



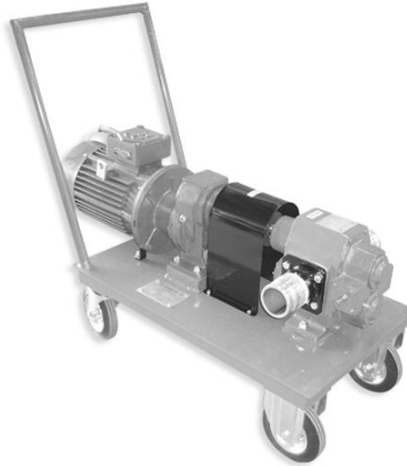
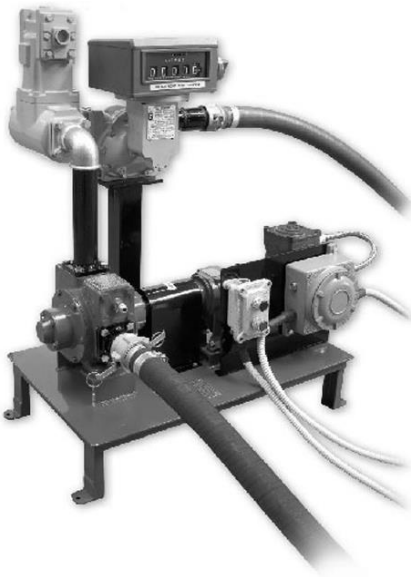
# EMHKAM

PUMPS

## PUMP STATION PS series DIS series

### INSTRUCTIONS FOR INSTALLATION, OPERATION AND MAINTENANCE

VERSION: 2.1 DATE: 30/03/2022



**WARNING! READ THE  
INSTRUCTIONS MANUAL  
BEFORE OPERATE**



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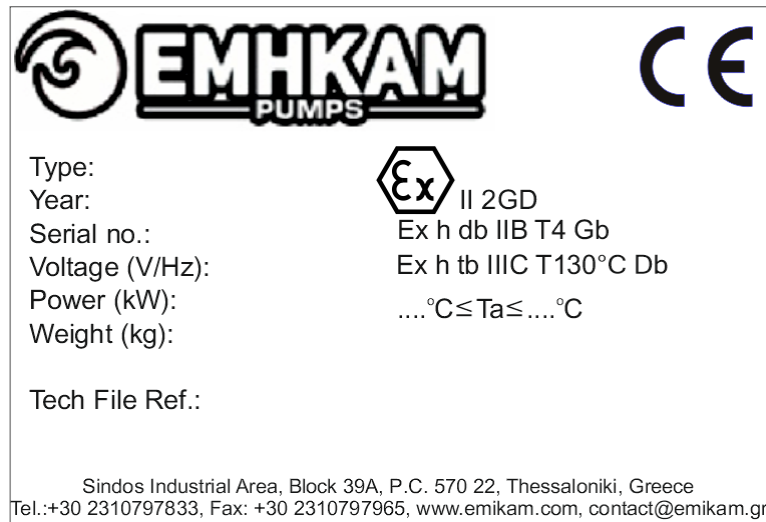
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## 1. MARKING

### 1.1 Technical characteristics label

A label similar with the one shown below is placed on each Pump Station.



**Picture 1:** Technical characteristics label (example)

### 1.2 Installation

Stamp and signature for both manufacturer and installer are filled below.

FOR THE MANUFACTURER

INSTALLER

Date:

Date:

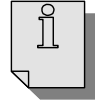


Information included in each label (**identification with serial number**) has to be familiar in order for the reference on them to be easy when they get asked. This can happen in case of spare parts ordering from the construction company where identification of the Pump Station is necessary through label data.

## 2. LABELS WHICH ARE USED



This is a safety alert symbol. When you see this symbol on the product or in the manual, look for one of the following signal words and be alert for potential personal injury, death or major property damage.



This symbol follows message relative to information that are reported in the present manual or in the accompanying handbook and should be taken under consideration.



This symbol follows indication.

The symbols below describe possible accidents or important points regarding the operation of the machine. The messages that follow inform about the associated risks.



