



**AMERICAN-MARSH PUMPS**

*“DURABILITY BY DESIGN SINCE 1873”*

## **Plant Maintenance Group**

**Aftermarket Support, Field Services and Repair**



# 140 Years of Pump Manufacturing and Field Service Support

American-Marsh Pumps, one of the oldest pump manufacturers in the world, continues to manufacture world-class products. Over our 140 year history, we have been the standard of Durability by Design. Our products have been built to meet the ever-changing requirements of society.

American-Marsh Pumps has manufactured hundreds of thousands of pumps over our 140 years of existence. During that time, after sales support is paramount to maintaining our customers. The Plant Maintenance Group (PMG) exists to provide aftermarket support, field services and repair capabilities for American-Marsh Pump product and products of other manufacturers. We understand the diversity in installed equipment that exists at the job site and our focus has been to support our customers wherever possible.

The acquisition costs of purchased equipment is only a very small part of the overall costs associated with equipment ownership. The costs of maintaining equipment can vary greatly depending on how the equipment is installed, monitored and maintained over its lifetime. If proper procedures are followed at each step in the process, costs can be drastically reduced over the equipment life. Conversely, if the same equipment is not maintained properly dramatic increases in operation costs and downtime will occur. The goal of the Plant Maintenance Group is to minimize downtime and increase overall system efficiency.

Our Plant Maintenance Group field engineers have the equipment needed to take care of your equipment throughout the entire process. From installation, start-up, commissioning, monitoring and preventative maintenance our field service professionals will make sure you are operating your equipment properly. What separates our field service engineers from others is that

they are equipped to get the job done right, the first time. In addition to standard installation tools needed for installation, our service people have laser alignment, vibration monitoring and temperature monitoring equipment. These tools allow you to see another hidden side of issues that can crop up unexpectedly after everyone leaves the job site.

## Corporate PMG Service Centers

American-Marsh Pumps has corporate PMG Service Centers spread throughout North America to offer another higher level of repair capabilities that are simply not available anywhere else. These service centers are located in Tennessee, Florida, Louisiana, Nebraska and California. Factory certified repair of equipment is the ultimate level of confidence that proper protocols and procedures are followed giving your equipment the best opportunity of a second chance at long life.

American-Marsh Pumps PMG Service Centers have all necessary equipment to make sure your equipment is repaired and brought back up to factory tolerances most accurately and efficiently. From lathes, boring mills, plasma tables and coordinate measurement machines, each piece of equipment has its place in the repair process. Additionally, American-Marsh Pumps can provide AS BUILT certified pump performance reports so the customer knows exactly what their equipment will do once the repair process is complete. A variety of non-destructive testing can also be provided to give a better picture of what is going on with your critical piece of equipment. These are just a few of the services offered by American-Marsh Pumps that simply cannot be gotten anywhere else.

# PMG Services - Test Lab Capabilities

Test lab capabilities significantly define what exactly a company is capable of producing. If you cannot test the product you manufacture then you are only offering the customer a partial solution.

American-Marsh's test lab capability far exceeds the labs of many of our competitors. Our test facility is used to test product (witnessed or non-witnessed) for a variety of Industrial, Municipal & Commercial projects that we specialize in. The ability to test for flow, pressure, horsepower, NPSHr, sound pressure level and vibration make this a very powerful tool.

The entire test facility is ISO 9001:2008, ISO 17025 & full Factory Mutual certified guaranteeing accurate results. American-Marsh has nearly 60 calibrated test lab motors so that an accurate pump efficiency can be generated.



Testing with the customer driver is always an option but not nearly as accurate.

One last area of test offering pertains to rebuilt units. With an in house, highly engineered test facility available at our corporate repair center, rebuilt pump certified testing can be offered with any repair. This testing can be offered on rebuilt American-Marsh equipment or any other manufacturer's equipment.



## Test Lab Capabilities

- Single and three phase
- 115, 208, 230, 460 & 4160 volt
- 15 test loops
- 3 electrical circuits
- 25,000 gallon flooded test tank
- 300,000 gallon test pit
- 60 certified and calibrated test lab motors through 500 horsepower
- 1500 maximum horsepower limitation
- Flow measuring out to 50,000 gallons per minute
- Pressure measurement out to 2,500 feet
- Vibration, sound pressure & temperature monitoring
- Hydrostatic testing through 2000 pounds per square inch

# PMG Services - Corporate Service Centers



American-Marsh Pumps Corporate PMG Service Centers provide the customer with superior repair and service capabilities. Our corporate PMG Service Center has the latest certifications including ISO 17025, ISO 9001:2008 and complete Factory Mutual (FM) certifications. Certifications and calibrations of this type are mandatory when considering on whom to choose for your next repair. We have been a pump manufacturer for 140 years, understand the theory behind pumping equipment and are experts in their application and service. Trust your repair to a company that knows their product and stands behind it.

