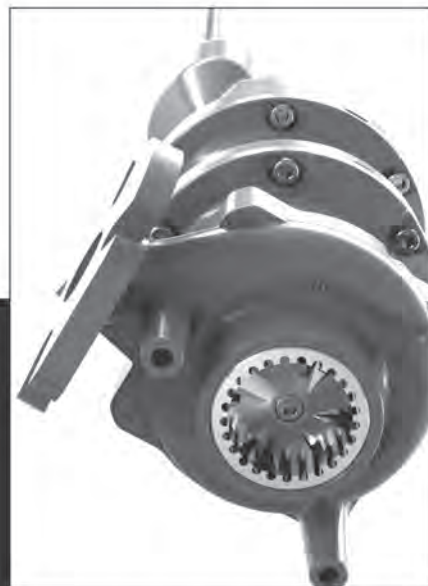
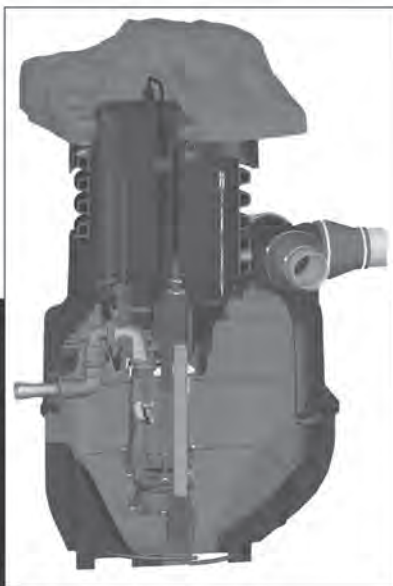
Highly engineered products designed for wastewater, pressure sewer, clean water and dewatering make CP&S the complete package solution.



[www.cranepumps.com](http://www.cranepumps.com) • 937-778-8947



## Providing Solutions with long lasting dependability from brands you trust.



- Superior service life from quality brands
- Solutions for virtually any application
- Industry leading innovation
- Reduced costs and maintenance

**CRANE** PUMPS & SYSTEMS

[www.cranepumps.com](http://www.cranepumps.com) • 937-778-8947

BARNES® burks®  CROWN® DEMING® PROSSER® WEINMAN®



**EBARA**

1651 Cedar Line Drive

Rock Hill, SC 29730

Phone: 803/327-5005

FAX: 803/327-5097

Web Site: <http://www.pumpsebara.com>*Products:* CP, DP, GP, IP, SH, OP*Sales/Technical Contact:* Wes Haskell, Director of Sales803/327-5005. [whaskell@pumpsebara.com](mailto:whaskell@pumpsebara.com)

Founded in 1912, EBARA Corporation is recognized as a world leader in the design, development and manufacture of industrial machinery with a predominant focus on the production of pumps, pumping systems and compressors.

EBARA Pumps Americas Corporation, a wholly owned subsidiary of Ebara Corporation, provides engineered pump, pump products and related services for the water, wastewater, sewage, commercial, building services, industrial, and municipal industries offering reliable product knowledge, application expertise and responsive support including aftermarket replacement parts services throughout North America. EBARA remains the largest single brand pump company in the world and develops high quality, efficient products and key system components for the fields of water supply, energy and environmental issues. Recognizing the continued strain on infrastructures and water and wastewater facilities with increased maintenance, energy, and environmental demands and costs, EBARA strives to deploy the best water, wastewater pumps, products, and technologies to meet these requirements.

## ENGINEERED for PERFORMANCE

EBARA Model DLKF series pumps are designed to tackle clogging challenges with enhanced passage capabilities for handling of fibrous waste.

### Key Features

- Reduces material caught on the vane tips
- Increases inlet pressure which keeps debris moving instead of recirculating
- E-eliminator groove disrupts the accumulation of fibrous debris

**EBARA****EBARA Pumps Americas Corporation**

Standard Pump Division

**[www.pumpsebara.com](http://www.pumpsebara.com)**©2018 EBARA Pumps Americas Corporation. All rights reserved.

# Water and Wastewater Pump Products **ENGINEERED for SOLUTIONS** **Packaged Pump Systems**

EBARA Standard Pump packaged pump systems are designed and built in the U.S. to suit your wastewater or sludge handling requirements.

- Sole source responsibility for complete station provided by EBARA Standard Pump
- Fiberglass enclosure with large doors
- Pre-cast reinforced polymer concrete base for unparalleled resistance to corrosive attack from H
- 4" & 6" discharge piping available, with optional bypass connections
- Penetrations for the piping and cables are sealed from the wet well to prevent harmful gases from entering the enclosure.
- 2 through 60HP EBARA pumps handle up to 1200 GPM and 3" diameter solids
- Complete station covered by a comprehensive manufacturer's warranty
- EBARA Standard Pump maintains over \$8 million in inventory to provide industry leading response to your need for submersible pumps



## **City of Southside, AL Installation Emergency Lift Station Rehabilitation**

**End User:** Southside Water Works and Sewer Board

**Industry:** Municipal Wastewater, Sewage

**Solution:** EBARA EP1 duplex packaged pump system  
Two, 30 HP submersible model DLKFU pumps  
Rated to deliver 150 GPM at 145' TDH  
K-Series impeller design

*The station was installed and on line at the end of the second day – it was a very quick retrofit, which kept downtime and bypass pumping to a minimum.*

*Scan the code to watch the full story!*



# EBARA

**EBARA Pumps Americas Corporation**  
Standard Pump Division  
[www.pumpsebara.com](http://www.pumpsebara.com)



**EMPOWERING PUMPS – DIGITAL MEDIA MARKETING**

2205 – C 7th Street

Tuscalousa, AL 35406

Phone: 205/391-8422

Web Site: [www.EmpoweringPumps.com](http://www.EmpoweringPumps.com)

*Products: (Services) Digital media marketing, social media & content marketing, content distribution via website, e newsletters, social media channels, & print magazine*

*For digital media strategy, contact Rebekah Mechtensimer at [rebekah@empoweringpumps.com](mailto:rebekah@empoweringpumps.com)*

*For editorial & content marketing, contact Cieana Detloff at [cieana@empoweringpumps.com](mailto:cieana@empoweringpumps.com)*

Empowering Pumps & Equipment is THE CONNECTION HUB for the Pump Industry. We Connect, Inform, and Educate the industry through publishing The Right Content, To the Right Audience, At the Right Time! As an Empowering Brands property, we aim to be strategic business partners to our partners, creating tailored programs to support our clients' marketing campaigns and providing flexible and responsive service. With broad industry knowledge and a respected brand, Empowering Pumps & Equipment provides publishing opportunities, content development, social media marketing, strategy, and distribution options to empower our clients to cost-effectively reach and engage with a diverse audience.



# EMPOWERINGPUMPS.COM

[bit.ly/EP-BecomeAPartner](http://bit.ly/EP-BecomeAPartner)

# YOUR INDUSTRY IS ONLINE.

CONNECT WITH THEM.



*@empoweringpumps*



**ENVIRONMENT ONE CORPORATION**

2773 Balltown Road  
Niskayuna, NY 12309

Phone: 518/346-6161

FAX: 518/346-6188

Web Site: [www.eone.com](http://www.eone.com)



*Products:* GP, CT

*Sales Contact:* Chris Greco, Director of Sales  
[cgreco@eone.com](mailto:cgreco@eone.com)

*Technical Contact:* Clark Henry, Vice President of Engineering.  
[chenry@eone.com](mailto:chenry@eone.com)

Low-pressure, gravity-independent, contour-following sewage collection systems were pioneered by Environment One. E/One Sewer® systems have proven to be an economical and effective method of sewerage otherwise difficult land areas, such as lakefront property, hilly terrain, very flat land, and areas with high water tables. At the heart of an E/One Sewer is the Grinder Pump, developed by Environment One. These units accept household sanitary waste, grind it into fine slurry, and pressurize it to permit transport through small-diameter pipes. E/One sewer systems serve more than 1 million end-users daily.



There's  
no limit to  
where we  
can go.

Environment One Corporation is an operating company of Precision Castparts Corp., an international provider of complex metal parts and industrial products.

With corporate headquarters in New York and regional offices and distribution throughout the industrialized world, Environment One is a manufacturer and provider of:

- Products and services for the disposal of residential sanitary waste
- Utility systems for the protection and performance optimization of electric utility assets



*A Precision Castparts Company*

2773 Balltown Road  
Niskayuna, NY 12309  
Voice 518.346.6161  
[www.eone.com](http://www.eone.com)





**GENUINE**  
**— E/One-DRIVEN —**  
**ALL-TERRAIN**  
**SEWER™**

**Are you dealing with failing septic tanks?**

**Is I&I from your existing sewer system eating up your budget?**

**Do you have a sewer project with challenging terrain looming ahead?**

**Get after it.**

ALL-TERRAIN SEWER™ low pressure systems from E/One give you the freedom to sewer anywhere.

Environmentally sensitive, economically sensible™: ALL-TERRAIN SEWER low pressure systems are significantly more affordable than conventional gravity sewers, safer than septic systems, and they're a light touch on the land.

Plus, our ALL-TERRAIN SEWER low pressure systems carry a proven track record of reliability with the lowest system life-cycle costs in the industry.

Whether it's dead or dying septic tanks or expensive inflow and infiltration, we can help. Learn more at [allterrainsewer.com](http://allterrainsewer.com)



E/One, ALL-TERRAIN SEWER and Environmentally Sensitive Economically Sensible are trademarks of Environment One Corporation. Copyright 2016 Environment One Corporation. All rights reserved throughout the world.

**G.A. FLEET ASSOCIATES**

55 Calvert Street

Harrison, NY 10528

Phone: 914/835-4000

Web Site: [www.gafleet.com](http://www.gafleet.com)*Products:* REP, DIST, SYSTP, SVSTA, O*Sales Contact:* Cinar Akman, Associate. 914/-381-7939. FAX: 914-381-7931.*cakman@gafleet.com*

GA Fleet Associates serves Building Trades, Municipal, Transit, and After Market clients by providing equipment, systems, direction, and service for their projects. Our staff is comprised of degreed engineers, MBAs, and highly trained technicians ready to solve any technical or field problem.

We specialize in plumbing and fire protection pumping systems, the HVAC large pump market, and municipal water and waste pumping systems. We also work with airports and in the subway to facilitate water drainage, heating and treatment needs.

The Fleet Pump & Service Group is dedicated to aftermarket equipment, with mechanics, technicians, service, parts, rentals, and service contracts.

SIXTY YEARS.  
THOUSANDS OF  
PROJECTS.  
COUNTLESS DETAILS.  
**WE HAVE YOU  
COVERED.**

[gafleet.com](http://gafleet.com)

**FLEET**



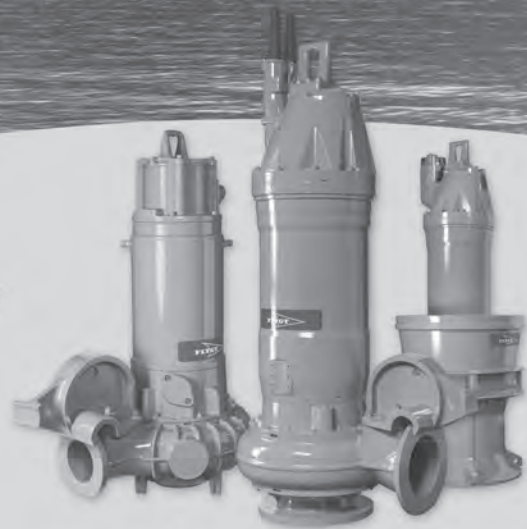
WHEN IT  
COMES TO  
MANAGING  
FLOOD  
RISK...

**Think Fleet First.**

As a municipal agency, building owner,  
consulting engineer or contractor you  
should be thinking urban resilience.

DETECTION.  
PUMPS.  
HARDENED CONTROLS.  
EMERGENCY SERVICES.

**WE HAVE YOU COVERED.**



**FLYGT**  
a xylem brand

GA Fleet Associates · Fleet Pump & Service Group · [gafleet.com](http://gafleet.com)



**FLOMATIC CORPORATION**

15 Pruyn's Island Drive

Glens Falls, NY 12801

Phone: 518/761-9797

FAX: 518/761-9798

Web Site: [www.flomatic.com](http://www.flomatic.com)*Products: VA**Sales Contact:* Nick Farrara, Vice President of Sales. 518/761-9797, Ext. 204.FAX: 518/761-9798. [nick@flomatic.com](mailto:nick@flomatic.com)*Technical Contact:* Brian Allen, Design Engineer. 518/761-9797, Ext. 238FAX: 518/761-9798. [allen@flomatic.com](mailto:allen@flomatic.com).

Flomatic is the leading worldwide manufacturer of valves — specializing in Air Valves, Automatic Control Valves, Plug Valves, Check and Foot Valves. For more than 80 years we have been changing the industry and leading the market with distinctive patented products. We offer a full line of Check Valves for the water and wastewater market ranging from 1" to 30". Our products have been installed in a wide variety of applications with excellent results. Flomatic is an ISO 9001 and 14001 certified company with comprehensive manufacturing processes. As always, Flomatic is dedicated to providing their customers with **High Quality Valves Built to Last**.

**Flomatic Valves for all applications**

The 90/92 swing checks are built to AWWA C508 specifications 2" - 30". Several different models are available with single and double air dash pots with springs or weights. Other swing checks (model 78) angle body with flapper are available. Call Flomatic at 1-800-833-2040 for complete details on Flomatic's exciting new angle body.

**408 Ball Check Valve is maintenance free, giving you time for golf or fishing**

Flomatic model 408 ball check valve is a non-clog fullported check valve for storm water and waste water applications.

These valves are main-

tenance free and

are epoxy

coated with

NSF approved

powder. They

feature a Buna-

N self-cleaning ball with stainless steel bolts. The Flomatic ball checks will give you years of trouble free service.