Always disconnect the electrical power supply before performing any maintenance, in order to avoid risks of electric shock, fire or even death.



If pumping hazardous or toxic fluids, the system must be flushed prior to performing service.



Operation without guards in place can cause serious personal injury, major property damage, or death.



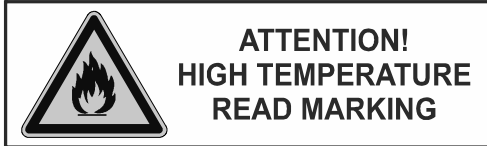
Disconnecting fluid or pressure containment components during pump operation can cause serious personal injury, death or major property damage.



Failure to relief system pressure prior to performing pump service or maintenance can cause personal injury or property damage.



Failure to disconnect electrical power or engine drive before attempting maintenance can cause severe personal injury or death.



High temperature in the pump can cause ignition in gases and dust.



In hazardous areas smoking and existence of naked flame are prohibited.



Use proper equipment for explosive atmosphere.



Contact with hot surfaces can cause serious burn.



Grease oil and lubricants can pollute the environment.



Follow the instructions of the manual in order to avoid risks of severe personal injury or death.

### 3. INTRODUCTION TO THE MANUAL

We strongly recommend reading this manual carefully before proceeding with the installation, operation and maintenance of the Pump Station.

This manual refers to «**EMHKAM PUMPS**» **Pump Stations** and aims on helping for the best processing of all the above.

«**EMHKAM PUMPS**» company does not have any responsibility for damages resulting from improper use or actions not complying with the instructions included in this manual.



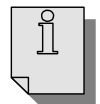
**ATTENTION!** This manual is an integral part of **EMHKAM PUMPS Pump Station** and should accompany it in every transfer or resale. It should be kept in a safe place, and personnel must be aware of it. Personnel are also responsible for the good condition and safekeeping of the manual. In case of damage or loss, you must request a new copy from the manufacturer.



Never neglect to review this manual, independently from your previous experience. Few moments of study will save you time, money and most important avoid difficult situations.



Service shall be performed by qualified personnel **ONLY**. Service shall conform to all applicable local and national regulations and safety standards. As qualified personnel is considered a properly trained person with necessary experience and knowledge with the ability to recognize and prevent risks that could be caused by the use and maintenance of the machinery.



This manual does not provide instructions for installation, operation and maintenance of EMHKAM PUMPS Pumps. For specific instructions about EMHKAM PUMPS Pumps refer to the appropriate manual according to the pump's type series.

## 4. SAFETY MEASURES

### 4.1 Specifications

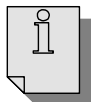
Pump Stations have been manufactured and assembled according to the regulations of Directive **2006/42/EC** for machinery safety, **2014/35/EU** for low voltage equipment and **2014/34/EU** for equipment used in explosive atmosphere.

### 4.2 Safety data



**ATTENTION!** Non conformance with the following can cause personal injury, death or major property damage.

- EMHKAM PUMPS Pump Stations **MUST** only be installed in systems which have been designed by qualified engineering personnel. The system **MUST** conform to all applicable local and national regulations and safety standards.
- Pump Stations installation, operation and maintenance shall be performed by qualified personnel **ONLY**. Maintenance/Service shall conform to all applicable local and national regulations and safety measures.
  - Never proceed on changes on the pump in any circumstances.
  - Use only original spare parts or parts approved by the manufacturer.
  - **Never operate the pump without liquid** except from specific cases mentioned in its manual.



Before installation and operation of the Pump Station, consult the appropriate EMHKAM PUMPS Pump manual according to the pump's type series.

## 5. INTENDED USE

### 5.1 Application field

#### **GMD SERIES**

Sliding Vane pumps of cast iron and ductile iron metals with mechanical seals for medium duty applications such as Aviation Gasoline, Jet Fuels, Gasoline, Fuel Oils, Diesel, Bio-Diesel, Kerosene, Solvents, etc.

#### **SAC SERIES**

Sliding Vane pumps of stainless-steel metals with mechanical seals for corrosive and abrasive applications such as acids, aggressive chemicals, Adblue / Diesel Exhaust Fluid (DEF) / AUS 32 / ARLA 32, etc.