PMG Service Centers are available throughout North America. All PMG Service Centers have lathes, hydrostatic test tanks, hydraulic presses, shaft straightening tables and build tables to expeditiously take care of your repair. Our Tennessee facility, in addition to this equipment, has full certified performance test capabilities.

## Service Center Capabilities

- Factory personnel have the tools, training and technology to do the job right, the first time
- American-Marsh Pump facilities exceed 32 acres and over 260,000 square feet
- Lathes, milling machines, shaft straightening, hydraulic presses, motor diagnostic equipment and build tables designed to repair any manufacturers equipment
- Full pump customization including machining special wear ring clearances, casing and impeller weld repair, Class III impeller polishing, media blasting and the application of custom coatings
- Very quick turnaround
- Rebowling of any customer's vertical turbine pump
- Replacement and upgrade capability for shafting and bearing installations
- Full hydrostatic and performance testing capability



# PMG Services - Field Services

PMG Field Services are a critical part of service for American-Marsh Pumps. Our factory trained and qualified personnel are the first line of defense in getting to the bottom of what is happening in the field. Our trained people look at your system and help guide you through issues with the ultimate goal in getting the equipment to function as it was designed.

PMG Field Services can include field repairs, installation assistance, start-up, commissioning and the gathering of field test data. Laser alignment and vibration analysis services can be provided by American-Marsh Pumps with detailed reporting sent to the customer for record keeping. For repairs that are too complex for the



field, our service professionals will help coordinate getting the equipment back to a PMG Service Center to expedite getting the equipment turned around and back to the field.

## PMG Field Services include

- Complete laser alignment
- Complete vibration analysis with failure mode analysis including full spectral output
- Pump and system troubleshooting
- Preventative maintenance
- Contract services for maintenance and inventory management
- *Eagle Express* power frame refurbishment program
- Onsite disassembly, inspection and repair
- Turnkey services including the removal, repair, installation and start-up of equipment upon request



# PMG Repair Services - Overhung Impeller Pumps

Overhung impeller pumps, namely end suction, are one of the most common pumps manufactured today. These pumps can include very standard commercial HVAC types or can be very special ANSI B73.1M highly engineered process pumps. Regardless of which, American-Marsh Pumps can provide state of the art repair services. Our PMG Service Centers have the latest tools, technology and training to provide you with a comprehensive repair experience. When your equipment is received, a comprehensive AS FOUND report is generated with corrective actions identified.