# TAKE CONTROL



- 745 - Flo-Flex® Check Valve
- 745PI - Flo-Flex® Check Valve with Position Indicator
- 745BF - Flo-Flex® Check Valve with Backflush Device
- SEWAIR - MAXI® Air Release Valve

## Flomatic

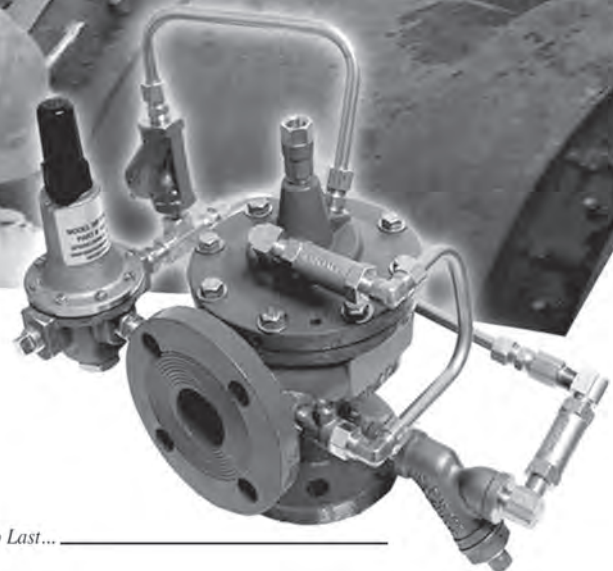
Offers a complete range of Valves 1½" thru 36". These valves are designed to provide the highest efficiency, maximum life, and provide the greatest control of water utility systems. No matter how complex the application Flomatic offers a broad range of system solutions.

C902 Flow Control and Pressure Reducing Valve as pictured on the cover of Water World - January 2005

For more information about our 754 Swing Check Valves, Sewair-Maxi or any of our other products:  
Call: Flomatic at (800) 833-2040  
or visit us on the web at [www.Flomatic.com](http://www.Flomatic.com)

**Flomatic**

High Quality Valves Built to Last...





**XYLEM FLYGT PRODUCTS**

14125 South Bridge Circle

Charlotte, NC 28273

Phone: 704/409-9750

FAX: 704/409-9800

Web Site: <http://www.flygt.com/en-us> or [www.xyleminc.com/us](http://www.xyleminc.com/us)*Products:* AP, CP, DB, GP, IP, SH, TP, AC, BS, CC, CH, CP, CT, GR, LA, PM, PB, SS, VA, VFD, WW*Sales Contact:* Julia Beilsmith, Market Manager[julia.beilsmith@xyleminc.com](mailto:julia.beilsmith@xyleminc.com)

Kristel Zaman, Senior Manager

[Kristel.Zaman@xyleminc.com](mailto:Kristel.Zaman@xyleminc.com)

Xylem's Flygt brand is the inventor and the world leader in the design, manufacture, and sale of heavy-duty electric submersible solids-handling pumps, axial flow high volume propeller pumps, mixers, flow generating equipment and monitoring and control systems. Flygt submersible pump products range in size from 1-hp to beyond 1,000-hp with the ability to handle wastewater and storm water flows to beyond 100,000 gpm per pump. Flygt's N-Pump delivers sustained high hydraulic efficiency and is the premier innovative solids-handling pump technology in the wastewater industry. The result is the most consistent offering of proven equipment for the widest range of pumping and mixing applications. Visit our website for more information at <http://www.flygt.com/en-us>.

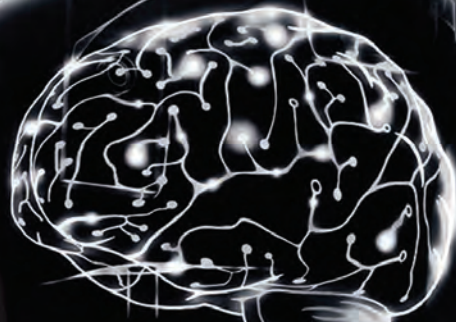
**FLYGT SUBMERSIBLE  
WASTEWATER N-PUMPS.****PROVIDING CUSTOMERS  
WITH SUSTAINED  
HIGH EFFICIENCY,  
LESS DOWNTIME  
AND LOWER  
OPERATING  
COSTS.**



# NEW

## CONCERTOR™

PUMPING SYSTEM WITH  
INTEGRATED  
INTELLIGENCE



FLYGT

### WORLD'S FIRST WASTEWATER PUMPING SYSTEM WITH INTEGRATED INTELLIGENCE

This revolutionary system delivers optimal performance while reducing your total cost of ownership. It also offers unparalleled flexibility and simplicity on a whole new level. You might even say it thinks for itself. We invite you to enter a new era in wastewater pumping with Flygt Concertor.

**One powerful solution. Unlimited possibilities.**

[www.flygt.com](http://www.flygt.com)

**xylem**  
Let's Solve Water

**FRANKLIN ELECTRIC**

9255 Coverdale Rd.

Fort Wayne, IN 46809

Phone: 704/409-9750

FAX: 704/409-9800

Web Sites: [www.franklinengineered.com](http://www.franklinengineered.com) | [www.littlegiant.com](http://www.littlegiant.com)*Products:* CP, GP, IP, SH, AC, AT, BS, CC, CP, CT, GR, LA, PC, PM, PB, SE, SS, VA, VFD*Sales Contact:* Chris Nelson, Director of Sales260/827-5491. [chris.nelson@fele.com](mailto:chris.nelson@fele.com)*Technical Contact:* Amy Rainer, Product Manager-Engineered Products405/440-1403. [arainer@fele.com](mailto:arainer@fele.com)*Technical Contact/Little Giant:* Randy Tucker, Sr. Business Portfolio Manager405/440-1347. [rtucker@fele.com](mailto:rtucker@fele.com)

**FPS Engineered Products:** From non-clog and grinder pumps to booster pumps, our dedicated team directs field engineers, architects, and installers down the most efficient path by providing proper sizing requirements, affordable quote options, and reliable product solutions. To learn more, visit your distributor or [www.franklinengineered.com](http://www.franklinengineered.com).

**Little Giant Pumps:** From water pumps, water systems, HVAC, industrial pumps to on-site water treatment systems, our products' breadth and depth offer meaningful advantages to residential, light commercial, industrial, and agricultural customers alike. To find out more, visit your distributor or [www.littlegiant.com](http://www.littlegiant.com).

**Submersible Non-Clog Pumps**

3NC &amp; 4NC Series Non-Clog Pumps

**High Head  
Grinder Pumps**IGPH-M & IGPH-A Series  
High Head Grinder Pumps**Submersible  
Cistern Pumps**C1 Series Submersible  
Cistern Pumps



## Utility Pumps



5-MSP Utility Pump

## Sewage Pumps



9SN-CIA-RF Sewage Pump



10SN-CIA-SFS Sewage Pump



20S-CIM 2HP Sewage Pump

## Sump Pumps



WRS-9EN Water Removal System



6EC-CIA-SFS Automatic Sump Pump



6-CIA Submersible Sump Pump

## Wastewater Packaged Systems

Pit+Plus Premium Simplex Systems



## Effluent Pumps

10ENH-CIA-RF High Head Effluent Pump



6EC-CIM Effluent Pump



16EH-CIM High-Head Effluent Pump



## Sewage Grinder Package Systems



GP-SMPX

**LittleGIANT**

**THE GORMAN-RUPP COMPANY**

600 S. Airport Rd.

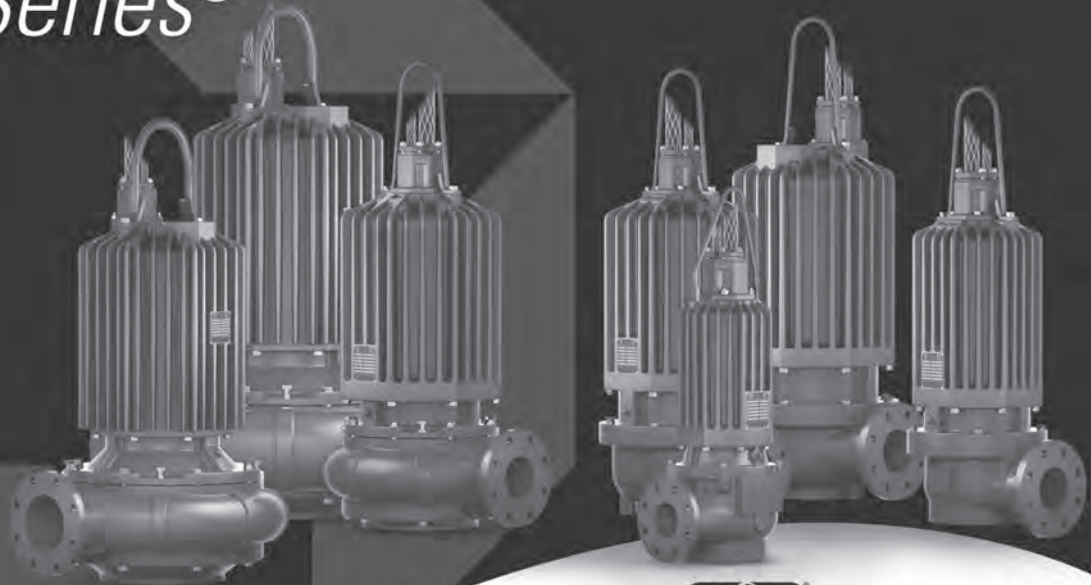
Mansfield, OH 44903

Phone: 419/755-1011

FAX: 419/755-1251

Web Site: [www.GRpumps.com](http://www.GRpumps.com)*Products:* CP, DP, IP, SH, OP (self-priming centrifugal, rotary gear), CT, LA, PM*Sales/Technical Contact:* Vince Baldasare, Sales Manager, Engineered Systems.Phone: 419/755-1271 FAX: 419/755-1208. [vbaldasare@gormanrupp.com](mailto:vbaldasare@gormanrupp.com)

A world leader in municipal sewage pumping systems. Manufacturing an extensive line of above and below ground packaged pumping systems as well as submersible pumping systems, booster stations, silent pumps, and controls. The pre-engineered systems include pumps, motors, valves, controls, etc.

*SF Series<sup>®</sup>*

GRPUMPS.COM

*The Pump People<sup>®</sup>*

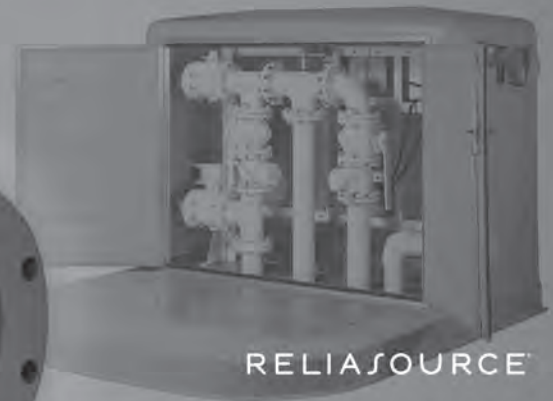




reliableliftstations.com

# DISCOVER RELIABILITY

THAT'S MORE THAN SURFACE-DEEP.



RELIASOURCE®

## SF SERIES® PUMPS AND RELIASOURCE® ASVP TEAM UP TO DELIVER THE INDUSTRY'S MOST RELIABLE SUBMERSIBLE SEWAGE-HANDLING SOLUTION.

The first 100% Gorman-Rupp-manufactured solids-handling submersible pump, SF Series® solids-handling pumps deliver renowned Gorman-Rupp quality in an affordable submersible model. These pumps feature premium efficiency motors and a unique 8-sided design providing optimal heat dissipation and superior motor cooling for increased motor life. Pair your SF Series® pump with the ReliaSource® Above-Ground Submersible Valve Package (ASVP), and you get powerful below ground pumping combined with the safety and convenience of above-ground controls and valves. And it's all backed by superior parts availability and an industry-leading warranty.

With Infinity and ReliaSource, you get long-lasting, trouble-free solids-handling pumping performance you can rely on. Guaranteed. Discover your single source for value, performance, and peace of mind at [reliableliftstations.com](http://reliableliftstations.com).

### GORMAN-RUPP PUMPS

P.O. BOX 1217 | MANSFIELD, OHIO 44901-1217 | USA  
419.755.1011 | [GRSALES@GORMANRUPP.COM](mailto:GRSALES@GORMANRUPP.COM) | [GRPUMPS.COM](http://GRPUMPS.COM)



*The Pump People®*

**GOULDS WATER TECHNOLOGY A XYLEM BRAND**

2881 East Bayard Street Extension  
Seneca Falls, NY 13148

Phone: 315/568-7123

FAX: 888/322-5877

Web Site: [www.goulds.com](http://www.goulds.com)



*Products:* CP, GP, IP, SH, TP, AC, AT, BS, CC,  
CP, CT, EM, GR, LA, PS, PB, SE, SS, VA, VFD, WW

*Sales Contact:* William Gell, Product Manager Wastewater.  
315/239-7004. [william.gell@xyleminc.com](mailto:william.gell@xyleminc.com)

*Technical Contact:* Joe Steinberg, Assistant Product Manager Wastewater.  
315/239-2419. [joe.steinberg@xyleminc.com](mailto:joe.steinberg@xyleminc.com)

Goulds Water Technology is an integral part of Xylem Inc., a global leader in manufacturing pumps for residential, commercial, agricultural and municipal markets. The Goulds product portfolio includes submersible, lineshaft turbine, jet pump, sump, effluent, sewage, centrifugals, VFD drives as well as a full line of accessories for those lines.

---

**Applications include:**

**Residential and Commercial Wastewater:** Sump, effluent, and sewage pumps, complete lift stations, stock and custom control panels and accessories designed for residential applications.





# WASTEWATER. SOLVED.

Residential wastewater is no longer a problem with our full range of quality products and outstanding support.

