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# Model e-HM

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# 1 Introduction and Safety



## 1.1 Introduction

### Purpose of this manual

The purpose of this manual is to provide necessary information for:

- Installation
- Operation
- Maintenance



#### CAUTION:

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damage to property, and may void the warranty.

#### NOTICE:

Save this manual for future reference, and keep it readily available at the location of the unit.

## 1.2 Inexperienced users



#### WARNING:

This product is intended to be operated by qualified personnel only.

Be aware of the following precautions:

- This product is not to be used by anyone with physical or mental disabilities, or anyone without the relevant experience and knowledge, unless they have received instructions on using the equipment and on the associated risks or are supervised by a responsible person.
- Children must be supervised to ensure that they do not play on or around the product.

## 1.3 Safety terminology and symbols

### Hazard levels

Hazard level	Indication
<b>DANGER:</b>	A hazardous situation which, if not avoided, will result in death or serious injury
<b>WARNING:</b>	A hazardous situation which, if not avoided, could result in death or serious injury
<b>CAUTION:</b>	A hazardous situation which, if not avoided, could result in minor or moderate injury
<b>NOTICE:</b>	<ul style="list-style-type: none"> <li>• A potential situation which, if not avoided, could result in undesirable conditions</li> <li>• A practice not related to personal injury</li> </ul>

### Hazard categories

Hazard categories can either fall under hazard levels or let specific symbols replace the ordinary hazard level symbols.

Electrical hazards are indicated by the following specific symbol:



#### Electrical Hazard:

### Hot surface hazard

Hot surface hazards are indicated by a specific symbol that replaces the typical hazard level symbols:



#### CAUTION:

### Description of user and installer symbols

	Specific information for personnel in charge of installing the product in the system (plumbing and/or electrical aspects) or in charge of maintenance.
	Specific information for users of the product.

## 1.4 Spare parts



#### WARNING:

Only use original spare parts to replace any worn or faulty components. The use of unsuitable spare parts may cause malfunctions, damage, and injuries as well as void the guarantee.

For more information about the product's spare parts, refer to the Sales and Service department.

# 2 Transportation and Storage



## 2.1 Inspect the delivery

1. Check the outside of the package.
2. Notify our distributor within eight days of the delivery date, if the product bears visible signs of damage.
3. Remove the staples and open the carton.
4. Remove the securing screws or the straps from the wooden base (if any).
5. Remove packing materials from the product. Dispose of all packing materials in accordance with local regulations.
6. Inspect the product to determine if any parts have been damaged or are missing.
7. Contact the seller if anything is out of order.

## 2.2 Transportation guidelines

### Precautions



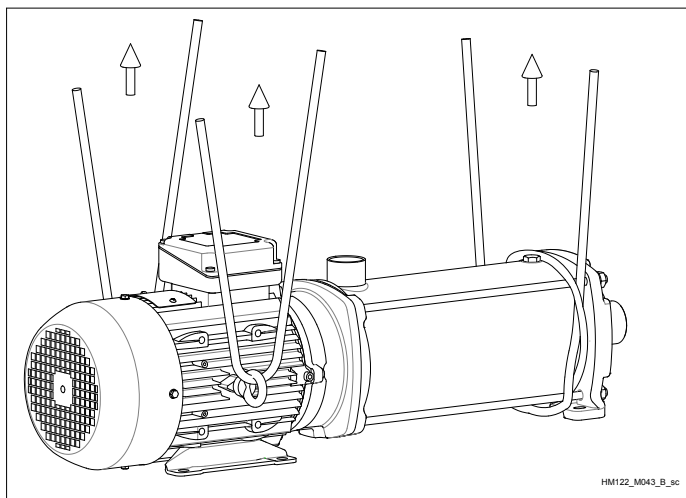
#### WARNING:

- Observe accident prevention regulations in force.
- Crush hazard. The unit and the components can be heavy. Use proper lifting methods and wear steel-toed shoes at all times.

Check the gross weight that is indicated on the package in order to select proper lifting equipment.

### Position and fastening

The unit can be transported either horizontally or vertically. Make sure that the unit is securely fastened during transportation, and cannot roll or fall over.



## 2.3 Storage guidelines

### Storage location

#### NOTICE:

- Protect the product against humidity, dirt, heat sources, and mechanical damage.
- The product must be stored at an ambient temperature from -40°C to +60°C (-40°F to 140°F).

## 3 Product Description



### 3.1 Pump design

The pump is a multistage, non-self priming pump. The pump can be used to pump:

- Cold water
- Warm water

#### Intended use

The pump is suitable for:

- Civil and industrial water distribution systems
- Irrigation (for example, agriculture and sporting facilities)

#### Improper use



#### DANGER:

Do not use this pump to handle flammable and/or explosive liquids.

An improper use of the product leads to the loss of the warranty.