## Overhung Impeller Repair Procedure

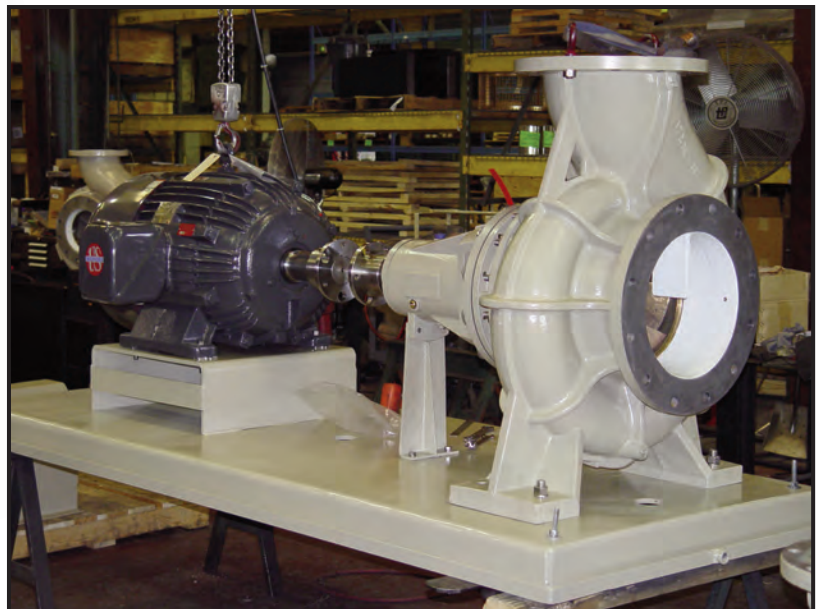
1. The pump is pressure washed upon receipt to decontaminate the unit for inspection.
  2. The unit is disassembled and inspected. Critical areas of the pump get more attention. All bearings, bearing journals, wear rings, impeller eyes and low & high pressure sides of the volute are inspected for any abnormal wear, corrosion, erosion or cavitation damage.
  3. All receipt and inspection stages are photographed to document the repair process. These digital stills also detail areas that may need additional investigation. In past cases, a simple photograph has helped determine system issues at the jobsite.
  4. All components are washed and/or media blasted to remove any previous paint or contamination.
  5. A complete AS FOUND report is generated giving the customer a clear picture of exactly what was found and a clear idea of what needs to be done to the equipment.
- The AS FOUND report is instrumental in helping find the root cause of many in the field problems. This report is presented to the customer and a decision on what to do next is made.
6. The items that were previously identified are replaced with the same material or upgraded material based on an individual basis. Weld repairable parts are repaired and the unit is brought back up to factory tolerances.
  7. All impellers are dynamically balanced per current customer standards prior to reassembly.
  8. After reassembly, each unit is completely hydrostatically tested to ensure that all gaskets, o-rings and mechanical seals are leak free. All ANSI B.73.1M process pumps have factory clearances adjusted based on operating temperatures.
  9. Upon customer request, re-built units are factory performance tested and test results are forwarded to the customer for review.
  10. The complete unit is painted, tagged and prepared for shipment based on customer requirements.
  11. The last step in the repair process included an AS REPAIRED report that details all that was done to the unit. This report includes all previous AS FOUND reporting so a complete picture of what transpired is kept for recordkeeping. American-Marsh Pumps have a very detailed serial number system that is stored for future reference. We currently keep serial number records back to around 1930.

## PMG Service Center Advantages

- All repairs include a one (1) year warranty on material and craftsmanship.
- Factory certified personnel have the tools, technology and training to provide state of the art repairs.
- Repair services are not just for American-Marsh Pumps' equipment. Our service people are trained and familiar with all pump manufacturers' equipment.
- In the field start-up, training and commissioning of the repaired equipment by American-Marsh Pumps personnel guarantee that your recent repair completes with a successful start-up.
- Casings can be coated with a variety of coatings to increase efficiency and life. Hard metalized surface treatments can increase surface hardness to over 750 Brinell extending life in extremely abrasive applications.
- Our engineering staff can evaluate your current bearing housing and shaft arrangement design. Certified changes (with engineering calculations) can be suggested greatly increasing bearing life and minimizing equipment downtime. We offer a Severe Duty (SD) power frame for extreme applications in hardcore process applications. The SD power frame modification is used to upgrade ANSI B73.1M process pumps when standard power frames are not up to the task.

## PMG Service Center Upgrades

- Pump units can be changed from packing to mechanical seal or vice versa. Component mechanical seals can also be upgraded to a cartridge seal design based on application data. Custom API flush plans can be employed extending packing and/or mechanical seal life.
- Shaft sleeves and shafting can be upgraded from an alloy standpoint to withstand corrosion found at the jobsite.
- Bearing housing contamination is one of the number one reasons for pump failure. Lip seal designs can be modified and changed to full bearing isolator protection greatly reducing bearing lubrication contamination.