## 4 NEW PUMPS

### MORE THAN 165 REASONS TO BELIEVE

These tough, reliable new residential wastewater pumps devour solids and fibers, and resist clogging. They've been thoroughly proven to deliver on our 165 years of experience.



#### **GSP Cast Iron Sump & Effluent Pump**

Iron-clad performance. The industry's most reliable switch. And a proven non-clogging vortex design.



#### **VTX Series Submersible Sewage Pump**

The vortex pump that's built tougher. Performs better. And runs longer. With options from 1/2 to 2 HP.



#### **GFK & GFV Series Pumps**

Unique self-cleaning or vortex cast iron impellers. They sweep aside the competition with options up to 3".



#### **20AE 4" Aerobic Stainless Steel Submersible Effluent Pump**

A 9.5-amp draw that can reduce operating costs up to 25%. Ideal for on-site effluent applications.



**GRUNDFOS WATER UTILITY**

3905 Enterprise Court

Aurora, IL 60504

Phone: 630/236-6900

FAX:

Web Site: [www.grundfos.us](http://www.grundfos.us)

*Products:* CP, GP, IP, SH, TP, AC, AT, BS, CC,  
CP, CT, EM, GR, LA, PS, PB, SE, SS, VA, VFD, WW

*Sales Contact:* Rob Montenegro, Vice President Sales.  
[rmontenegro@grundfos.com](mailto:rmontenegro@grundfos.com)

*Technical Contact:* Russell Smith, Business Development Manager-Wastewater.  
[rusmith@grundfos.com](mailto:rusmith@grundfos.com)

Grundfos is an innovative leader in wastewater pumping solutions and provide comprehensive market coverage through a number of marquee product brands, some with roots going back a century or more. Together, Grundfos, Yeomans, Chicago and Morris gives you access to a submersible range of pumps from the smallest grinder pump to the largest flood control stations, and we are leading the way with not only cutting-edge pump designs but all intuitive dedicated control systems. For more information on how Grundfos is “BRINGING IT ALL TOGETHER” in pump design please visit [www.grundfos.us](http://www.grundfos.us).

# BRINGING IT ALL TOGETHER

Innovative technologies mean we can offer you the highest total efficiency yet in a wastewater pump – the Grundfos SL range.

-  • No compromise between hydraulic efficiency and free passage
-  • Maximizing electrical efficiency
-  • Intelligently controlling your pump
-  • Functionality designed for you

be think innovate

[www.grundfos.us](http://www.grundfos.us)

**GRUNDFOS** 



# BRINGING IT ALL TOGETHER

Innovative technologies mean we can offer you the highest total efficiency yet in a wastewater pump – the Grundfos SL range.



- **No compromise:**  
The S-tube impeller offers world class hydraulic efficiency without compromising free passage



- **Intelligent adaptive controls:**  
Pump operation controlled intelligently and dynamically with Grundfos controls and remote management



- **High motor efficiency:**  
Grundfos Blueflux® premium efficiency performance, maximizing electrical efficiency in the pump



- **Functionality that meets your needs:**  
Unprecedented reliability and mechanical efficiency, with smart-design functionality designed for you

be  
think  
innovate

[www.grundfos.us](http://www.grundfos.us)

**GRUNDFOS**

**HOMA PUMP TECHNOLOGY**

Fountain Lake Commerce Park, 390 Birmingham Blvd.

Ansonia, CT 06401

Phone: 203/736-8890

FAX: 203/736-8899

Web Site: [www.homapump.com](http://www.homapump.com)



*Products:* CP, DP, GP, SH, OP, AC, BS, CC, CH, CP, CT, EM, GR, LA, PB, SE, SS, VA

*Sales Contact:* John Lord, National Sales & Business Development Manager.

[JLord@homapump.com](mailto:JLord@homapump.com)

*Technical Contact:* Ryan Sura, Senior Application Engineer.

[RSura@homapump.com](mailto:RSura@homapump.com)

## WE GET WATER MOVING

HOMA pumps are installed in more than 100 countries around the world – in countless projects of various kinds. Our know-how = your benefit.

- Submersible grinder pumps with cutter system
- Submersible waste water and sewage pumps
- Packaged pump stations
- Mixers and flow generators
- Injector systems for tank cleaning
- Disposal units
- Control boxes

[www.homapumps.com](http://www.homapumps.com)





## RETROFIT WITH THE BEST. RETROFIT WITH HOMA.

- Complete selection of pumps from 1hp-500hp
- Easy to service, non-proprietary parts
- Rock solid, non-clog hydraulics
- Our more than \$10 million inventory means lead times measured in days, not weeks
- The HOMA PMR5 pump monitor relay fits into an existing MiniCAS socket, for easy replacement



**KSB, Inc.**

4415 Sarellen Road

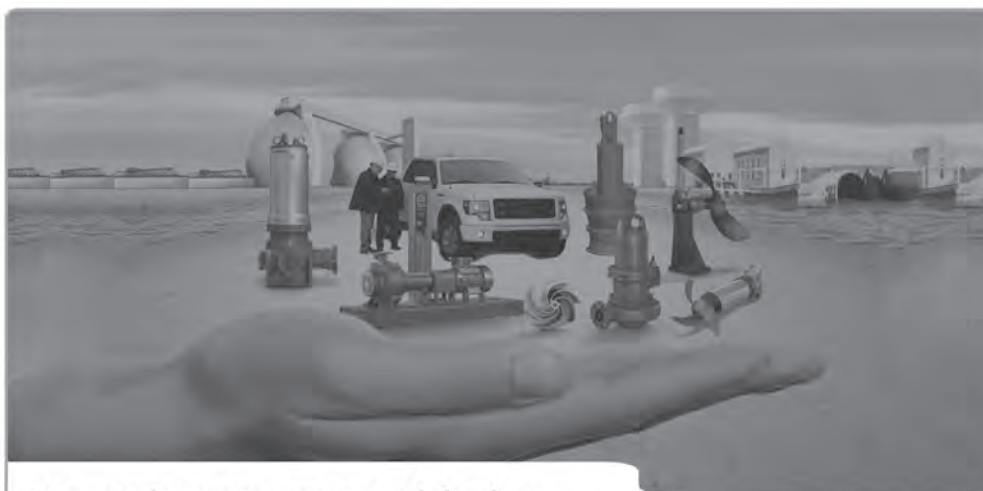
Henrico, VA 23231

Phone: 804/222-1818

FAX: 804/226-6961

Web Site: [www.ksb.us.com](http://www.ksb.us.com)*Products:* AP, CP, DP, GP, IP, SH, TP, O (Submersible Pumps and Mixers)*Sales Contact:* Sherry Heinly, North America Region Marketing Manager – [sherry.heinly@ksb.com](mailto:sherry.heinly@ksb.com)*Technical Contacts:* Andre Saravalli, Product Manager – [andre.saravalli@ksb.com](mailto:andre.saravalli@ksb.com)Luis Maturana, Vice President of Water & Wastewater – [luis.maturana@ksb.com](mailto:luis.maturana@ksb.com)

KSB, Inc., a subsidiary of KSB AG, brings to the U.S. more than 140 years of global experience and competence of centrifugal pump technology that is designed for optimum reliability and maximized performance. KSB, Inc. supplies quality water and wastewater pumps and mixers, i.e. submersible non-clog sewage, mixed flow, conventional dry pit sewage pumps and submersible mixers. In addition to maintaining manufacturing, testing and repair facilities within the company's headquarters in Richmond, VA, KSB is backed by an established network of sales and service locations to meet customers' needs. KSB continues to increase presence with products and services throughout the U.S. to meet customers' demands. **Like us on Facebook and follow us on LinkedIn and Twitter. Visit our web site at [www.ksb.us.com](http://www.ksb.us.com).**

**Your single source partner with leading edge technology!**

For 145 years, we are your reliable partner for clean water and efficient wastewater treatment. KSB's innovative solutions and comprehensive information help you meet all water supply and treatment requirements, efficiently and effectively. We offer end-to-end solutions addressing all stages of the water cycle from water extraction to sewage treatment.

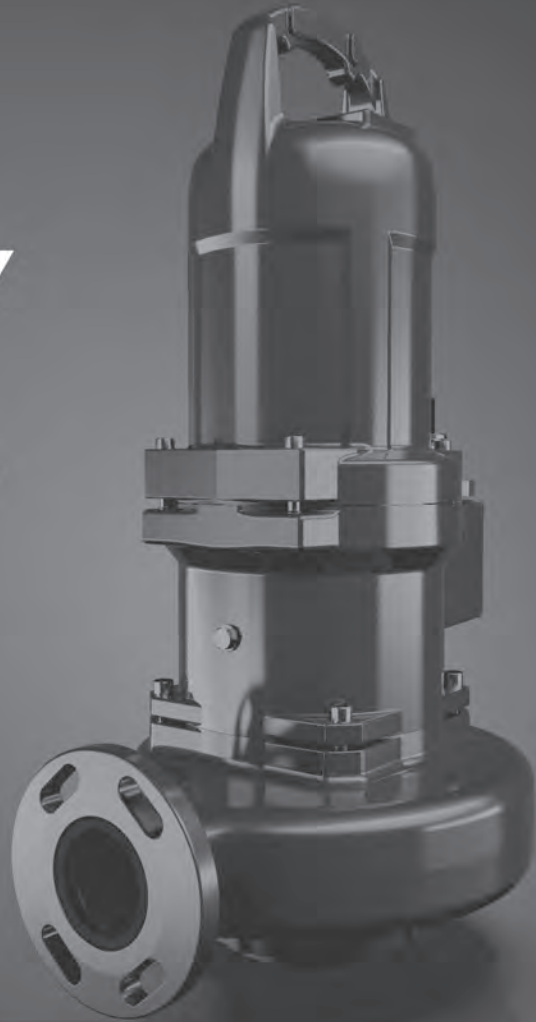
[ksb.us.com](http://ksb.us.com)

► Our technology. Your success.  
Pumps • Valves • Service





# COMES WITH EFFICIENCY NOT WITH CLOGGING.



## Conquer the Clog with next Generation KRT

Each wastewater plant is unique, each clog is different, KSB solves these system wide problems with experience, perspective, and innovative technologies that minimizes downtime and improves operational efficiency.

There is no efficiency in a clogged pump. Let the Next Generation Amarex KRT help you Conquer the Clog.

[ksb.us.com](http://ksb.us.com)

► Our technology. Your success.  
Pumps • Valves • Service



**LIBERTY PUMPS, INC.**

7000 Apple Tree Avenue

Bergen, NY 14416

Phone: 800/543-2550

FAX: 585/494-1839

Web Site: [www.libertypumps.com](http://www.libertypumps.com)

*Products:* CP, GP, SH, OP, AC, AT, BS, CP, CT, GR, LA, PB, SH, WW

*Sales Contacts:* Paul Lahr, National Sales Manager Engineered Products – [paul.lahr@libertypumps.com](mailto:paul.lahr@libertypumps.com)

Randall Waldron, VP of Sales and Marketing – [randy.waldron@libertypumps.com](mailto:randy.waldron@libertypumps.com).

Jeff Goodenberry, Technical Customer Service Supv. – [jeffrey.goodenberry@libertypumps.com](mailto:jeffrey.goodenberry@libertypumps.com)

Dave Williams, Director of Engineering – [david.williams@libertypumps.com](mailto:david.williams@libertypumps.com)

Headquartered in Bergen, NY, Liberty Pumps is a leading U.S. manufacturer of pumping products for ground water and wastewater removal in residential and commercial applications. With a focus on innovative product design, our wide range of pump styles includes sump pumps, sewage pumps, effluent pumps, drain pumps, grinder pumps, complete pre-assembled sewage packages, and pump accessories.

**VORACIOUS**

With its unique patented V-Slice® cutter technology, the Omnivore® literally devastates anything unfortunate enough to enter into its vicious vortex.

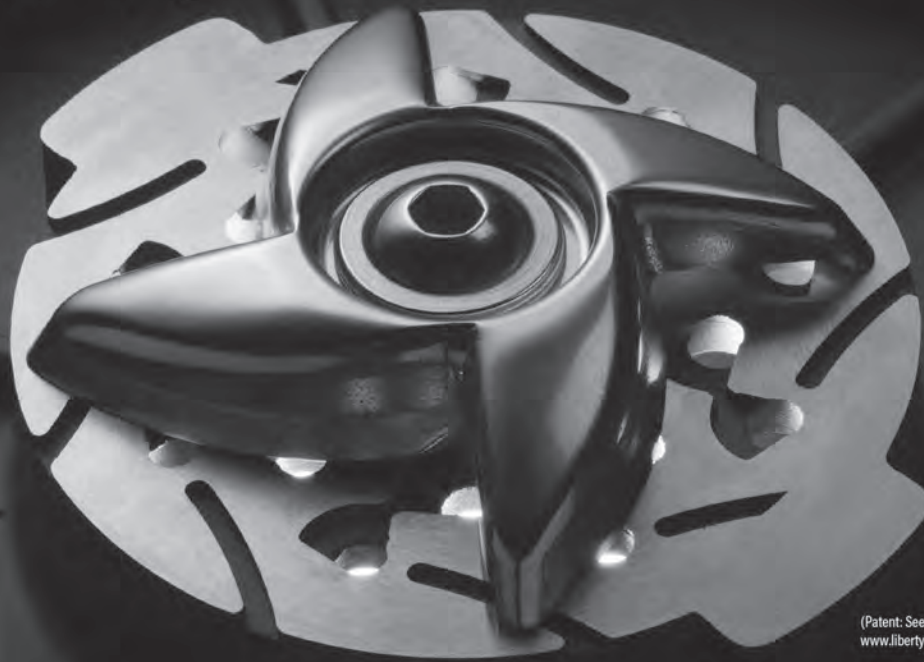
**Omnivore Grinders**

**Liberty Pumps**  
A Family and Employee Owned Company

**800-543-2550**  
[www.libertypumps.com](http://www.libertypumps.com)

Patent: See [www.LibertyPumps.com/patents](http://www.LibertyPumps.com/patents)  
Copyright © Liberty Pumps, Inc. 2017 All rights reserved.