### 3.2 Application limits

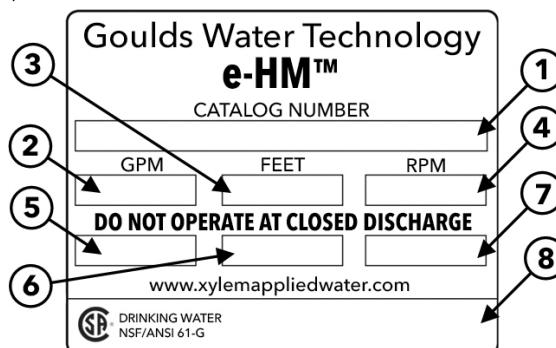
**Table 1: Pressure and temperature limits**

Seal Code	1HM, 3HM		5HM		10HM, 15HM, 22HM
	2-6 Stages	7+ Stages	2-5 Stages	6+ Stages	All Stages
BQE	147PSI at 248F	235PSI at 248F	147PSI at 248F	235PSI at 248F	235PSI at 248F
BQV	147PSI at 248F	235PSI at 248F	147PSI at 248F	235PSI at 248F	235PSI at 248F
QQE	147PSI at 248F	235PSI at 194F	147PSI at 248F	235PSI at 194F	235PSI at 194F
QQV	147PSI at 248F	235PSI at 194F	147PSI at 248F	235PSI at 194F	235PSI at 194F

BVE	147PSI at 194F	Not Available	147PSI at 194F	Not Available	Not Available
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### 3.3 The data plate

The data plate is a label on the pump. The data plate lists key product specifications.



1. Goulds Water Technology Catalog Number
2. Capacity range
3. TDH range
4. Rated speed
5. Rated horsepower
6. Maximum operating pressure
7. Maximum fluid temperature
8. Pump serial number

#### IMQ or other marks (for electric pump only)

Unless otherwise specified, for products with a mark of electrical-related safety approval, the approval refers exclusively to the electrical pump.

## 4 Installation



### Precautions



#### WARNING:

- Observe accident prevention regulations in force.
- Use suitable equipment and protection.
- Always refer to the local and/or national regulations, legislation, and codes in force regarding the selection of the installation site, plumbing, and power connections.

### 4.1 Facility requirements

#### 4.1.1 Pump location



#### DANGER:

Do not use this unit in environments that may contain flammable/explosive or chemically aggressive gases or powders.

#### Guidelines

Observe the following guidelines regarding the location of the product:

- Make sure that no obstructions hinder the normal flow of the cooling air that is delivered by the motor fan.
- Make sure that the installation area is protected from any fluid leaks, or flooding.
- If possible, place the pump slightly higher than the floor level.
- The ambient temperature must be between -30°C (-22°F) and +40°C (+104°F) unless otherwise specified in the data plate.
- The relative humidity of the ambient air must be less than 50% at +40°C (+104°F).

#### Installation above liquid source (suction lift)

The theoretical maximum suction height of any pump is 34 ft. In practice, this is not achieved due to the following conditions affecting the suction capability of the pump:

- Temperature of the liquid
- Elevation above the sea level (in an open system)
- System pressure (in a closed system)
- Resistance of the pipes
- Own intrinsic flow resistance of the pump
- Height differences

**NOTICE:**

Do not exceed the pumps suction capacity as this could cause cavitation and damage the pump.

**4.1.2 Piping requirements**

**Precautions**

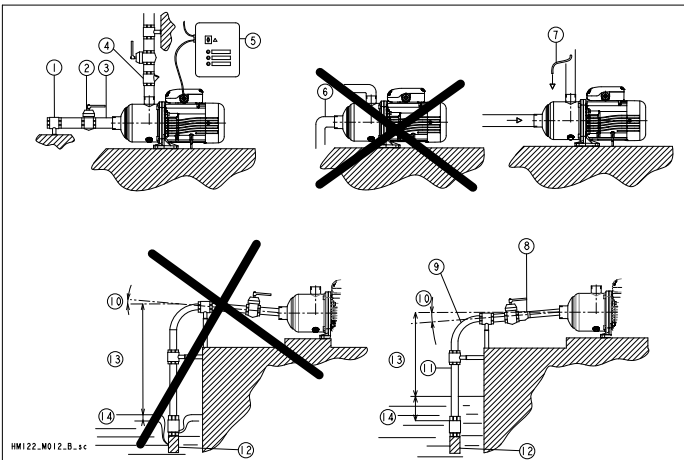


**CAUTION:**

- Use pipes suited to the maximum working pressure of the pump. Failure to do so can cause the system to rupture, with the risk of injury.
- Make sure that all connections are performed by qualified installation technicians and in compliance with the regulations in force.
- Do not use the on-off valve on the discharge side in the closed position for more than a few seconds. If the pump must operate with the discharge side closed for more than a few seconds, a bypass circuit must be installed to prevent overheating of the water inside the pump.

**Piping checklist**

- Pipes and valves must be correctly sized.
- Pipe work must not transmit any load or torque to pump flanges.