#### **SLD SERIES**

Sliding Vane pumps of cast iron metals with rotary lip seals for light duty applications such as Gasoline, Diesel, Bio-Diesel, Solvents, etc.

#### **DNG SERIES**

Sliding Vane pumps of ductile iron metals with shaft packing for heavy duty applications for handling viscous or shear sensitive fluids such as greases, lube oils, resins, molasses, inks and adhesives.

#### **RS SERIES**

Gear pumps of cast iron metal with mechanical seals for medium duty applications of low and medium viscosity clean liquids such as Lubricants, Fuel Oils, Diesel, Bio-Diesel etc.

#### **SE SERIES**

Gear pumps of stainless-steel metals with mechanical seals for corrosive and abrasive applications such as acids, aggressive chemicals, Adblue / Diesel Exhaust Fluid (DEF) / AUS 32 / ARLA 32, etc.

#### **FX SERIES**

Gear pumps of cast iron metal with rotary lip seals for low pressure medium duty applications of low and medium viscosity clean liquids such as Lubricants, Fuel Oils, Diesel, Bio-Diesel etc.

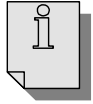
#### **XT SERIES**

Gear pumps of cast and ductile iron metals with shaft packing for heavy duty applications, handling viscous such as greases, lube oils, resins, molasses, inks and adhesives.

#### **XTS SERIES**

Gear pumps of stainless-steel metals with shaft packing for heavy duty applications, handling viscous fluids such as olive oils, chocolate, greases, lube oils, resins, molasses, inks and adhesives.





The application field of each Pump Station is totally dependent on the type and application field of its pump.



**ATTENTION!** Consult the appropriate EMHKAM PUMPS Pump manual regarding intended use and safety warnings/measures.

## 6. TRANSPORT, INSTALLATION, CONNECTION



EMHKAM Pump Stations must only be installed/connected in systems designed by qualified engineering personnel. System design must conform to all applicable regulations and codes and provide warnings of all system hazards.



Always disconnect the electrical power supply before performing any maintenance, in order to avoid risks of electric shock, fire or even death.



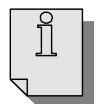
**ATTENTION!** Installation has to be done after making sure you have unplugged and secured the electrical power supply.



**ATTENTION!** The power supply provided to the Pump Station must be in accordance with the power supply indicated on the technical data label.



**ATTENTION!** During the electrical installation, follow all the security rules. Ground the electrical circuit in all cases.



Installation of the Pump Station's individual parts on its metal base, has already been performed by the manufacturing company and does not require any further actions.

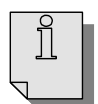
### 6.1 Transport

The following means are required for the transport of the Pump Station:


- suitable lifting equipment
- lifting machinery
- truck vehicle

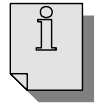
During transport all the necessary measures for the safety of persons and protection of the Pump Station should be taken.

During transport special attention should be given to the electrical control panel.



The Pump Station is transported fully assembled.

 **ATTENTION!** Risk of elevated load. Use equipment with the necessary lifting ability. Before transport be aware of the Pump Station's weight indicated on the technical characteristics label.



Pump Stations with wheels should be secured against movement, during transport.

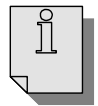


**Check for any damages caused by transport.** Upon Pump Station's delivery ensure that no damage has been caused during transport.

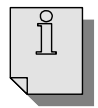
## 6.2 Installation



**ATTENTION!** During installation carrying out work irrelevant to the installation procedure is forbidden due to the risk of accident.



Pump Stations with wheels should be secured against movement, after installation.



The coupling of pump station is aligned by the manufacturer. On site alignment is required when the pump electric motor/gear box are removed or replaced.

## 6.3 Connection

The procedure should only be made by qualified personnel in order to fully implement the connection specifications and prevent accidents.



**ATTENTION!** For your own safety, before connecting the Pump Station to the power supply check if:

1. There is a connection between phases and ground. The ground cable is yellow–green coloured.
2. The power supply cable and supplied voltage are suitable according to the Pump Station's technical characteristics.