# Don't get caught in a jam



(Patent: See  
[www.libertypumps.com/patents](http://www.libertypumps.com/patents))



The only patented V-Slice® cutter technology.  
Setting the new standard in grinder pump performance.



## Liberty Pumps®

A Family and Employee Owned Company

800.543.2550 [libertypumps.com](http://libertypumps.com)  
7000 Apple Tree Ave. • Bergen, New York 14416

Copyright © Liberty Pumps,  
Inc. 2017 All rights reserved.

Single stage and  
2-stage models  
available.  
Heads to 185'





**MILBY COMPANY**

6201 S. Hanover Rd.

Elkridge, MD 21075

Phone: 410/796-7700

FAX: 410/796-7739

Web Site: [www.milbycompany.com](http://www.milbycompany.com)*Products:* REP, DIST, SYSTP, SVSTA, O*Sales/Technical Contact:* Dan Latta, Development Manager. 410-796-7700[dlatta@milbyco.com](mailto:dlatta@milbyco.com)

Founded in 1932, Milby Company is the oldest, longest running company serving the water and wastewater industries in the Mid-Atlantic region.



1-800-796-7700 | [www.MilbyCo.com](http://www.MilbyCo.com)  
 Chris Lind | Business Development Manager  
 M: 301-752-3363 | E: [clind@milbyco.com](mailto:clind@milbyco.com)

## Capability Statement

### Core Competencies

Milby Company is a regional distributor of water and waste water equipment and accessories. As a small business, Milby Company assists the public engineering services efforts of the Federal Government and its contractors by providing water and wastewater systems products for small and large scale operations and applications.

**Products:**

Water Systems Pumps and Accessories  
 Sump, Effluent and Sewage Pumps  
 Water Conditioning and Treatment  
 Well Drilling  
 Plumbing  
 Geothermal Heat Pump Systems  
 ASME Certified Tanks  
 Motors and Controls

**Services:**

Technical Assistance  
 Water Testing and Analysis  
 Equipment Recommendation  
 Troubleshooting and Problem Solving  
 Pump Sizing  
 Pump Testing  
 Prompt Delivery  
 Training Classes





Providing Water and Waste Water Solutions

#### Headquarters

6201 South Hanover Rd.  
Elkridge, MD 21075  
P: 800-796-7000  
F: 410-796-7739

#### Colonial Heights, VA

860 W. Roslyn Rd. Suite A  
Colonial Heights, VA 23834  
P: 866-645-2982  
F: 804-520-5128

#### Frederick, MD

7313 Grove Rd. Suite S  
Frederick, MD 21704  
P: 855-529-0841  
F: 240-529-0851

### Water Systems

<b>Amtrol</b>	ASME certified Hydronic Tanks, Thermal Expansion Tanks & Pressure Tanks, Shock Surge Suppressors, Fire Protection Systems, Indirect-Fired Water Heaters
<b>Baker-Monitor</b>	Booster Pumps & Booster Stations
<b>Berkeley</b>	Booster Pumps & Booster Stations, Centrifugal & Jet Pumps, Submersible Pumps, Variable Speed Pump Controllers
<b>Flomatic</b>	Commercial Valves
<b>Goulds</b>	Booster Pumps & Booster Stations, Centrifugal & Jet Pumps, Submersible Pumps, Variable Speed Pump Controllers, Turbine Pumps
<b>Sta-Rite</b>	Centrifugal & Jet Pumps, Submersible Pumps, Variable Speed Pump Controllers, High Pressure Boosters
<b>SymCom</b>	Electronic Monitoring Devices, Current Monitors
<b>Rheem</b>	Gas & Electric Commercial Water Heaters

### Water Treatment

<b>CSI Water</b>	Filters & Softeners, Ultraviolet Units
<b>Master Water</b>	Filters & Softeners, Reverse Osmosis
<b>LaMotte</b>	Water Testing Equipment
<b>LMI Milton Roy</b>	Chemical Metering Pumps
<b>Pulsafeeder</b>	Chemical Feed Pumps, Metering Pump Controllers
<b>Viqua</b>	Ultraviolet Units

### Waste Water

<b>Flomatic</b>	Commercial Valves
<b>Goulds</b>	Lift Stations, Sump, Effluent & Sewage Pumps, Grinder Pumps, Pump/Basin Packages, Specialty Pumps
<b>LMI Milton Roy</b>	Chemical Metering Pumps
<b>Pulsafeeder</b>	Chemical Feed Pumps, Metering Pump Controllers
<b>SJE Rhombus</b>	Custom Control Panels, Tanks Alert Alarms, Level Monitoring, Float Switches
<b>Sta-Rite</b>	Lift Stations, Sump, Effluent & Sewage Pumps, Grinder Pumps
<b>Zoeller</b>	Lift Stations, Grinder Pumps, Pump/Basin Packages, Specialty Pumps, Hazardous Environment Pumps

### What to expect from Milby?

- △ Personalized Service
- △ Knowledgeable staff
- △ Training Classes
- △ Prompt Delivery
- △ Competitive pricing
- △ Equipment Recommendation
- △ Equipment Testing
- △ Technical Assistance
- △ Water Testing & Analysis
- △ Over 80 years of experience in the water industry

### Contact us

For more information, call or email us today!

[info@milbyco.com](mailto:info@milbyco.com)  
[www.MilbyCo.com](http://www.MilbyCo.com)

Headquarters: 1.800.796.7000  
Colonial Heights: 1.866.645.2982  
Frederick: 1.855.529.0841

### Industries Served

Public Water Systems  
Hospitality Industries  
Laundry Facilities  
Car/Truck Wash  
Chemical & Food Processing  
Agricultural Operations  
Schools & Hospitals  
Housing Developments  
Manufacturing

FLOMATIC VALVES

BERKELEY

GOULDS  
WATER TECHNOLOGY  
a xylem brand

PULSAFEEDER  
A UNIT OF ILLINOIS TOOL WORKS

LMI  
MILTON ROY

RHEEM

STA-RITE  
PUMP SYSTEMS

SymCom

AMTROL

BAKER  
WATER SYSTEMS GROUP

CSI  
WATER TREATMENT SYSTEMS

LaMotte

MASTER  
WATER TECHNOLOGY GROUP

SJE  
RHOMBUS

VIQUA  
A TROJAN TECHNOLOGIES COMPANY

ZOELLER  
COMPANY  
Environmental Water Solutions

**MODY PUMPS, INC.**

2166 Zeus Ct.

Bakersfield, CA 93308

Phone: 661/392-7600

FAX: 661/392-7601

Web Site: [www.modypump.com](http://www.modypump.com)*Products:* AP, CP, DP, GP, IP, SH, TP, OP (Submersible Pumps and Mixers)*Sales Contact:* Randy Crawford, Director Business Development. 541/610-4749[randy@modypump.com](mailto:randy@modypump.com)*Technical Contact:* Alex Clemente, Product Design Engineer[alex@modypump.com](mailto:alex@modypump.com)

Mody Pumps®, Inc. is one of the fastest growing submersible pump manufacturers worldwide. We draw from almost half a century of experience in the submersible pump industry to deliver products that embody superior quality, reliability, peerless customer service and solid after-sales support. We serve the dewatering, municipal, industrial, marine, rental and waste management markets by offering a complete range of dewatering pumps and a full line of wastewater and sewage pumps.

**MSP SERIES****FEATURES**

- Dry Pit, Wet Pit & Portable installations
  - Discharge size: 3-12" / 75-300 mm
- Flow Range: 40-9,200 gpm / 152-34,825 lpm
- HP / kW Range: 4-180 HP / 3-93 kW - 60/50Hz
  - High Efficiency Motors
  - Class H (180 °C) Insulation
- "Fast Change" SC/SC Cartridge Mech. Seals
  - Adjustable Wear Ring System
- Vortex or Enclosed Impeller, on same Shaft/Volute
  - Latch-Bolts for Fast-Lock & Quick Release
  - Oil Tap Drain
- Optional: Self-Contained "Eco-Friendly" Cooling System

**PUMPING SINCE 1957**



**SERVICING THE DEWATERING,  
MINING & WASTEWATER MARKETS  
PUMPING SINCE 1957**

Phone: 661-392-7600 sales@moddypump.com

www.moddypump.com

Bakersfield, CA, USA Corporate HQ



**MOTOR PROTECTION ELECTRONICS (MPE)**

2464 Vulcan Road


Apopka, FL 32703

Phone: 407/299-3825

FAX: 407/294-9435

Web Site: [www.mpeelectronics.com](http://www.mpeelectronics.com)*Products:* AT, CP, LA, PM*Sales Contact:* John Evans, President[john\\_evans@mpeelectronics.com](mailto:john_evans@mpeelectronics.com)*Technical Contact:* Chris Parker, Engineering[chris\\_parker@mpeelectronics.com](mailto:chris_parker@mpeelectronics.com)

Motor Protection Electronics is a leader in the design and manufacturing of Industrial Controls. Founded in 1983, our philosophy is to manufacture Controls and Controllers that are easy to use. We offer a full line of Industrial Controls for the Water and Wastewater industry, along with excellent customer service, technical support, and product availability.




**Simple, Reliable, Durable, Rugged, Dependable**

The Duplexer and the ISD Controllers operate from either Floats or the Level Probe. The Station Controllers SC1000 and SC2000 receive their level control input via a 4-20mA signal, floats or the Level Probe.

All MPE Controllers come SCADA-Ready with a RS232 Serial Port for MODBUS RTU control as a standard feature.

The ISD, SC1000 and SC2000 can also be ordered with an Ethernet Port for MODBUS TCP/IP control.

Our Level Probe and Level Monitor products are a perfect match for our line of Pump Controllers.



**3 year  
Warranty**

**Proudly Made  
in the USA**

**tel • 4 0 7 • 2 9 9 • 3 8 2 5**

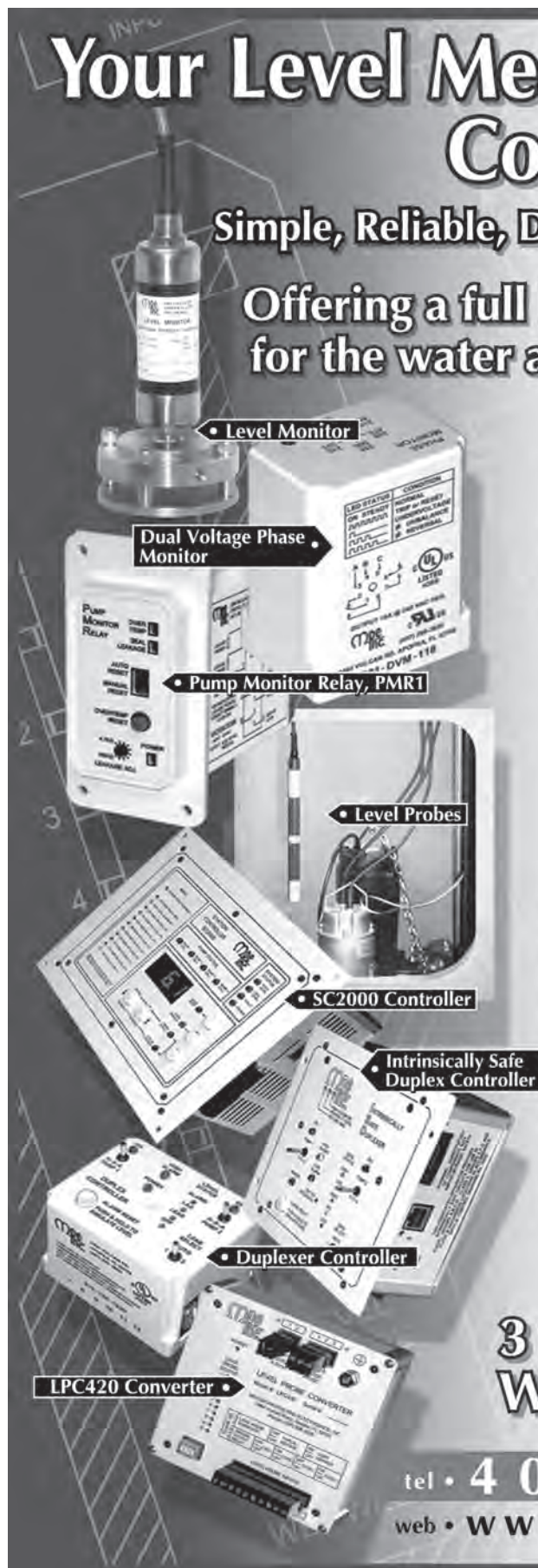
**web • [www.mpeelectronics.com](http://www.mpeelectronics.com)**



# Your Level Measurement and Control Resource

Simple, Reliable, Durable, Rugged, Dependable

Offering a full line of industrial controls for the water and wastewater industry.



• Level Monitor

• Dual Voltage Phase Monitor

• Pump Monitor Relay, PMR1

• Level Probes

• SC2000 Controller

• Intrinsically Safe Duplex Controller

• Duplexer Controller

• LPC420 Converter



- In Business Since 1983
- No Minimum Purchase
- Same Day Shipping on most items
- Great Customer Service
- Great Technical Support
- Transient Tough Designs
- A Friendly Voice Answers the Phone!