**4.2 Electrical requirements**

- The local regulations in force overrule these specified requirements. In the case of fire fighting systems (hydrants and/or sprinklers), check the local regulations .

**Electrical connection checklist**

Check that the following requirements are met:

- The electrical leads are protected from high temperature, vibrations, and collisions.
- The power supply line is provided with:
  - A short-circuit protection device
  - A main disconnect switch.

**The electrical control panel checklist**

**NOTICE:**

The control panel must match the ratings of the electric pump. Improper combinations could fail to guarantee the protection of the motor.

Check that the following requirements are met:

- The control panel must protect the motor against overload and short-circuit.
- Install the correct overload protection (thermal relay or motor protector).

Pump Type	Protection
Single phase standard electric pump up to 3 HP	<ul style="list-style-type: none"> <li>- Built-in automatic reset thermal-overload protection</li> <li>- Short circuit protection (must be supplied by the installer)</li> </ul>
Three-phase electric pump	<ul style="list-style-type: none"> <li>- Thermal protection (must be supplied by the installer)</li> <li>- Short circuit protection (must be supplied by the installer)</li> </ul>

- The control panel must be equipped with a dry-running protection system to which a pressure switch, float switch, sensors, or other suitable device is connected.
- The following devices are recommended for use on the suction side of the pump:
  - When the liquid is pumped from a water system, use a pressure switch.
  - When the liquid is pumped from a storage tank or reservoir, use a float switch or sensors.
- When thermal relays are used, relays that are sensitive to phase failure are recommended.

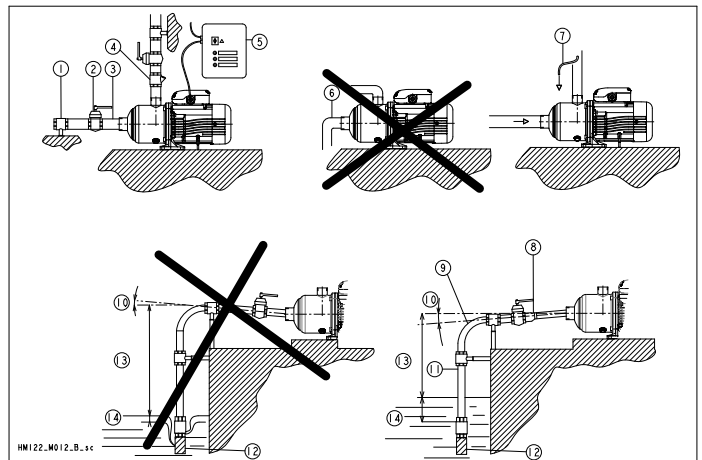
**The motor checklist**

Use cable according to rules with 3 leads (2+earth/ground) for single phase versions and with 4 leads (3+earth/ground) for three-phase version.

**4.3 Install the pump**



**4.3.1 Install the pump on a concrete foundation**



1. Piping support
  2. On-off valve
  3. Flexible pipe or joint
  4. Check valve
  5. Control panel
  6. Do not install elbows close to the pump
  7. Bypass circuit
  8. Eccentric reducer
  9. Use wide bends
  10. Positive gradient
  11. Piping with equal or greater diameter than the suction port
  12. Use foot valve
  13. Do not exceed maximum height difference
  14. Ensure adequate submersion depth
1. Anchor the pump onto the concrete or equivalent metal structure.

- If the liquid temperature exceeds 50°C, the unit must be anchored only by the motor bracket side and not also by the side of the inlet supporting bracket
  - If the transmission of vibrations can be disturbing, then provide vibration-damping supports between the pump and the foundation.
2. Remove the plugs covering the ports.
  3. Assemble the pipe to the pump threaded connections.  
Do not force the piping into place.

### 4.3.2 Electrical installation

#### Precautions



#### WARNING:

- Make sure that all connections are performed by qualified installation technicians and in compliance with the regulations in force.
- Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized.

#### Grounding (earthing)



#### Electrical Hazard:

- Always connect the external protection conductor to ground (earth) terminal before making other electrical connections.

#### 4.3.2.1 Connect the cable

1. Connect and fasten the power cables according to the wiring diagram under the terminal box cover.
  - a) Connect the ground (earth) lead.  
Make sure that the ground (earth) lead is longer than the phase leads.
  - b) Connect the phase leads.

#### NOTICE:

Tighten the cable glands carefully to ensure the protection against the cable slipping and humidity entering the terminal box.

2. If the motor is not equipped with automatic reset thermal protection, then adjust the overload protection according to the nominal current value of electric pump (data plate).

## 5 Commissioning, Startup, Operation, and Shutdown



#### Precautions



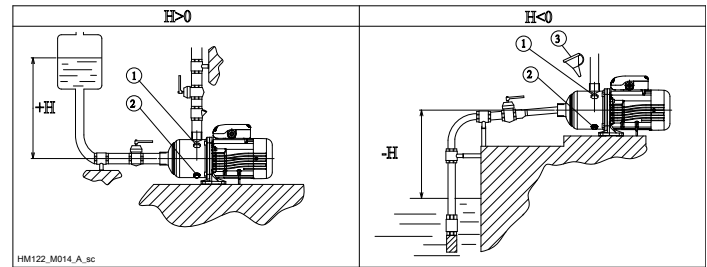
#### WARNING:

Make sure that the drained liquid does not cause damage or injuries.