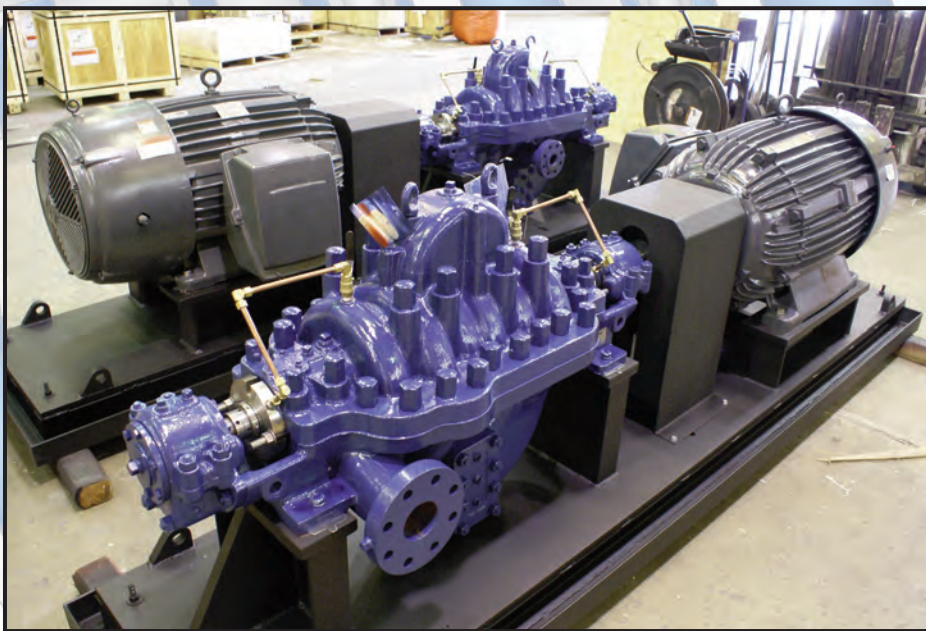
# PMG Repair Services

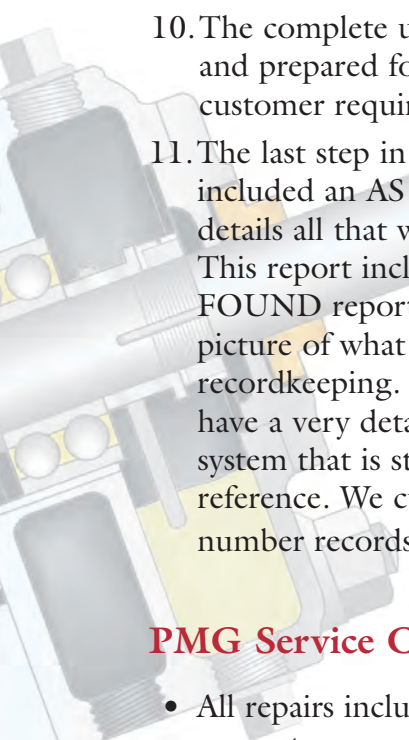
## Between Bearing Pumps

Between bearing pumps, namely split cases, are among the more complex pumps manufactured today. These pumps can include very standard commercial HVAC types or can be very special multistage boiler feed process pumps. Regardless of which, American-Marsh Pumps can provide state of the art repair services. Our PMG Service Centers have the latest tools, technology and training to provide you with a comprehensive repair experience. When your equipment is received, a comprehensive AS FOUND report is generated with corrective actions identified.

### Between Bearing Repair Procedure

1. The pump is pressure washed upon receipt to decontaminate the unit for inspection.
2. The unit is disassembled and inspected. Critical areas of the pump get more attention. All bearings, bearing journals, wear rings, stage pieces, impeller eyes and low & high pressure sides of the volute are inspected for any abnormal wear, corrosion, erosion or cavitation damage.
3. All receipt and inspection stages are photographed to document the repair process. These digital stills also detail areas that may need additional investigation. In past cases, a simple photograph has helped determine system issues at the jobsite.
4. All components are washed and/or media blasted to remove any previous paint or contamination.
5. A complete AS FOUND report is generated giving the customer a clear picture of exactly what was found and a clear idea of what needs to be done to the equipment. The AS FOUND report is instrumental in helping find the root cause of many in the field problems. This report is presented to the customer and a decision on what to do next is made.
6. The items that were previously identified are replaced with the same material or upgraded material based on an individual basis. Weld repairable parts are repaired and the unit is brought back up to factory tolerances.
7. All impellers are dynamically balanced per current customer standards prior to reassembly.
8. After reassembly, each unit is completely hydrostatically tested to ensure that all gaskets, o-rings and mechanical seals are leak free.
9. Upon customer request, re-built units are factory performance tested and test results are forwarded to the customer for review.