**3 year  
Warranty**



tel • 407 • 299 • 3825

web • [www.mpelectronics.com](http://www.mpelectronics.com)

**OHIO ELECTRICAL CONTROL, INC.**

2395 Rock Road

Ashland, OH 44805

Phone: 419/289-1553

FAX: 419/289-5555

Web Site: [www.oecinc.net](http://www.oecinc.net)*Products:* AT, CP, CT, LA, PC, PM, SS, VFD, OO*Sales Contacts:* Bob McMullen, President. [bob@oecinc.net](mailto:bob@oecinc.net)Jennay Cacchio, Vice President. 419/289-1553. [jennay@oecinc.net](mailto:jennay@oecinc.net)Leslie Blankenship, Vice President. [leslie@oecinc.net](mailto:leslie@oecinc.net)*Technical Contact:* Dave Baker, Engineering Manager. 419/289-1553[dave@oecinc.net](mailto:dave@oecinc.net)

Ohio Electrical Control is ready to serve your control panel needs with our state-of-the-art 20,000 square-foot manufacturing facility. We are proud to have a full metal fabrication shop on site to make any modifications or to engineer any part needed to fulfill your order. OEC is a UL, CUL, and CSA Certified shop. We can build control panels to the UL508A and UL698A standards. Ohio Electric Control has a strong reputation in the water treatment industry. We are forging new relationships with industrial customers and currently forming a division which focuses on OEM controls. Our engineering staff is always ready to quote custom panels to meet your control needs.


**OHIO ELECTRIC  
CONTROL, INC.**
*Quality Products for the Electric Control Industry*

**2395 Rock Road  
Ashland, Ohio 44805  
Phone: 419-289-1553  
Fax: 419-289-5555  
WWW.OECINC.NET**


**MISSION STATEMENT**

To make long lasting relationships with our customers by providing world-class service each and everyday. We pride ourselves in building a superior quality product, with timely delivery, and at a competitive price.

**Timely Delivery**

We pride ourselves on a quick turn around time of purchase to delivery.

**Superior Quality Product**

For over 35 years we have always chosen quality over quantity and in 2013 it isn't any different.

**Valuing People**

We strive to empower our employees to make decisions that enrich the experience for our customers.

**Competitive Price**

We continue to monitor our competition so that we still remain one of the best priced for the products we sell.





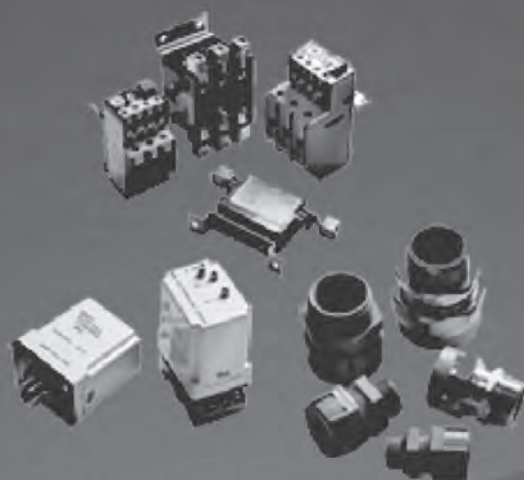
OHIO ELECTRIC  
CONTROL, INC.

# Ohio Electric Control, Inc.

Control Panels  
On-Site Accessories  
Float Switches  
UL, CUL, and CSA Certified  
Custom Controls and Design



**Electric Control Panels**



**Quality Parts Provider**



**Accessory Provider**

**419-289-1553**

Call Today for your FREE catalog  
or download catalog FREE at  
[www.hecinc.net/catalog.pdf](http://www.hecinc.net/catalog.pdf)

**PENTAIR**

5500 Wayzata Blvd, Suite 600  
Minneapolis, MN 55416-1261  
Phone: 763/545-1730  
FAX: 763/656-5400  
Web Site: [www.Pentair.com](http://www.Pentair.com)



*Products:* AP, AC, BS, CH, CP, DP, GP, IP, SH, TP, OP, CC, CT, EM, GR, LA, PC, PM, PB, SE, SS, VA, VFD, WW

*Sales Contact:* Jason Goldberg, North America Sales Director. 437/922-2247.

[jason.goldberg@pentair.com](mailto:jason.goldberg@pentair.com)

*Technical Assistance:* Roger Turley, Senior Director of Engineering. 612/244-9842.

[roger.turley@pentair.com](mailto:roger.turley@pentair.com)

*Sr. Product Marketing Manager:* Brian Alexander. 262/728-7566

[brian.alexander@pentair.com](mailto:brian.alexander@pentair.com)

**Pentair's Fairbanks Nijhuis** line offers world-class custom engineered solutions for the global pumping industry. Offering complete system solutions, Fairbanks Nijhuis globally serves the Infrastructure, Industrial, Irrigation, Oil & Gas and Fire Protection markets. **Pentair's Hydromatic** line of wastewater pumps include submersible grinders, solids handling and self-primers for the municipal, industrial, commercial and residential markets. Pentair's Myers line represents one of the most diversified lines of submersible sump, sewage, effluent, grinder, solids handling and reciprocating pumps for the municipal, industrial, commercial and residential markets.



## ENGINEERED SOLUTIONS

Providing a wide range of pumps  
and pumping solutions for global  
infrastructure and industrial  
market applications.

[www.FairbanksNijhuis.com](http://www.FairbanksNijhuis.com)





## PENTAIR HYDROMATIC

### HPE CHOPPER PUMP

# DESTROYS DEBRIS BEFORE IT CLOGS

#### PATENT-PENDING CHOPPER MECHANISM

- Cuts material into small pieces allowing free flow through the pump

#### PREMIUM EFFICIENT MOTOR

- Delivers high starting torque for reduced risk of clogging during start-up

#### SEMI-OPEN IMPELLER DESIGN

- Provides superior solids handling capability while delivering increased efficiency

#### CUTTING BLADE AND PLATE

- Made from 440 SST hardened to 57-60 Rockwell C for long life
- Replaceable for lower maintenance costs
- Adjustable cutting plate ensures optimal alignment for best cutting performance
- Relief groove on cutter plate creates extra cutting edge and forces debris away from cutting surface for maximum clog resistance

[www.Hydromatic.com](http://www.Hydromatic.com)



#### SERRATED BLADES

- For effective cutting without need for re-sharpening.



## PENTAIR MYERS

### V2 GRINDER SERIES

# SHREDDING WASTEWATER CHALLENGES

#### PATENTED AXIAL CUTTER TECHNOLOGY

- Easily slice through solids and trash found in domestic wastewater without roping or clogging

#### ADVANCED HYDRAULICS

- The only single stage 2 HP grinder that can deliver up to 180' of lift for superior performance and reliability

#### LEGENDARY SEAL LEAK DETECTION

- True early warning system for reduced downtime and maintenance costs

Watch the video at  
[www.femyers.com](http://www.femyers.com)



**PUMPS & SYSTEMS MAGAZINE**

1900 28th Avenue South

Birmingham, AL 35209

Phone: 205/212-9402

FAX: 205/314-8272

Web Site: [www.pumpsandsystems.com](http://www.pumpsandsystems.com)
**PUMPS&SYSTEMS**  
 The Leading Magazine for Pump Users Worldwide

*Products:* magazine, website, newsletters, webinars, eblasts, content marketing, podcasts

*Sales Contact:* Derrell Moody, Account Executive

[Dmoody@pump-zone.com](mailto:Dmoody@pump-zone.com)

*Editorial Contact:* Alecia Archibald, Senior Editor

[Aarchibald@cahabamedia.com](mailto:Aarchibald@cahabamedia.com)

Since 1993 Pumps & Systems has provided the most comprehensive coverage of the pump industry to end-users worldwide. Our monthly magazine and digital edition connect 46,000 qualified, BPA-audited subscribers with technical solutions and informative case studies. The total monthly P&S audience has grown to more than 180,000, thanks to our active website and popular newsletters. The introduction of content marketing services and a weekly podcast are examples our ongoing response to industry needs and trends. Additionally, our educational webinar program provides an average of more than 500 high-quality leads for sponsors.

ONLINE • ON DEMAND • 24 / 7 ACCESS

## **SWPA Training Resource Center**

Your on-demand CEU & training headquarters

- On-Demand Courses
- Technical Articles
- Case Studies
- Manuals & Handbooks
- Events

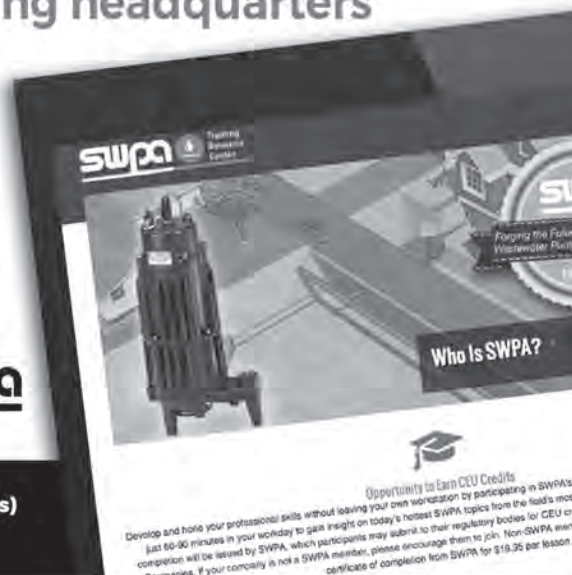
VISIT [SWPA.ORG](http://SWPA.ORG)

brought to you by

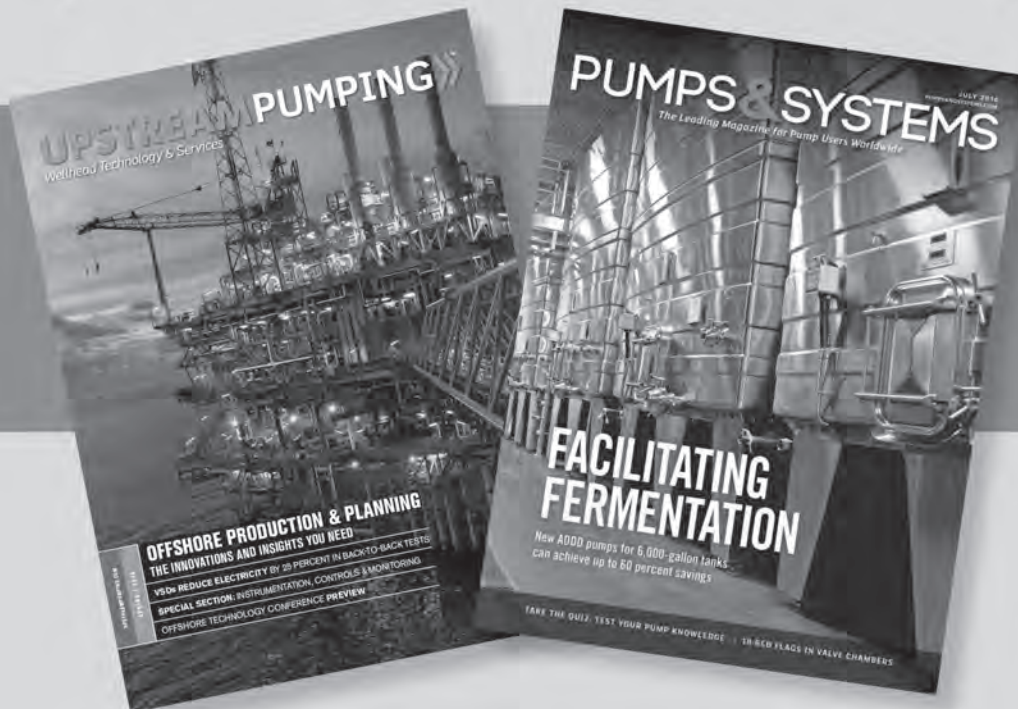
PUMPS&SYSTEMS



**Participants may earn Continuing Education Credits (CEUs)**  
**ALL CONTENT FREE TO SWPA MEMBERS!**



# FOLLOW THE LEADER



COMPREHENSIVE COVERAGE  
RELEVANT CONTENT  
CASE STUDIES  
WORLDWIDE NEWS  
TECHNICAL ARTICLES

To subscribe to our print or digital editions and to sign up for our e-newsletters, visit our websites and click on **SUBSCRIBE**.

[PUMPSANDSYSTEMS.COM](http://PUMPSANDSYSTEMS.COM)

[UPSTREAMPUMPING.COM](http://UPSTREAMPUMPING.COM)



**ROCKWELL AUTOMATION, INC.**

1201 South Second Street  
Milwaukee, Wisconsin 53204

Phone: 414-382-2000

Web Site: [www.rockwellautomation.com/industries/water](http://www.rockwellautomation.com/industries/water)

**Rockwell  
Automation**

*Products:* CP, CT, VFD

*Architecture & Software*

This segment contains key elements of the Rockwell Automation control and information platforms, software applications and automation components.

*Control Products & Solutions*

This segment consists of motor control products, solutions and services.

*Sales Contact:* Christa Bankay, Commercial Program Manager. 519/244-5320  
[cdbankay@ra.rockwell.com](mailto:cdbankay@ra.rockwell.com)

*Technical Contact:* Kelvin Hurdle, W/WW Industrial Manager. 602/697-7372.  
[kjhurdle@ra.rockwell.com](mailto:kjhurdle@ra.rockwell.com)

Rockwell Automation, Inc., the world's largest company dedicated to industrial automation and information solutions, helps make its customers more productive and the world more sustainable.

The PlantPAx™ Process Automation System leverages the core Integrated Architecture™ technologies and custom solutions for plant-wide control. Combined with intelligent motor control, PlantPAx can help you to reduce downtime, increase productivity, reduce energy use and improve safety. Predict and prevent maintenance issues, boost performance and protect your assets with process automation control from Rockwell Automation.



**Pump control – meet intelligence.**

Improve your pump operations with Intelligent Motor Control solutions from Rockwell Automation. With easy access to control and diagnostics, you can make better decisions to help achieve optimum pump performance.