#### NOTICE:

- Never operate the pump below the minimum rated flow.
- Never operate the pump with the delivery ON-OFF valve closed for longer than a few seconds.
- Do not expose an idle pump to freezing conditions. Drain all liquid that is inside the pump. Failure to do so can cause liquid to freeze and damage the pump.
- The sum of the pressure on the suction side (water mains, gravity tank) and the maximum pressure that is delivered by the pump must not exceed the maximum working pressure that is allowed (nominal pressure PN) for the pump.
- Do not use the pump if cavitation occurs. Cavitation can damage the internal components.

## 5.1 Prime the pump



1. Fill plug
2. Drain plug
3. Funnel

#### Installations with liquid level above the pump (suction head)

Close the on-off valve located downstream from the pump.

#### Installations with liquid level below the pump (suction lift)

Open the on-off valve that is located upstream from the pump and close the on-off valve downstream.

## 5.2 Check the rotation direction (three-phase motor)

Follow this procedure before start-up.

1. Start the motor.
2. Stop the motor.
3. If the rotation direction is incorrect, then do as follows:
  - a) Disconnect the power supply.
  - b) In the terminal board of the motor or in the electric control panel, exchange the position of two of the three wires of the supply cable.
  - c) Check the direction of rotation again.

## 5.3 Start the pump

1. Start the motor.
2. Gradually open the on-off valve on the discharge side of the pump.  
At the expected operating conditions, the pump must run smoothly and quietly. If not, refer to [Troubleshooting](#) on page 11.
3. If the pump does not start in correctly in 30 seconds, then do the following:
  - a) Switch off the pump.
  - b) Reprime the pump.
  - c) Start the pump again.
4. Switch off and on the pump (for about 30 seconds of continuous running) and make sure that all the trapped air is bled out by repeating this 2-3 times.

#### NOTICE:

Make sure that the pump has bled away all the trapped air. Failure to do so can harm the product.

## 6 Maintenance



#### Precautions



#### Electrical Hazard:

Disconnect and lock out electrical power before installing or servicing the unit.



#### WARNING:

- Maintenance and service must be performed by skilled and qualified personnel only.
- Observe accident prevention regulations in force.
- Use suitable equipment and protection.

## 6.1 Service

The pump does not require any scheduled routine maintenance. If the user wishes to schedule regular maintenance deadlines, they are dependent on the type of pumped liquid and on the operating conditions of the pump.

Contact the local sales and service representative for any requests or information regarding routine maintenance or service.

## 6.2 Seal replacement

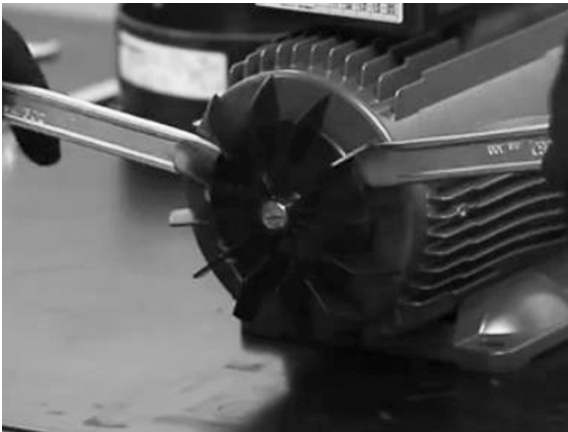
1. Close all necessary suction and discharge valves.
2. Remove the lower drain plug and the upper vent plug to drain the liquid from the pump.

### 6.2.1 Disassembly

1. Remove two motor fan cover screws and remove motor fan cover.



2. Remove motor fan using two small flat bars or two large screwdrivers.



3. Lock shaft with a screwdriver or a soft jaw vice.



4. Remove four (4) casing studs (Compact design) or four (4) tie rod nuts and washers (Sleeve design).



5. Remove casing (Compact design) or pump foot and suction head (Sleeve design).



6. Remove sleeve (Sleeve design).



7. Remove first stage bowl.



8. Remove shaft screw/impeller nut.



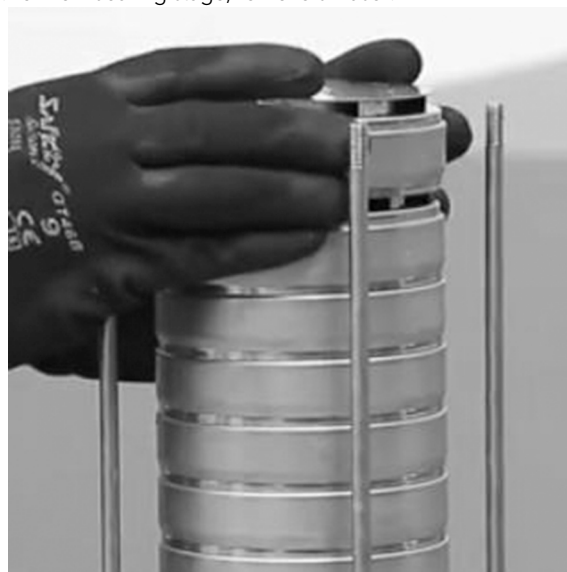
9. Remove impeller spacer.