**ATTENTION!** The power supply cable must be protected from mechanical stresses that may damage its insulation.

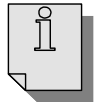


**ATTENTION!** The Pump Station must be properly grounded.



**ATTENTION!** Confirm correct pump rotation by checking the pump rotation arrow.

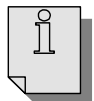
#### 6.4 Piping connection



Inlet circuit of the pump has to be free of materials other than those which are meant to be pumped. Such an existence may cause severe damage or breakdown of the pump.

Before pipe connection beware of the following:

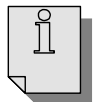
- Place the Pump Station as closer to the supply as you can to avoid friction losses.



For the maintenance of each strainer consult manufacturer's technical characteristics.

- No air should enter the piping.
- Piping has to be aligned.

#### 6.5 Flushing the pump



Consult the appropriate EMHKAM PUMPS Pump manual regarding flushing the pump.

**7. OPERATION**



Operation without guards in place can cause serious personal injury, major property damage, or death.



Disconnecting fluid or pressure containment components during pump operation can cause serious personal injury, death or major property damage.

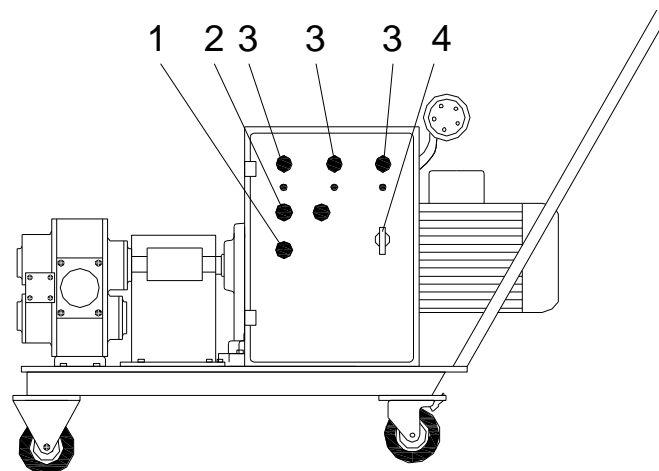


Failure to relief system pressure prior to performing pump service or maintenance can cause personal injury or property damage or death.

**7.1 Operation panel / controls**

Operation of the Pump Station is performed from the control panel. The control panel can be installed on the base of the Pump Station or standing separately in the installation area, according to the customer's demand. Regarding the second option, the control panel is installed by customer's responsibility.

The function of its control of the control panel is described below:



**Picture 2:** Electrical control panel

## 7.2 Pre – start check list

Perform the following checks before operation:

1. Check the alignment of the piping to the Pump Station.
2. Ensure that inlet and outlet of the pump are free of closed valves or other parts.
3. Check security against movement.
4. Check safeguard installation to the coupling.
5. Check motor connection and make sure that pump rotation is as indicated by the arrow on it.

## 7.3 Rotation start

For starting follow the procedure below:

1. Start the electric motor.
2. Check for leaks.
3. Check for overheating, excessive noise or vibrations to the pump or the electromotor.
4. Check the pressure setting of the by-pass valve by closing the exit of the pump.



**ATTENTION!** DO NOT operate the Pump Station against a closed outlet for a long period. Please refer to pump's manual.



If adjustment need to be made, refer to the "by-pass valve setting" section of the appropriate EMHKAM PUMPS Pump manual.

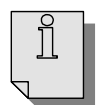


**ATTENTION!** Wrong adjustment of the by-pass valve can cause serious injury, damage or death.



**ATTENTION!** During operation, the Pump Station has to be secured against movement (brakes on the wheels).

## 7.4 Reverse rotation



Consult the appropriate EMHKAM PUMPS Pump manual regarding reverse rotation.

## 8. PUMP STATION PARTS

### 8.1 Pump

EMHKAM PUMPS's sliding vane and gear pumps are used on pump stations and dispensers. The choice of the type and size of the pump depends on the application. Sliding vane pumps are used to low viscosity mediums while gear pumps are used to high viscosity mediums.