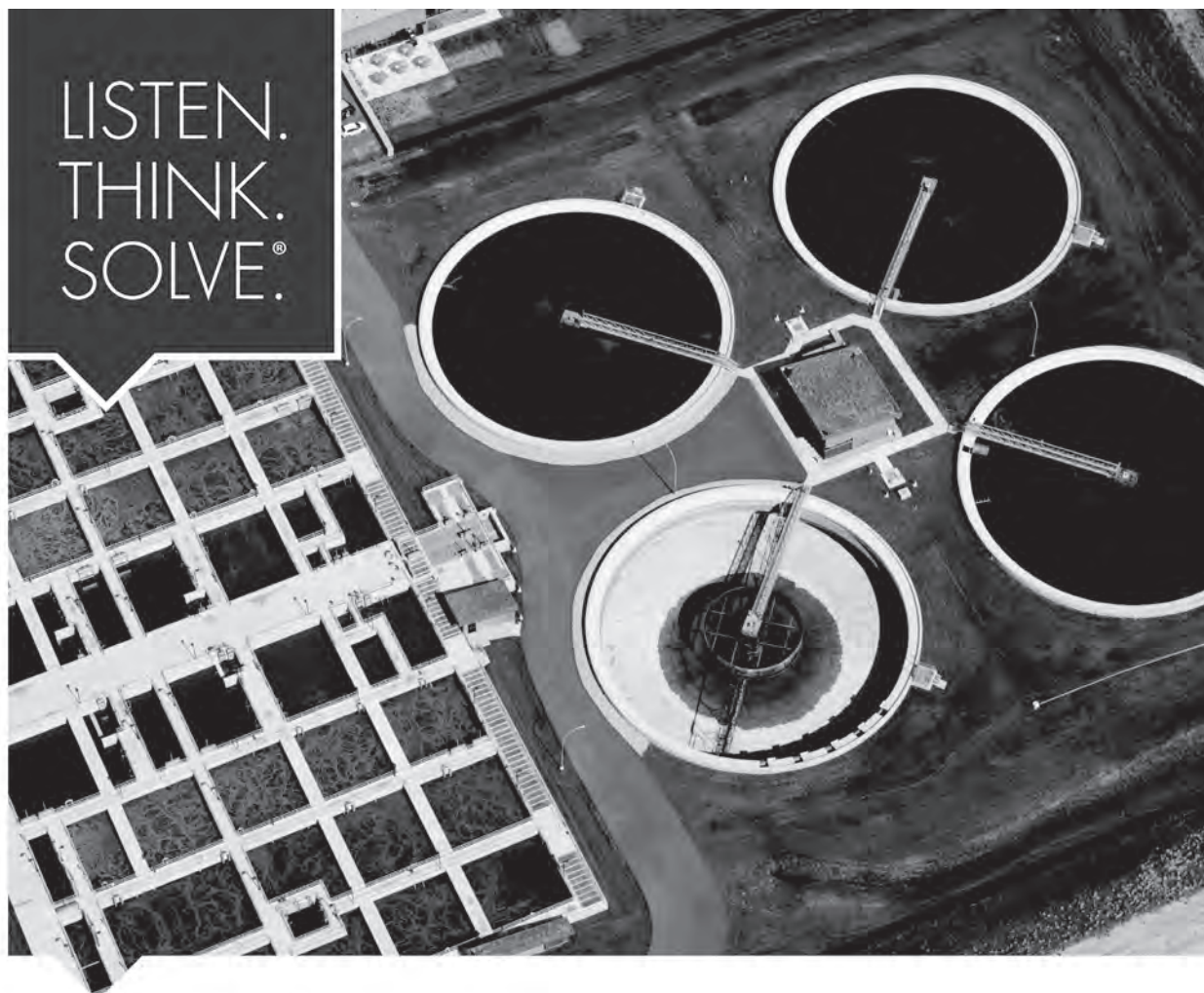
Learn more at:  
[www.rockwellautomation.com/solutions/intelligentcontrol](http://www.rockwellautomation.com/solutions/intelligentcontrol)

**Rockwell  
Automation**

Allen-Bradley • Rockwell Software

Copyright © 2014 Rockwell Automation, Inc. All Rights Reserved. CENTERLINE® and PowerLine® are registered trademarks of Rockwell Automation, Inc.





**Aging infrastructure?**  
**Stringent government regulations?**  
 Solve both with the PlantPAx™ process automation system.

This flexible, scalable plant-wide control solution delivers the intelligence to meet government regulations AND optimize the use of resources, manpower and equipment. Its open technology, combined with our industry experience, enable the creation of an ideal phased migration strategy. Spend less time managing operations and more time driving productivity.

Find out more at:  
[www.rockwellautomation.com/solutions/process](http://www.rockwellautomation.com/solutions/process)

Copyright © 2014 Rockwell Automation, Inc. All Rights Reserved. PlantPAx™ is a trademark of Rockwell Automation, Inc.

**Rockwell  
Automation**

 **Allen-Bradley • Rockwell Software**

**SCHNEIDER ELECTRIC/SQUARE D**

8001 Knightdale Boulevard

Knightdale, NC 27545

Web Site: [www.schneider-electric.us/pump](http://www.schneider-electric.us/pump)

*Products:* CO, CT, PC, PM, VFD, OO (Variable frequency drives, soft starters, motor starters, circuit breakers, disconnects, programmable logic controllers, sensors and other electrical and electronic devices used in conjunction with the submersible pump industry.)

*Segment Contact:* Jack Creamer, Segment Manager–Pumping Equipment.

919/949-3018 or [jack.creamer@schneider-electric.com](mailto:jack.creamer@schneider-electric.com)

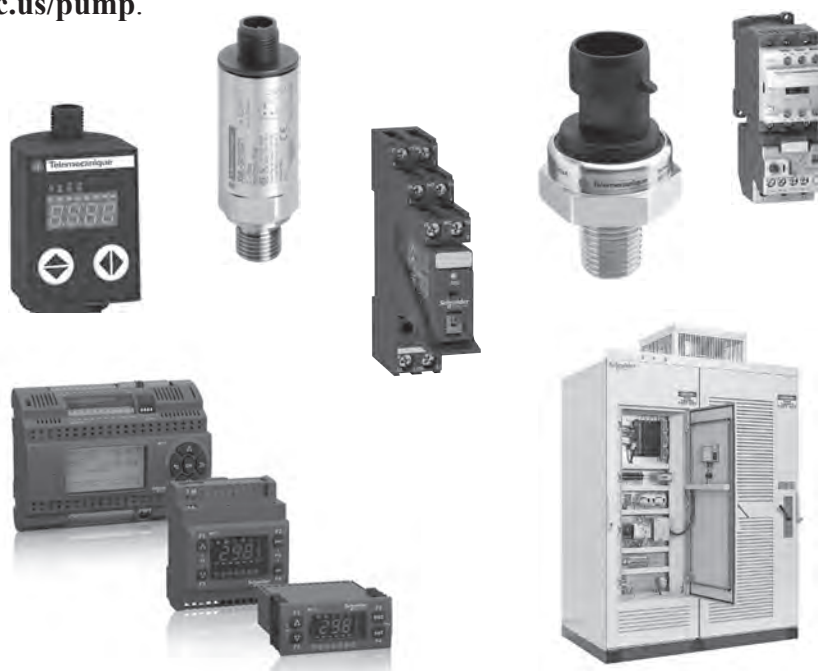
*Sales Contact:* Michael Gaza, Business Development Manager–Pumping Equipment.

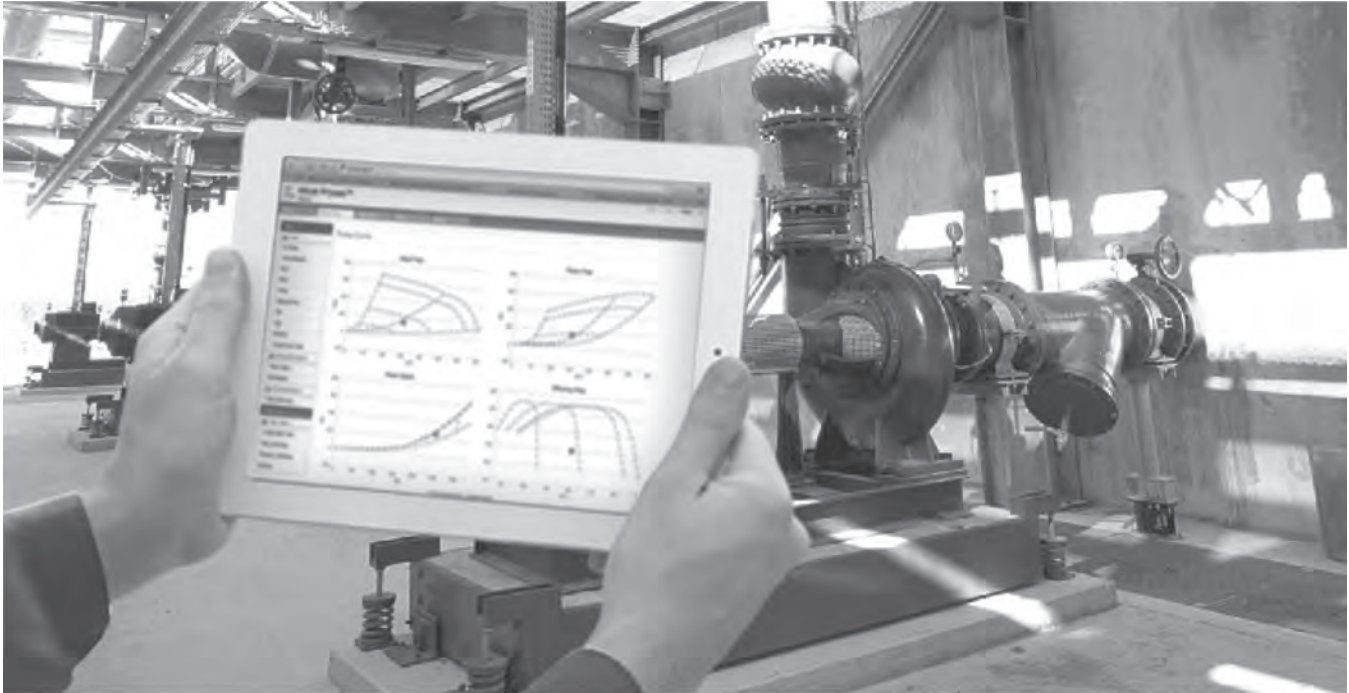
484/248-0497 or [michael.gaza@schneider-electric.com](mailto:michael.gaza@schneider-electric.com)

*Technical Contact:* Jo Lockard, Application Development Manager.

919-266-8818 or [Jo.lockard@schneider-electric.com](mailto:Jo.lockard@schneider-electric.com)**Schneider Electric: Your partner for efficient, connected smart pumping solutions**

From the most basic application to the most complex project, Schneider Electric is committed to your success in the pumping marketplace. To meet the challenges in today's complex market, you need more than an equipment supplier — you need a solutions provider. Schneider Electric is an innovative partner committed to helping you solve your most complex challenges while working with you to adopt the latest technology for your needs. We provide a broad range of cutting edge Control, Automation and power solutions that exceed expectations in the pumping industry. With 150 years of experience, we are dedicated to helping your company find a strategic edge in the market, whether you're focused on water/wastewater, commercial and industrial building, industry, irrigation, or residential. We have the right solution for your application requirements and the expertise to make it work! For more information, visit [www.schneider-electric.us/pumping](http://www.schneider-electric.us/pumping). For more information, contact us at 888-778-2733 or visit [www.schneider-electric.us/pump](http://www.schneider-electric.us/pump).





## How can you reduce total cost of ownership and optimize pump performance?

### **Altivar Drives: Advanced energy management and performance in motor control**

For more than 30 years, Schneider Electric has supplied AC drives to energy-intensive industries worldwide. Today, the family of Altivar Drives offers the most advanced and user-friendly variable-speed AC Drives and Drive Systems offering on the market.

Featuring proprietary motor control algorithms to achieve optimal motor performance and complete scalability to match your application speed, size, and protection requirements, the complete line of Altivar products and solutions delivers the flexibility and performance to:

- Optimize a broad range of utility and industrial applications including pumps, fans, compressors, material handling, hoisting, packaging, and material working.
- Reduce energy costs by using proprietary energy saving technologies available only from Schneider Electric.
- Improve uptime by simplifying installation, commissioning, and maintenance by providing advanced diagnostics, industry-leading voltage ride-through capability, and seismic-qualified products and solutions.

Altivar Process drives have been specifically designed for industrial pumping processes, including:

- Irrigation
- Industrial
- Water/Wastewater
- Oil & Gas
- Mining & Minerals
- Buildings
- Residential
- And more!

For more information, visit [www.altivardrives.com](http://www.altivardrives.com).