10. Remove impeller.



11. For non-bearing stage, remove diffuser.



12. Remove impeller spacer.

13. For bearing stages use steps 15 - 17.

a) Remove bearing washer.

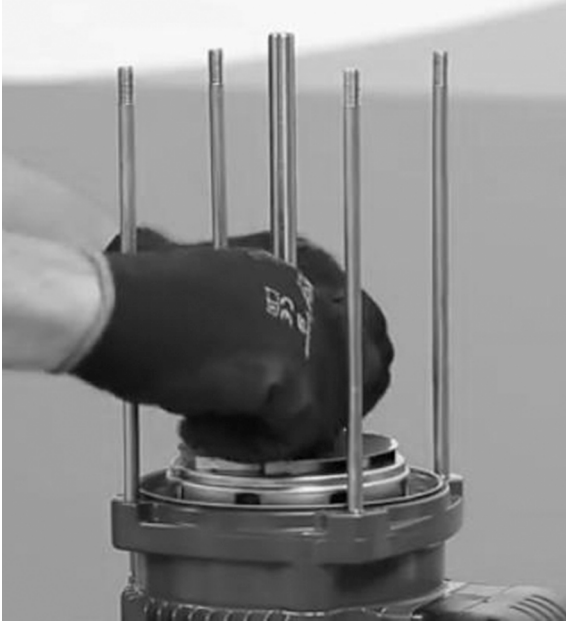


b) Remove diffuser.



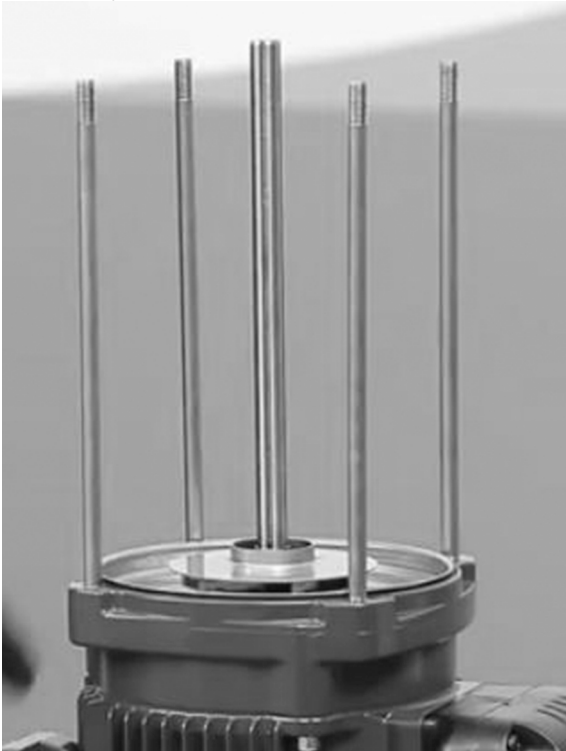
- c) Remove bearing.
- d) Repeat a through c for all intermediate stages.