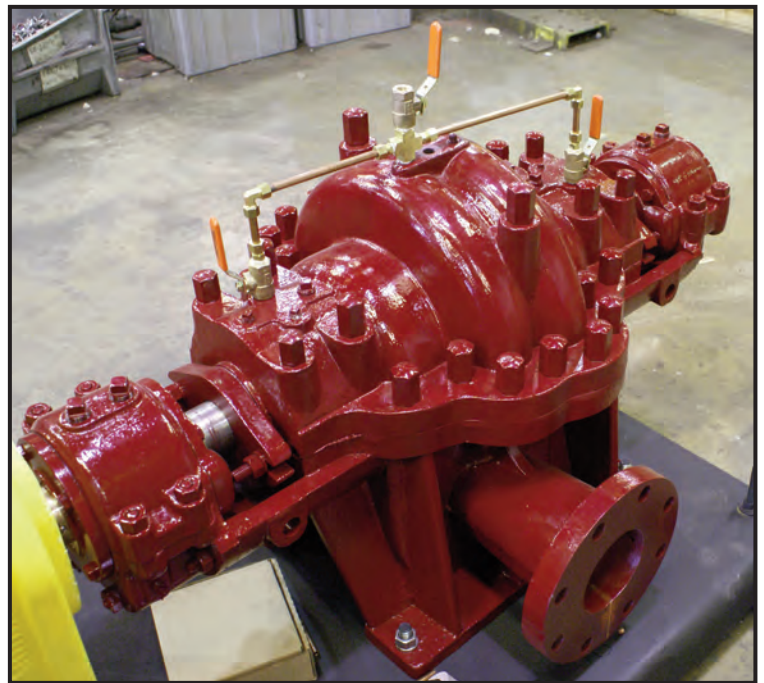
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10. The complete unit is painted, tagged and prepared for shipment based on customer requirements.
  11. The last step in the repair process included an AS REPAIRED report that details all that was done to the unit. This report includes all previous AS FOUND reporting so a complete picture of what transpired is kept for recordkeeping. American-Marsh Pumps have a very detailed serial number system that is stored for future reference. We currently keep serial number records back to around 1930.

### **PMG Service Center Advantages**

- All repairs include a one (1) year warranty on material and craftsmanship.
- Factory certified personnel have the tools, technology and training to provide state of the art repairs.
- Repair services are not just for American-Marsh Pumps' equipment. Our service people are trained and familiar with all pump manufacturers' equipment.
- In the field start-up, training and commissioning of the repaired equipment by American-Marsh Pumps personnel guarantee that your recent repair completes with a successful start-up.

### **PMG Service Center Upgrades**

- Pump units can be changed from packing to mechanical seal or vice versa. Component mechanical seals can also be upgraded to a cartridge seal design based on application data. Custom API flush plans can be employed extending packing and/or mechanical seal life.



- Shaft sleeves and shafting can be upgraded from an alloy standpoint to withstand corrosion found at the jobsite.
- Bearing housing contamination is one of the number one reasons for pump failure. Lip seal designs can be modified and changed to full bearing isolator protection greatly reducing bearing lubrication contamination.
- Casings can be coated with a variety of coatings to increase efficiency and life. Hard metalized surface treatments can increase surface hardness to over 750 Brinell extending life in extremely abrasive applications.
- Our engineering staff can evaluate your current bearing housing and shaft arrangement design. Certified changes (with engineering calculations) can be suggested greatly increasing bearing life and minimizing equipment downtime.

# PMG Repair Services

## Vertical Turbine Pumps

Vertical turbine pumps are among the more complex pumps manufactured today. These pumps can include very standard commercial HVAC types or can be very special process pumps. Regardless of which, American-Marsh Pumps can provide state of the art repair services. Our PMG Service Centers have the latest tools, technology and training to provide you with a comprehensive repair experience. When your equipment is received, a comprehensive AS FOUND report is generated with corrective actions identified.

### Vertical Turbine Repair Procedure

1. The pump is pressure washed upon receipt to decontaminate the unit for inspection.
2. The unit is disassembled and inspected. Critical areas of the pump get more attention. All bearings, bearing journals, wear rings, impeller eyes and low & high pressure sides of the diffuser are inspected for any abnormal wear, corrosion, erosion or cavitation damage.
3. All receipt and inspection stages are photographed to document the repair process. These digital stills also detail areas that may need additional investigation. In past cases, a simple photograph has helped determine system issues at the jobsite.
4. All components are washed and/or media blasted to remove any previous paint or contamination.
5. A complete AS FOUND report is generated giving the customer a clear picture of exactly what was found and a clear idea of what needs to be done to the equipment. The AS FOUND report is

instrumental in helping find the root cause of many in the field problems. This report is presented to the customer and a decision on what to do next is made.