**Schneider**  
 **Electric**



**SJE-RHOMBUS**

22650 County Highway 6

Detroit Lakes, MN 56501

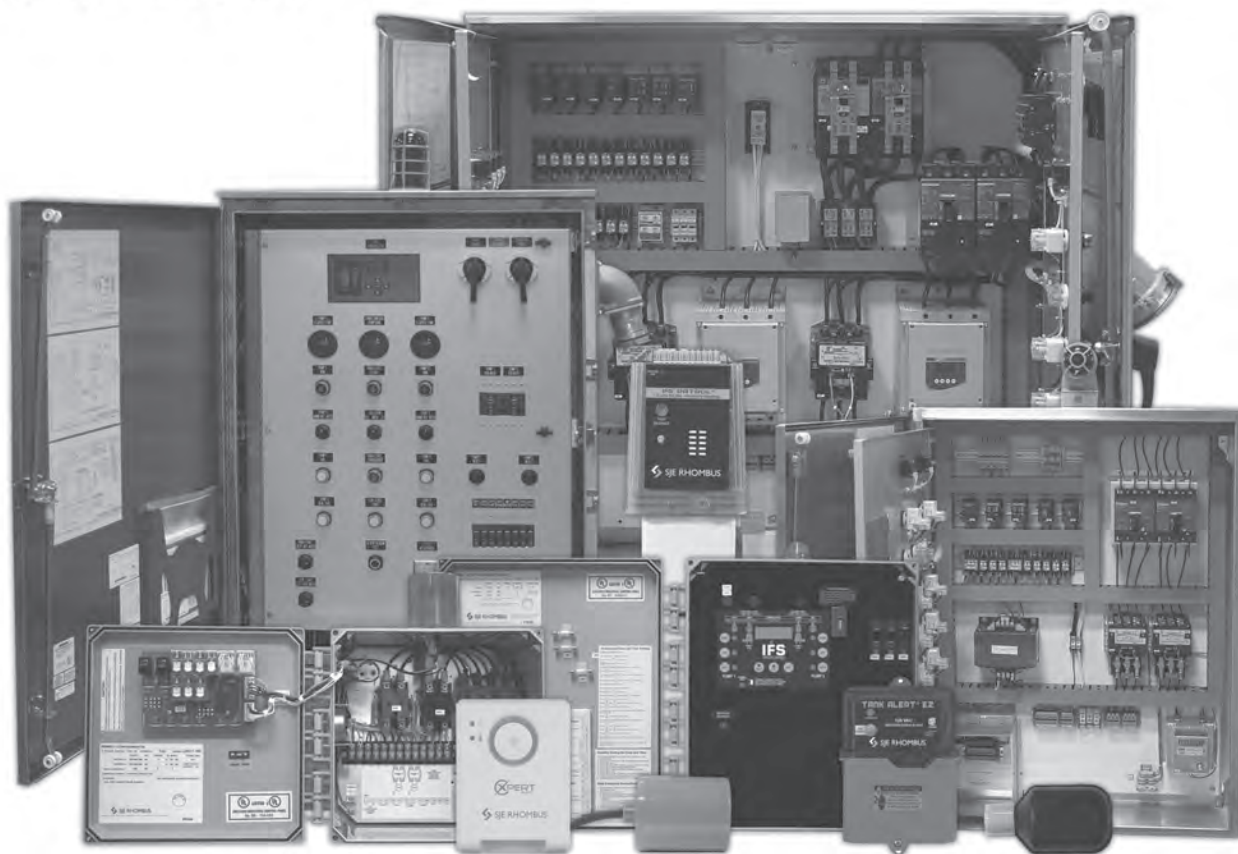
Phone: 888/342-5753 or 218/847-1317

Web Site: [www.sjerhombus.com](http://www.sjerhombus.com)*Products:* AT, CP, CT, LA, PC, PM, SS, VFD*Sales & Technical Assistance:* Jeremy Drinkwine, Custom Panel Business Development.

Cell: 218/850-2491. Office: 218-847-1317, Ext. 3345.

[Jeremy.Drinkwine@sjeinc.com](mailto:Jeremy.Drinkwine@sjeinc.com)

SJE Rhombus is a leading control solutions provider, combining over 40 years of expertise in pump controls with the latest technology to deliver energy efficient, cost-effective products for a wide variety of residential, commercial, municipal, industrial and agricultural applications. No matter the application, SJE Rhombus has a control solution to fit your needs, whether it's a simple float switch or septic alarm system to control panels using embedded circuit board technology for advanced programming and monitoring of your system. And if we don't have it in our standard catalog, we can design and build a custom solution to meet your exact specifications. With corporate headquarters located in Detroit Lakes, Minnesota, SJE Rhombus does business globally from eight locations across the United States and Asia. SJE Rhombus is a 100% employee-owned, privately held company. To learn more, visit [www.sjerhombus.com](http://www.sjerhombus.com).





# BUILD-A-PANEL™ PLUS

**Enjoy the quality, flexibility and versatility of our leading Build-A-Panel™ control panels, PLUS so much more!**

Our newly expanded Build-A-Panel™ PLUS Program is designed to benefit customers who require additional options beyond what our standard control panel line offers. The Build-A-Panel™ PLUS Program utilizes inventoried components to allow for:

- **24 hour quote response**
- **3-5 week build-to-ship**
- **Larger enclosure sizes**
- **Multiple pumps**
- **Affordable solutions**
- **Two-year limited warranty**

## **Build-A-Panel™ PLUS Options:**

- Motor starters up to 100A per pump
- IEC or NEMA rated starters
- Soft starters or VFDs
- Enclosure sizes up to 60 x 36 x 10"
- Inner door with indicators, operators
- Circuit breakers with max. SCCR 5KA
- Generator receptacles, 60A or 100A
- SJE Rhombus dedicated pump controllers
- Phone land-line auto dialers
- And more!



**Email Quote Requests to:**  
[panelquote@sjerhombus.com](mailto:panelquote@sjerhombus.com)



[www.sjerhombus.com](http://www.sjerhombus.com)

**SULZER**

140 Pond View Drive  
Meriden, CT 06450

Phone: 203/238-2700

FAX: 203-238-0738

Web Site: [www.sulzer.com](http://www.sulzer.com)

**SULZER**

*Products:* AP, CP, DP, GP, IP, SH, AC, BS, CP, CT, GR, LA, PC, PM, PB, SE, SS

*Sales Contact:* Robert Wright, National Distribution Manager. 203/443-3786

[Robert.wright@sulzer.com](mailto:Robert.wright@sulzer.com)

*Technical Contact:* Chris Olofsson, Product & Aftermarket Engineering Manager. 203/514-4294

[Christopher.olofsson@sulzer.com](mailto:Christopher.olofsson@sulzer.com)

Sulzer offers the most advanced equipment for water production, transportation, wastewater collection and treatment for municipalities and industries. These products include submersible pumps, mixers, flow boosters, aeration systems, turbocompressors, and easy-to-use systems for monitoring and control. We have more than 100 years of application experience and manufacturing customer-oriented solutions using leading technology. The ABS XFP range of submersible wastewater pumps incorporated the first premium-efficiency IE3 motor designed and tested with IEC60034-30 together with optimized hydraulics - yielding the best total efficiency available on the market today.



## Uncompromising Blockage Protection

**SULZER**

As the rags and solids in wastewater increase, you need innovation that keeps pumping stations problem-free. The submersible sewage pump type ABS XFP from Sulzer, with its versatile range of Contrablock Plus impellers, is insurance against downtime that's easy to acquire.

The impellers' superior rag handling and minimum free solids passage of 75 mm mean you spend far less time on troublesome pumping stations. Switching from an existing pump is easy, and you save energy immediately with the XFP's premium-efficiency IE3 submersible motor – which Sulzer pioneered and provides as standard.

For more innovation in wastewater collection, visit [www.sulzer.com](http://www.sulzer.com)

# Reliability and lower cost of operation in water and wastewater applications



## SULZER

Sulzer provides a full range of pumps, mixers, aeration systems and controllers for the main applications in water and industrial – and municipal wastewater treatment.

Our innovative solutions ensure higher reliability and energy savings of up to 25-30% – which makes all the difference in reducing the cost of operations of your plant.

With a wide service network, Sulzer also offers a fast and efficient response to the specific needs of each customer.

Contact us and find out how Sulzer solutions can revolutionize your processes.

[www.sulzer.com](http://www.sulzer.com)



**TOPP INDUSTRIES INC.**

P. O. Box 420, Highway 25 North  
Rochester, IN 46975

Phone: 800/ 354-4534

FAX: 574/223-6106

Web Site: [www.toppindustries.com](http://www.toppindustries.com)



*Products:* AC, BS, GR, LA, PS, PB, SE, WW, OO  
(Structural Foam Basins and Prefabricated Lift Stations)

*Sales Contact:* Ed Kelso 574/224-8653. [ekelso@toppindustries.com](mailto:ekelso@toppindustries.com)

*Technical Contact:* Judy Terry, Engineered Sales and Customer Service.  
574/224-8653. [jterry@toppindustries.com](mailto:jterry@toppindustries.com)

TOPP Industries, Inc. is the leading manufacturer in fiberglass pre-fabricated lift stations. TOPP has fiberglass tanks from 18" thru 120" diameter. Package lift stations are available with attached and unattached valve boxes, that allows the valves, controls and service personnel to be isolated from the wet well. TOPP also has specialists to assist with your specifications and drawings - contact one of our customer service representatives for more information. In addition to lift stations, TOPP also carries a complete line of polyethylene and structural foam basins for your individual needs. To learn more, visit [www.toppindustries.com](http://www.toppindustries.com).



A proven leader in sewage, sump and wastewater markets, TOPP offers high-quality environmentally responsible products, including fiberglass, polyethylene and structural foam basins, tanks, basin and tank covers, lift stations, septic tank risers, extensions and accessories.



Rochester, IN 46975 • (800) 354-4534 • [www.toppindustries.com](http://www.toppindustries.com)





## Engineered Solutions You Can Trust

Fiberglass pre-fabricated lift stations, rail systems and more.



## Building for the Future

Providing the best fiberglass, polyethylene and structural foam  
sewage, sump and wastewater basins.

Made proudly in America.

[www.toppindustries.com](http://www.toppindustries.com)  
(800) 354-4534

**VAL-MATIC VALVE & MFG. CORP.**

905 Riverside Drive

Elmhurst, IL 60126

Phone: 630/941-7600

FAX: 630/941-8042

Web Site: [www.valmatic.com](http://www.valmatic.com)*Products: VA**Sales Contact:* Diane Meyer, Marketing Manager.630/993-4022 Fax: 630/993-4087. [dmm@valmatic.com](mailto:dmm@valmatic.com)*Technical Contact:* Ed Gardner, Account Manager.630/993-4018. [edg@valmatic.com](mailto:edg@valmatic.com)

Val-Matic is a leading manufacturer of Air Valves, Check Valves and Quarter Turn Shut-Off Valves for water/wastewater, power, industrial, fire protection and HVAC applications. Val-Matic offers six types of check valves including: **Surgebuster®**, **Tilted Disc®**, **Dual Disc®**, **Swing-Flex®**, **Swing Check** and **Silent Check Valves** to meet various applications. The line of shut-off valves consists of the **Ener-G® AWWA Rubber Seated Ball Valve**, the **American-BFV® Butterfly Valve** and the **Cam-Centric® Plug Valve**. Val-Matic has a complete line of Air Valves certified to NSF/ANSI 61 Standard for Drinking Water System Components and NSF/ANSI 372 certified lead-free. For more information, visit our website at [www.valmatic.com](http://www.valmatic.com).



## **Quality Valves for Quality Pumps**

*The Perfect Solution for Your Pumping Applications**NSF/ANSI 372 Certified Lead-Free*

Clean Water  
Air Valves



Surgebuster®  
Check Valves



Wastewater  
Air Valves



Swing-Flex®  
Check Valves

**Manufacturing Quality Valves since 1966. ISO 9001 Certified.**

# VAL-MATIC®

*Your Valve Experts™*

## American-BFV® Butterfly Valves



- Available in Sizes 3"-144"
- Full Compliance with AWWA C504, C516, NSF/ANSI 61 and 372
- Continuous Uninterrupted Seating
- Multiple Actuation Options Available



## Cam-Centric® Plug Valves



- Available in Sizes 1/2" - 60"
- 100% Port Available
- Full Compliance with AWWA C517 and NSF/ANSI 372
- Totally Encapsulated Molded Plug



## Ener-G® Ball Valves



- Available in Sizes 4" - 60"
- Full Compliance with AWWA C507, NSF/ANSI 61 and 372
- 100% Full Flow Area Equal to Pipe Size
- Preferred for Surge Control & Energy Savings





**VAUGHAN COMPANY, INC.**

364 Monte Elma Road  
Montesano, WA 98563

Phone: 360/249-4042

FAX: 360/249-6155

Web Site: [www.chopperpumps.com](http://www.chopperpumps.com)



*Products:* CH, DP, IP, SH, OP, AC, CP, CT, EM, GR, LA, PC, VFD

*Sales Contact:* Stefanie Vaughan

360/249-4042, Ext. 227. [stefanie@chopperpumps.com](mailto:stefanie@chopperpumps.com)

Established in 1960, Vaughan Company is the industry leader in reliable chopper pumps and mechanical hydraulic mixing systems. With more than half a century of experience, Vaughan Company remains committed to giving their customers outstanding service and the most dependable product solutions in the world. All Vaughan products are proudly made in the USA at our factory in Montesano, WA. Find your reliable pumping solution by calling 888-249-CHOP or by visiting [www.chopperpumps.com](http://www.chopperpumps.com).



## UNMATCHED RELIABILITY

Since 1960, Vaughan Company has committed to delivering outstanding service and the most dependable pump and mixing product solutions in the world.

- Vaughan Chopper Pump
- Triton® Screw Pump
- Conditioning Pump
- Portable Bypass Trailer
- Rotamix® Mechanical Hydraulic Mixing system
- Unmanned Floating Pumping Platform
- Turbo-S Mixer



[ChopperPumps.com](http://ChopperPumps.com) | 360.249.4042 | [info@chopperpumps.com](mailto:info@chopperpumps.com)







# UNMATCHED RELIABILITY

Since 1960, Vaughan Chopper Pumps have delivered **GUARANTEED PERFORMANCE** in the toughest applications. See why the original chopper pump is still unmatched.

- Expedite pumps and parts delivery
- Written performance guarantee
- Superior life cycle costs
- Hardened wear components
- Eliminates use of comminutors prior to pumping
- 6 individual chopping features
- Vaughan's unique, cartridge-style flushless mechanical seal
- Free trial program available
- Ask about our on-site chopper pump demonstration

Experience ease of maintenance with Vaughan Chopper Pumps.