14. Remove last stage diffuser.

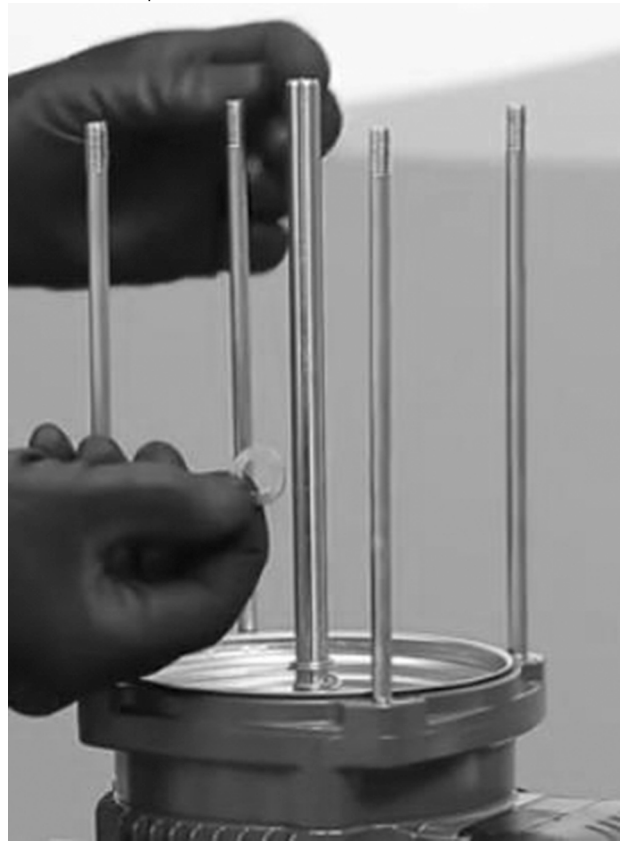


15. Remove impeller spacer.

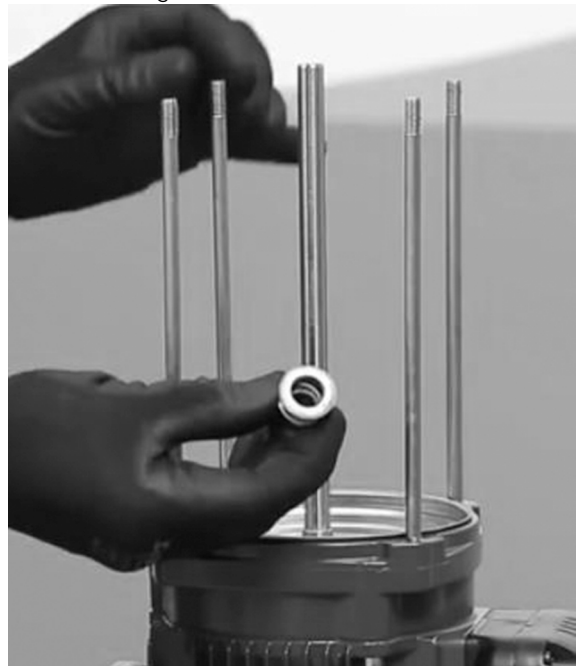
16. Remove impeller.



17. Remove seal spacer.



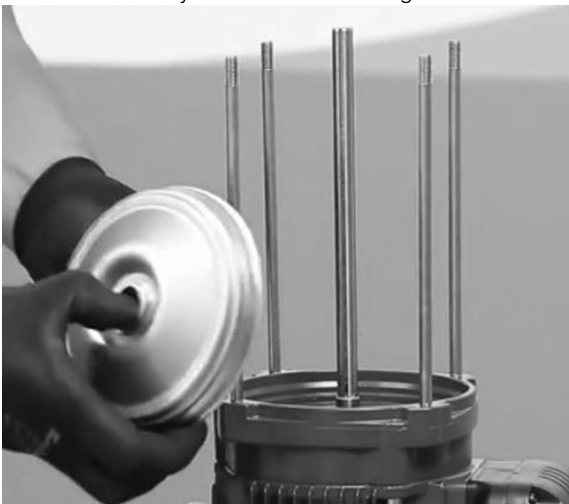
18. Remove rotating seal.



19. Remove seal housing.



20. Press out stationary seal from seal housing.



### 6.2.2 Preassembly

1. Remove sleeve O-ring on suction end (Sleeve design).



2. Remove sleeve O-ring on motor end (Sleeve design).



Note: Properly dispose of sleeve O-rings and mechanical seal parts. Do not reuse.

3. Install new sleeve O-ring on suction end (Sleeve design).
4. Install new sleeve O-ring on motor end (Sleeve design).

### 6.2.3 Reassembly

1. Inspect and clean the inside the pump casing and inside bore of seal housing removing any debris.
2. Lubricate ID of seal housing and ID of seal with water or P-80.
3. Remove new rotating and stationary seal elements from packaging, inspect for damage and clean with water.

4. Insert the new stationary seal seat into the seal bore of the seal housing with the seal face out.



- a) DO NOT scratch or damage the seal face.
- b) Ensure that the seal is seated firmly and squarely inside the seal bore.
- c) With a clean lint-free cloth or alcohol swab, wipe the seal face clean of all lubricant or debris.
- d) DO NOT use grease or heavy lubricants to install seal, as these materials can cause the seal to leak.

5. Install seal housing.



6. Rotate the rotary portion of the mechanical seal on the pump shaft until it "locks" and you are unable to turn freely. If you are unable to

turn initially, the seal is seated properly.



- 7. Install seal spacer.
- 8. Install impeller.
- 9. Install last stage diffuser.
- 10. Install impeller spacer.
- 11. Install impeller.
- 12. Install impeller spacer.
- 13. Install diffuser.



- 14. Repeat 10-13 for all intermediate stages.  
For bearing stages, use steps 15 - 17.
- 15. Install bearing.

16. Install bearing diffuser.



17. Install spacer.  
18. Install first stage impeller.



19. Install impeller spacer.



- 20. Install shaft screw/impeller nut.
- 21. Install first stage bowl.
- 22. Install sleeve (Sleeve design) by pressing into the seal housing for a tight O-ring fit.
- 23. Install casing (Compact design) or suction head (Sleeve design).
- 24. Install pump foot (Sleeve design).
- 25. Install four (4) casing studs (Compact design) or four (4) washers and tie rod nuts (Sleeve design).
- 26. Install motor fan onto motor shaft. Using a rubber mallet, gently tap the fan into place against motor housing.