6. The items that were previously identified are replaced with the same material or upgraded material based on an individual basis. Weld repairable parts are repaired and the unit is brought back up to factory tolerances.
7. All impellers are dynamically balanced per current customer standards prior to reassembly.
8. Upon customer request, re-built units are factory performance tested and test results are forwarded to the customer for review.
9. The complete unit is painted, tagged and prepared for shipment based on customer requirements.
10. The last step in the repair process included an AS REPAIRED report that details all that was done to the unit. This report includes all previous AS FOUND reporting so a complete picture of what transpired is kept for recordkeeping. American-Marsh Pumps have a very detailed serial number system that is stored for future reference. We currently keep serial number records back to around 1930.



## PMG Service Center Advantages

- All repairs include a one (1) year warranty on material and craftsmanship.
- Factory certified personnel have the tools, technology and training to provide state of the art repairs.
- Repair services are not just for American-Marsh Pumps' equipment. Our service people are trained and familiar with all pump manufacturers.
- In the field start-up, training and commissioning of the repaired equipment by American-Marsh Pumps personnel guarantee that your recent repair completes with a successful start-up.



## PMG Service Center Rebowling

Unlike other pump types, vertical turbine pumps are perfectly suited for partial repairs called rebowling. Vertical turbine pumps can be partially repaired by replacing minimal components thereby minimizing costs. American-Marsh Pumps can replace just the bowl assembly, utilizing the existing column, shafting and discharge head. In severe applications, we can replace everything below the discharge head, giving the customer new performance but not requiring any system piping changes as the previous discharge head is reinstalled. Rebowling also allows the customer to upgrade hydraulic performance, increase pump efficiency and possibly upgrade metallurgy based on application. American-Marsh Pumps can place our bowl assembly on any other manufacturers column and/or discharge head assembly. Custom column/ head connections with custom shaft diameter and stick-up are all customizable based on field needs.

## PMG Service Center Upgrades

- Pump units can be changed from packing to mechanical seal or vice versa. Component mechanical seals can also be upgraded to a cartridge seal design based on application data. Custom API flush plans can be employed extending packing and/or mechanical seal life.
- Shaft sleeves and shafting can be upgraded from an alloy standpoint to withstand corrosion found at the jobsite.
- Casings can be coated with a variety of coatings to increase efficiency and life. Hard metalized surface treatments can increase surface hardness to over 750 Brinell extending life in extremely abrasive applications.
- Our engineering staff can evaluate your current bearing housing and shaft arrangement design. Certified changes (with engineering calculations) can be suggested greatly increasing bearing life and minimizing equipment downtime.



American-Marsh Pumps, one of the oldest pump lines in America, are pump products steeped in heritage. Since 1873, the American-Marsh line of pumps have withstood the test of time. Over the last 140 years, over 100 varieties of pumps have been designed and built. From steam pumps to centrifugal pumps, American-Marsh pumps have been built to meet the ever changing requirements of society. Over the last century, through continuous product development, more American-Marsh models have been retired than most other pump manufacturers have ever produced. Hundreds of thousands of pumps have been built, all designed with long life in mind, allowing many of them to last over 50 years in service.

Today, look to us for the complete offering of American-Marsh Pumps, consisting of 18 product lines to serve your every need. Whether your need is a self-priming diaphragm pump, a stainless steel vertical sump pump, or anything in between, American-Marsh Pumps will provide you with a durable, high-quality solution.

Build a world class quality product, and back it with knowledgeable customer service staff just as experienced and proven as our pumps.

Take a specialized product, and provide a simple process to obtain the information and delivery you require. Our heritage of quality pumps goes back to 1873 and continues today, emphasizing durability in the design and construction of every pump we make. American Marsh Pumps, an American tradition since 1873.

Our entire product family reflects years of customer input, product upgrades, redesign and new product development...all focused on meeting and exceeding our customers expectations. For over 140 years, the American-Marsh Pump designs have proven their durability by withstanding the test of time. Our commitment to customer service and satisfaction will ensure that the American-Marsh Pumps Product line will be around for the next 140 years.



### OTHER PUMP PRODUCTS

#### SPLIT CASE

To 32+ " Discharge  
30,000+ GPM, 550'

#### VERTICAL TURBINE

To 42+ " Bowl  
30,000+ GPM, 2500+'

#### SELF PRIMER

To 12 " Discharge  
6400 GPM, 200'

#### ANSI

To 8 " Discharge  
7400 GPM, 985'

#### END SUCTION

To 12 " Discharge  
9000 GPM, 450'

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