See videos, drawings, and details at [ChopperPumps.com](http://ChopperPumps.com) or call 888.249.CHOP  
[ChopperPumps.com](http://ChopperPumps.com) | 360.249.4042 | [info@chopperpumps.com](mailto:info@chopperpumps.com)



**WEIL PUMP COMPANY, INC.**

W 57 N 14363 Doerr Way, P.O. Box 887  
Cedarburg, WI 53012

Phone: 262/377-1399

FAX: 262/377-0515

Web Site: [www.weilpump.com](http://www.weilpump.com)



*Products:* CP, DP, GP, IP, SH, AC, AT, BS,  
CC, CP, CT, EM, GR, LA, PM, SE, SS, VA, VFD, WW

*Sales Contact:* Doug James, Sales Manager.  
262/377-1399. [doug.james@wilo-usa.com](mailto:doug.james@wilo-usa.com)

*Technical Contact:* Tim Bade, Technical Sales Manager.  
262/377-1399. [tim.bade@wilo-usa.com](mailto:tim.bade@wilo-usa.com)

Weil Pump, A Wilo Company, designs and manufactures pumps for commercial, municipal and industrial applications. Weil Pump specializes in centrifugal pumps for wastewater handling, condensation return and hot & cold water circulation in submersible, vertical and dry well types. Sewage, grinder, slicer, vortex mover, sump and effluent models are available with standard or U/L explosion-proof motors — all air filled. For corrosive applications, vertical and submersible models are available in stainless steel construction. Removal systems, duplex wastewater valves, control panels, level controls and wet well covers round things out to provide a complete package lineup.

---

## Weil Pump's Line of PLC Panels Offers Flexibility and Complete System Control

Weil Pump's line of Programmable Logic Controller (PLC) panels provides a powerful platform for the control of most pumping systems, including commercial, industrial, process and booster service pumps. The PLCs are built in-house at Weil's production facility in Cedarburg, WI, centralizing the product line's manufacture and testing. The panels have the flexibility to control up to four pumps and work with a variety of level controls, from state-of-the-art transducers to traditional float switches.

The PLCs boast advanced monitoring capabilities, multiple fail-safes and built-in troubleshooting and provide early detection of faults to help keep mission-critical systems running smoothly and without interruption. In addition, the panels offer detailed metrics on pumping operation, maintenance intervals and alarm histories for offsite management and control, reducing the likelihood of having to enter the confined conditions on-site.

Tom Lindner, Principal Engineer at Weil Pump, says "The PLCs are user-friendly and easy to install thanks to a large, color touchscreen and intuitive user interface. Setting up wired or wireless remote monitoring and control of the system via network is simple, and the panel can integrate with existing building automation system through industry-standard BACnet and Modbus connections. Weil's PLCs offer unmatched reliability."

Weil introduced the first panels in 2015 and has since continued to engineer PLC solutions. In addition to the flagship product, the Premium PLC, Weil also offers the PLC Plus and the Base PLC. Enhanced design features are also available, such as flowmeters, pressure switches and rain monitors, enabling engineers to specify a smart panel for the entirety of a project.







Fully customizable & ships pre-assembled to the job site!

#### Single-Source Basin Package Systems Made in the USA

With Weil Pump package systems, you enjoy the benefits of working exclusively with us. You simply place a single order, and the system will come pre-assembled to the job site! Rest assured that all components have been carefully measured and placed to fit the specification. The fiberglass basin features lifting handles and threaded inlets/outlets, making installation easy. A reinforcement band increases structural integrity by nearly 200%. The basin floor is pre-studded for mounting a quick-removal sub-base for the installation and removal of 2", 3", 4" or 6" pumps, preventing the need to enter the basin. Optionally, it may include a duplex valve assembly consisting of two check valves and an isolation valve. A wide variety of level controls and accessories are available, including tethered float switches, oil-sensing switches, transducers and simplex, duplex, triplex or quadriplex control panels.

[www.weilpump.com](http://www.weilpump.com) | [weil.sales@wilo-usa.com](mailto:weil.sales@wilo-usa.com)

*Simply the Best.*



*Explosion-Proof Pumps Available!*

**WEIL**  
Pump  
A WILO COMPANY



**Wilo USA LLC**

9550 W. Higgins Rd., Suite 300

Rosemont, IL 60018

Phone: 888/945-6872

FAX: 888/945-6873

Web Site: [www.wilo-usa.com](http://www.wilo-usa.com)



*Products:* CP, DP, GP, IP, SH, OP, CP, CT, EM, VA, VFD

*Sales Contact:* Joe Jackson, Director of Sales.

801/699-6004. [joe.jackson@wilo-usa.com](mailto:joe.jackson@wilo-usa.com)

*Technical Contact:* Nick Morris, Applications Sales Engineering Manager.

229/584-0244. [nick.morris@wilo-usa.com](mailto:nick.morris@wilo-usa.com)

Wilo USA is a subsidiary of Wilo SE, which is headquartered in Dortmund, Germany. Wilo is one of the largest manufacturers of heavy-duty municipal and industrial pumps and mixers specifically designed for water and solids-handling applications, including pumps for sludge, tertiary waste and potable water. In addition, Wilo is one of the world's leading innovators in pumps and pumping systems for heating, ventilation, air-conditioning technology and raw water supply. Wilo is represented worldwide in over 90 countries by more than 60 subsidiaries, including 21 production sites, and employs more than 7,700 people globally.

---

**Wilo USA Introduces New Program to Cut Lead Time, Simplify Process for Replacement Parts**

The new program features two types of standard "kits" for both oiled and oil-less motors, the Power Kit and the Hydraulic Kit, for select FA pumps ranging from 2.8 to 25 horsepower. The program is expected to substantially reduce the lead time to the customer by allowing the local authorized distributor to configure complete pumps within as little as 24 hours. This program was designed to alleviate stress on the customer and allay pressure on production and order fulfillment. The initial kit rollout encompasses the most popular models, 08.52, 10.33, 10.51 and 10.65. Additional kits will be developed and released following the same methodology.

Darren McGuire, Director of Operations for Wilo USA states, "We are excited about this new program as it will allow Wilo to be much more proactive in meeting our customers' needs. When pumps in their systems go offline, our distributors will be able to get them up and running again quickly, saving our customers' precious time and worry."



The Power Kit features the pump motor and necessary cables, while the Hydraulic Kit features a volute kit, suction cover (if applicable) and an impeller kit which includes a full-size unbalanced impeller for the distributor to trim and balance per the customer's specifications. Each kit is shipped in custom-fitted packaging for premium protection during transit. Additionally, motor boxes use special inserts to support the motor weight and are mounted to a mini-skid for absolute security during handling.

The program is the latest operations development from Wilo USA and is expected to positively impact the customer-distributor relationship.



**The Wilo Way:  
Reliable technology  
you can trust.**



Wilo-FA submersible wastewater pumps have a reputation in the industry as the toughest, most durable option for sewage disposal and treatment due to the engineering inside the pump. Features include the largest diameter shafts with the lowest overhangs in the industry, a stainless steel enclosed block seal and a highly efficient closed-loop cooling system with heat exchanger.

The optimal engineering isn't limited to the mechanical components. Our proprietary 2-part Ceram® coating is a solvent-free, polymer material with corrosion-resistant aluminum oxide. Thanks to its increased resilience to abrasion and weathering, it effectively prevents mechanical and chemical wear for long-lasting protection. Ceram® can also be used on volutes and impellers. That's what we call Pioneering for You.

888-945-6872 | [www.wilo-usa.com](http://www.wilo-usa.com)

Pioneering for You



**Wilo-FA**



**Solid Impeller**

**wilo®**

**ZOELLER ENGINEERED PRODUCTS**

3649 Cane Run Road

Louisville, KY 40211-1961

Phone: 800/928-7867

FAX: 502/774-3624

Web Site: [www.zoellerengineered.com](http://www.zoellerengineered.com)

*Products:* CP, DP, GP, SH, AC, AT, BS, CT, GR, LA, PB, VA, WW

*Sales Contact:* Deron Oberkorn, Business Manager.

Ext. 8258. [derono@zoeller.com](mailto:derono@zoeller.com)

*Technical Contacts:* Steve Doolittle, Product Marketing Manager.

Ext. 8215. [steved@zoeller.com](mailto:steved@zoeller.com)

For 80 years, craftsmen from Zoeller company have been manufacturing quality, American made products. From small submersible ejector pumps to larger grinder and solids-handling pump lift stations, you can put your trust and confidence behind Zoeller's quick deliveries, competitive prices, and toll-free technical support.

This advertisement for Zoeller Engineered Products features a collection of industrial pumps and components. On the left, there are three vertical submersible pumps of varying sizes. In the center, there are several circular pump components, including a large impeller and a smaller motor housing. On the right, there are two large, cylindrical vertical pump units. The Zoeller logo is prominently displayed in the upper center. Below the pump images, the text "Solids-Handling and Grinder Pumps" is followed by "1/2 HP to 100 HP". At the bottom, the slogan "Trusted. Tested. Tough.™" is written above the website address "zoellerengineered.com".

**ZOELLER**   
ENGINEERED PRODUCTS

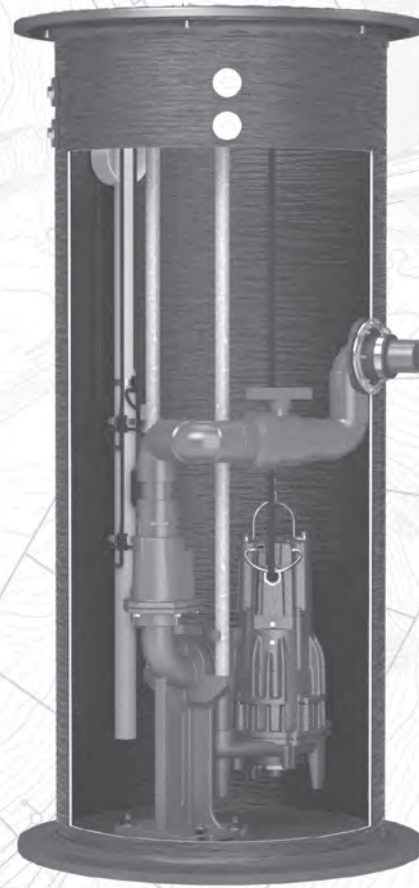
Solids-Handling and Grinder Pumps  
1/2 HP to 100 HP

Trusted. Tested. Tough.™  
[zoellerengineered.com](http://zoellerengineered.com)



# PRESSURE SEWER PUMP STATIONS

- Multiple 1 to 2 HP pumps available, centrifugal or progressing cavity
- Built to spec and design requirements
- Hydraulic design services available
- Built by Americans, in America



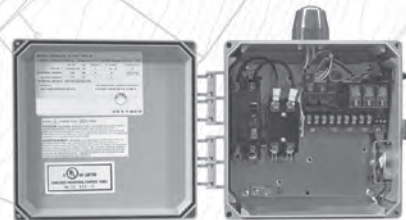
with Industry's BEST

**SHARK**  
*Series*  
**GRINDER PUMPS**



Tri-Slice® Cutter Design

7020  
1 HP Progressing  
Cavity Grinder

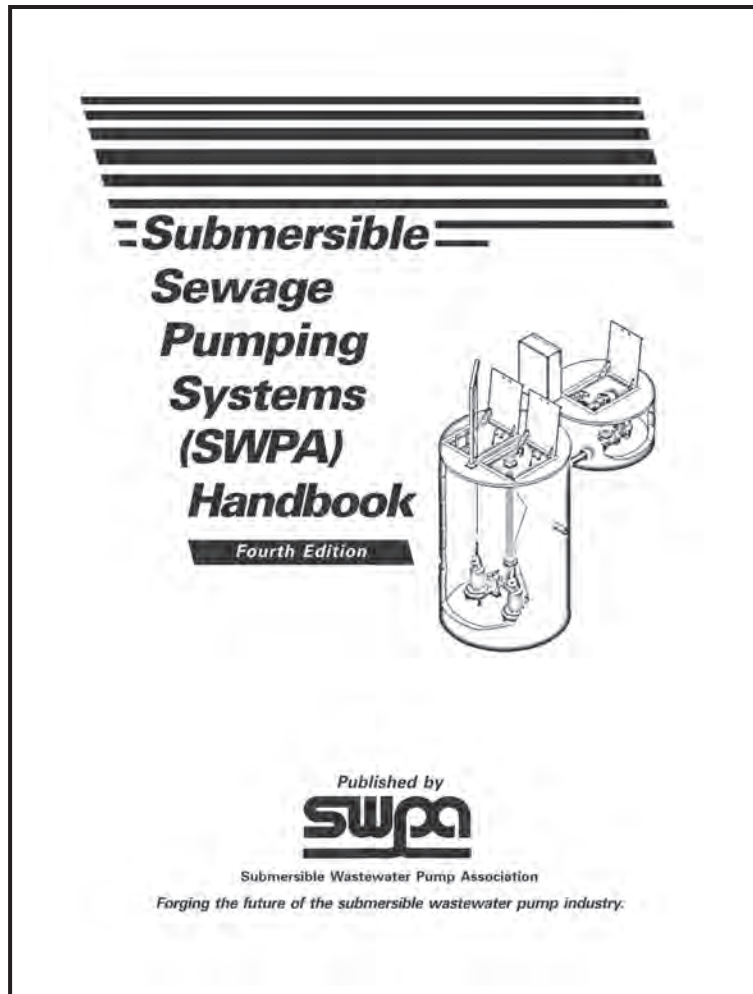


NEMA 4X Simplex Panel

**ZOELLER**   
**ENGINEERED PRODUCTS**

[zoellerengineered.com](http://zoellerengineered.com)





**ORDER YOUR COPY TODAY!**

**THE 4TH EDITION OF THE  
SUBMERSIBLE SEWAGE PUMPING  
SYSTEMS (SWPA) HANDBOOK.**

**PLEASE CONTACT SWPA  
HEADQUARTERS AT 847.681.1868  
OR CLICK ON THE LINK  
"SWPA HANDBOOK – 4TH EDITION" AT  
WWW.SWPA.ORG**



## **Rely on This Symbol**



**Submersible Wastewater Pump Association**  
**350 North LaSalle Street, 9th Floor ♦ Chicago, IL 60654**  
**Phone: 847.681.1868 ♦ FAX: 312.475.9022**  
**E-Mail: [swpaexdir@sbcglobal.net](mailto:swpaexdir@sbcglobal.net)**

For more information about the Association and the industry it serves,  
Visit our Web Site at **[www.SWPA.ORG](http://www.SWPA.ORG)**