27. Place motor fan cover over fan and cooling fins, and install two cover screws.

**6.2.4 Torque values**

Pump size	Tie rod nuts	Vent / drain plug
1-5SV	22 lbs ft (30 N m)	15 lbs ft (20 N m)
10-22SV	37 lbs ft (50 N m)	15 lbs ft (20 N m)
33-125SV	44 lbs ft (60 N m)	29 lbs ft (40 N m)

Casing bolts / tie rods	
One piece pump body (1-3-5HM)	11 ft-lb
Sleeved Units (1-3-5HM)	10 ft-lb
Sleeved Units (10-15-22HM)	18.5 ft-lb

Impeller screw	
One piece pump body (1-3-5HM)	6 ft-lb
Sleeved Units (1-3-5HM)	15 ft-lb
Sleeved Units (10-15-22HM)	26 ft-lb

**7 Troubleshooting**



**Introduction**

Always specify the exact pump type and identification code when requesting information or spare parts from the Sales and Service department.

For other situation not mentioned in the table, refer to the Sales and Service department.

## 7.1 Troubleshooting table

Problem	Cause and solution
The pump does not start.	<ul style="list-style-type: none"> <li>The thermo-overload protection in the single-phase motor has tripped; it will automatically reset when the motor cools down.</li> <li>Check the power supply wiring to see that the connections are all tight</li> <li>Check to see that the circuit breaker or ground-fault protection device has tripped. Or replace any fuses that may have blown.</li> <li>Check to see if any protection device installed for dry running protection has tripped or hung up.</li> </ul>
The pump starts up but the thermal protector is triggered after a short time or the fuses blow.	<ul style="list-style-type: none"> <li>The power supply cable is damaged, the motor short circuits or thermal protector or fuses are not suited for the motor current. Check and replace the components as necessary.</li> <li>The thermo-overload protection (single phase) or of the protection device (three-phase) trips due to excessive current input. Check the pump working conditions.</li> <li>A phase in the power supply is missing. Check the power supply.</li> <li>The pump is clogged with solids and the impeller becomes bound. Clean the pump.</li> </ul>
The pump starts but does not deliver any liquid.	<ul style="list-style-type: none"> <li>Air is entering the suction piping, check the liquid level, the tightness of the suction pipes and the operation of the foot valve.</li> <li>The pump is not correctly primed. Repeat the instructions in <a href="#">Prime the pump</a> on page 5.</li> </ul>
The pump's delivery is reduced.	<ul style="list-style-type: none"> <li>Check for restrictions in the piping system.</li> <li>Wrong rotation of the impeller (three-phase). Check the direction of rotation.</li> <li>The pump is not correctly primed. Repeat the instructions in <a href="#">Prime the pump</a> on page 5.</li> </ul>

## 8 Product warranty

### Commercial warranty

**Warranty.** For goods sold to commercial buyers, Seller warrants the goods sold to Buyer hereunder (with the exception of membranes, seals, gaskets, elastomer materials, coatings and other "wear parts" or consumables all of which are not warranted except as otherwise provided in the quotation or sales form) will be (i) be built in accordance with the specifications referred to in the quotation or sales form, if such specifications are expressly made a part of this Agreement, and (ii) free from defects in material and workmanship for a period of one (1) year from the date of installation or eighteen (18) months from the date of shipment (which date of shipment shall not be greater than thirty (30) days after receipt of notice that the goods are ready to ship), whichever shall occur first, unless a longer period is specified in the product documentation (the "Warranty").

Except as otherwise required by law, Seller shall, at its option and at no cost to Buyer, either repair or replace any product which fails to conform with the Warranty provided Buyer gives written notice to Seller of any defects in material or workmanship within ten (10) days of the date when any defects or non-conformance are first manifest. Under either repair or replacement option, Seller shall not be obligated to remove or pay for the removal of the defective product or install or pay for the installation of the replaced or repaired product and Buyer shall be responsible for all other costs, including, but not limited to, service costs, shipping fees and expenses. Seller shall have sole discretion as to the method or means of repair or replacement. Buyer's failure to comply with Seller's repair or replacement directions shall terminate Seller's obligations under this Warranty and render the Warranty void. Any parts repaired or replaced under the Warranty are warranted only for the balance of the warranty period on the parts that were repaired or replaced. Seller shall have no warranty obligations to Buyer with respect to any product or parts of a product that have been: (a) repaired by third parties other than Seller or without Seller's written approval; (b) subject to misuse, misapplication, neglect, alteration, accident, or

physical damage; (c) used in a manner contrary to Seller's instructions for installation, operation and maintenance; (d) damaged from ordinary wear and tear, corrosion, or chemical attack; (e) damaged due to abnormal conditions, vibration, failure to properly prime, or operation without flow; (f) damaged due to a defective power supply or improper electrical protection; or (g) damaged resulting from the use of accessory equipment not sold or approved by Seller. In any case of products not manufactured by Seller, there is no warranty from Seller; however, Seller will extend to Buyer any warranty received from Seller's supplier of such products.

**THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, GUARANTEES, CONDITIONS OR TERMS OF WHATEVER NATURE RELATING TO THE GOODS PROVIDED HEREUNDER, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED. EXCEPT AS OTHERWISE REQUIRED BY LAW, BUYER'S EXCLUSIVE REMEDY AND SELLER'S AGGREGATE LIABILITY FOR BREACH OF ANY OF THE FOREGOING WARRANTIES ARE LIMITED TO REPAIRING OR REPLACING THE PRODUCT AND SHALL IN ALL CASES BE LIMITED TO THE AMOUNT PAID BY THE BUYER FOR THE DEFECTIVE PRODUCT. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OTHER FORM OF DAMAGES, WHETHER DIRECT, INDIRECT, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFIT, LOSS OF ANTICIPATED SAVINGS OR REVENUE, LOSS OF INCOME, LOSS OF BUSINESS, LOSS OF PRODUCTION, LOSS OF OPPORTUNITY OR LOSS OF REPUTATION.**

### Limited consumer warranty

**Warranty.** For goods sold for personal, family or household purposes, Seller warrants the goods purchased hereunder (with the exception of membranes, seals, gaskets, elastomer materials, coatings and other "wear parts" or consumables all of which are not warranted except as otherwise provided in the quotation or sales form) will be free from defects in material and workmanship for a period of one (1) year from the date of installation or eighteen (18) months from the product date code, whichever shall occur first, unless a longer period is provided by law or is specified in the product documentation (the "Warranty").

Except as otherwise required by law, Seller shall, at its option and at no cost to Buyer, either repair or replace any product which fails to conform with the Warranty provided Buyer gives written notice to Seller of any defects in material or workmanship within ten (10) days of the date when any defects or non-conformance are first manifest. Under either repair or replacement option, Seller shall not be obligated to remove or pay for the removal of the defective product or install or pay for the installation of the replaced or repaired product and Buyer shall be responsible for all other costs, including, but not limited to, service costs, shipping fees and expenses. Seller shall have sole discretion as to the method or means of repair or replacement. Buyer's failure to comply with Seller's repair or replacement directions shall terminate Seller's obligations under this Warranty and render this Warranty void. Any parts repaired or replaced under the Warranty are warranted only for the balance of the warranty period on the parts that were repaired or replaced. The Warranty is conditioned on Buyer giving written notice to Seller of any defects in material or workmanship of warranted goods within ten (10) days of the date when any defects are first manifest.

Seller shall have no warranty obligations to Buyer with respect to any product or parts of a product that have been: (a) repaired by third parties other than Seller or without Seller's written approval; (b) subject to misuse, misapplication, neglect, alteration, accident, or physical damage; (c) used in a manner contrary to Seller's instructions for installation, operation and maintenance; (d) damaged from ordinary wear and tear, corrosion, or chemical attack; (e) damaged due to abnormal conditions, vibration, failure to properly prime, or operation without flow; (f) damaged due to a defective power supply or improper electrical protection; or (g) damaged resulting from the use of accessory equipment not sold or approved by Seller. In any case of products not manufactured by Seller, there is no warranty from Seller; however, Seller will extend to Buyer any warranty received from Seller's supplier of such products.

**THE FOREGOING WARRANTY IS PROVIDED IN PLACE OF ALL OTHER EXPRESS WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE (1) YEAR FROM THE DATE OF INSTALLATION OR EIGHTEEN (18) MONTHS FROM THE PRODUCT DATE CODE, WHICHEVER SHALL OCCUR FIRST. EXCEPT AS OTHERWISE REQUIRED BY LAW, BUYER'S**

**EXCLUSIVE REMEDY AND SELLER'S AGGREGATE LIABILITY FOR BREACH OF ANY OF THE FOREGOING WARRANTIES ARE LIMITED TO REPAIRING OR REPLACING THE PRODUCT AND SHALL IN ALL CASES BE LIMITED TO THE AMOUNT PAID BY THE BUYER FOR THE DEFECTIVE PRODUCT. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OTHER FORM OF DAMAGES, WHETHER DIRECT, INDIRECT, LIQUIDATED, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY OR SPECIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFIT, LOSS OF ANTICIPATED SAVINGS OR REVENUE, LOSS OF INCOME, LOSS OF BUSINESS, LOSS OF PRODUCTION, LOSS OF OPPORTUNITY OR LOSS OF REPUTATION.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

To make a warranty claim, check first with the dealer from whom you purchased the product or visit [www.xylem.com](http://www.xylem.com) for the name and location of the nearest dealer providing warranty service.

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to [www.xylem.com](http://www.xylem.com)



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The original instruction is in English. All non-English instructions are translations of the original instruction.

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