### 8.2 Control panel

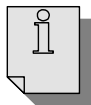
Control panels are used optionally on pump stations and dispensers in order to provide control of the operation and protection of pumps and electric motors. Control panels include soft starters, Delta starters and inverters.

### 8.3 Flow meter

A variety of flow meters are installed on pump stations. Flow meters are positive displacement volumetric rotating equipment that are measuring liquids. They come with many options including mechanical/electronic registers, preset valves, strainers/air eliminators, air check valves and printers.

### 8.4 Electric motor

Electric motors are installed on pump stations and dispenser. They can be 3 or 1 phase depending on the size of the pump. 2 pole electric motors are usually used while 4 and 6 poles are used less often.



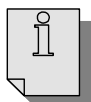
Optionally, pump stations can be equipped with an air motor.

### 8.5 Transmission drive

The transmission drive can be gear box and belt & pulleys. Depending on the application, gear boxes and belt & pulleys are used to rotate pumps while reducing the rotation equipment RPM.

### 8.6 Dispenser

Dispenser is a high-volume pump station in a cabinet. Cabinets provide protection to pump station's equipment. The cabinet can be stainless steel and St37 that can be installed at marines, train stations and off-shore oil platforms.



Wheels are optional equipment and their size depends on customer's demands.

## 9. MAINTENANCE - CLEANING



**DANGER!  
ELECTRIC  
SHOCK**

Always disconnect the electrical power supply before performing any maintenance, in order to avoid risks of electric shock, fire or even death.



**DANGER!  
CORROSIVE  
MATERIAL**

If pumping hazardous or toxic fluids, the system must be flushed prior to performing maintenance or service.



**DANGER!  
MACHINE IN  
OPERATION**

Failure to disconnect electrical power or engine drive before attempting maintenance can cause severe personal injury or death.



**DANGER!  
DO NOT REMOVE  
SAFETY DEVICES**

Operation without guards in place can cause serious personal injury, major property damage, or death.



**FORBIDDEN  
CLEANING AND  
MAINTAIN DURING  
OPERATION**

Disconnecting fluid or pressure containment components during pump operation can cause serious personal injury, death or major property damage.



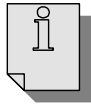
**FORBIDDEN  
CLEANING AND  
MAINTAIN DURING  
OPERATION**

Failure to relief system pressure prior to performing pump service or maintenance can cause personal injury or property damage.



Maintenance shall be performed by qualified personnel only, following the appropriate procedures and warnings as presented in this manual.

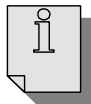




For information regarding service, maintenance and flushing of the pump, consult the appropriate EMHKAM PUMPS Pump manual.

### **9.1 Strainers**

Strainers must be cleaned regularly to avoid pump cavitation. Strainer cleaning is performed according to the instructions of the manufacturer and the conditions of use.



For each filter consult the technical characteristics of the manufacturer about maintenance.

## 10. TRANSPORT / STORAGE

Pump Stations do not need special transport conditions. They have to be protected from strokes.



**ATTENTION!** Always select the appropriate means for lifting and moving the Pump Station according to its weight. These actions must be carried out by trained personnel.

About storage, they must not be stored in a wet environment because there is danger of corrosion.



If the pump is stored for a long time and stays for a long time out of operation, anti-corrosive fluid is recommended to be used in the pump's chamber.



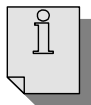
When the Pump Station's lifecycle is over, it is recommended to refer to a company that deals with recycling.



RECYCLING

**11. TROUBLESHOOTING**

<b>Malfunction</b>	<b>Possible cause</b>	<b>Actions</b>
<b>No voltage to the Pump Station</b>	<ol style="list-style-type: none"><li>1. Disconnected plug / supply cable</li><li>2. Worn fuses</li></ol>	
<b>Electric motor does not start</b>	<ol style="list-style-type: none"><li>1. Damage to the electric motor</li><li>2. Worn fuses</li><li>3. Inactive phase</li></ol>	



For malfunctions concerning the pump, consult the appropriate EMHKAM PUMPS Pump manual.

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