

**Operating instructions**  
**APY Series**  
**Peristaltic pump**

**realax**

**ALL THE HOSE PUMP YOU'LL EVER NEED**



## **Congratulations!** **And welcome to the world of relax** **hose pumps.**

Drawing on extensive interaction with real users of peristaltic pumping technology and examining applications as diverse as food, water and wastewater, chemicals and pharmaceuticals, construction and mining, we have tried to tailor our range of pumps more precisely to your needs.

Our range of hoses and accessories reflect what hose pump customers really need and use – after all, best is what you want, second best should never be an option.

We hope you'll find using your relax pump simple, trouble-free and that it makes a positive contribution to the success of your process. If you have any questions you can't find answers to in these pages, check our website or call your local representative on the number on the contact page of this guide.

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## 1 INTRODUCTION

This manual forms an integral part of the pump and must accompany it until its demolition. The series APY peristaltic pump is a machine destined to work in industrial areas and as such the instruction manual must form part of the legislative dispositions and the applicable technical standards and does not substitute any installation standard or eventual additional standard.

## 1.1 Explanation of the safety information



The instructions of this manual, whose inobservance is determined as a failure to meet safety standards, are identified by this symbol .



The instructions of this manual, whose inobservance compromises electrical safety.

**CAUTION**

The instructions of this manual, whose inobservance compromises the correct working of the pump, are identified with this symbol.

## 1.2 Users' qualifications

Pumps are machines that due to their functioning under pressure and moving parts can present dangers caused by the following:

- Improper use.
- Removing the protections and/or disconnecting the protection device.
- The lack of inspections and maintenance.

They can cause serious damage or injury.

The person in charge of safety should therefore guarantee that the pump is transported, installed, put in service, used, maintained and repaired by qualified personnel who should therefore possess:

- Specific training and sufficient experience.
- Knowledge of the technical standards and applicable laws.
- Knowledge of the general national and local safety standards and also of the installation.

Any work carried out on the electrical part of the pump should be authorized by the person responsible for safety. Given that the pump is destined to form part of an installation, it is the responsibility of whoever supervises the installation to guarantee absolute safety, adopting the necessary measures of additional protection.

## 2 SAFETY AND RESPONSIBILITY

### 2.1 General safety information



#### **Live parts**

Possible consequence: Fatal or very serious injuries.

- Measure: The device must be disconnected from the power supply before it is opened.
- Isolate damaged faulty or manipulated devices from the mains in order to de-energise.



#### **Emergency stop switch**

Possible consequence: Fatal or very serious injuries.

An emergency stop switch is to be connected for the entire plant. This should enable the entire plant to be shut down in the event of an emergency in such a way that the overall plant can be brought into a safe condition.



#### **Unauthorized access**

Possible consequence: Fatal or very serious injuries.

- Measure: Ensure that there can be no unauthorized access to the unit.



#### **Hazardous media/contamination of persons and equipment**

Possible consequence: Fatal or very serious injuries  
material damage.

- Ensure that the pump hoses are resistant against the media being conveyed.
- Always observe the safety data sheets for the media to be conveyed. The system operator must ensure that these safety data sheets are available and that they are kept up-to-date.
- The safety data sheets for the media being conveyed are always decisive for initiating counter-measures in the event of leakage to the media being conveyed.
- Observe the general restrictions in relation to viscosity limits, chemical resistance and density.
- Always switch the pump off before exchanging the pump hose.

**CAUTION****Correct and proper use**

Possible consequence: Fatal or very serious injuries.

- The unit is not intended to convey or regulate gases or solid media.
- Do not exceed the rated pressure, speed or temperature for the pump.
- The unit may only be used in accordance with the technical data and specifications provided in these operating instructions and in the operating instructions for the individual components.
- The system is not designed for use in areas of risk from explosion.
- Only switch the pump on if it has been properly fastened to the floor.
- Only switch the pump on if the front cover has been attached.
- Do not carry out any maintenance operations or dismantle the pump without first making sure that the pipes are not under pressure and are empty or isolated.
- In the case of the hose becoming stuck during extraction or fitting it is necessary to reverse the direction of the pump, re-lubricate, and then repeat the operation.
- As the peristaltic pump is volumetric and its functioning is positive displacement, it is necessary to prevent a possible overload of pressure, due to for example, the accidental closure of a valve. For this reason it is advisable to fit a safety device such as: a safety valve, pressure limiter, etc.

**CAUTION****Operational lifetime of the pump hose**

Possible consequence: Fatal or very serious injuries.

The operational lifetime of the pump hose cannot be precisely specified. For this reason, the possibility of fracture and consequential leakage of liquids must be accounted for. If the hose rupture alarm (optional) is fitted, then the pump can be stopped and / or an electrical valve can be actuated.

In addition, as the hose has an indeterminate life and due to the possibility of its breakage or deterioration, the user is responsible for the prevention of a possible (although most unlikely) incorporation of particles from the hose into the product being pumped. This can be achieved e.g. by means of filtration, a hose rupture alarm or other means suitable for the respective process.



### **CIP cleaning**

In the event of CIP cleaning, it is necessary to obtain information from the manufacturer about correct installation of the pump (a special installation is required) as well as regarding the compatibility of the cleaning agents with the pump hoses and the hydraulic connections.

Cleaning should be undertaken at the recommended maximum temperature.



### **Direction of rotation/flow direction**

Possible consequence: Material damage right through to destruction of the unit.

- The pump's direction of rotation in relation to the desired flow direction must be checked prior to every start.



### **Disconnect the pump from the mains**

Possible consequence: Personal injury.

You may only carry out work on the pump after it has previously been switched off and disconnected from the mains.



### **Environmental influences**

Possible consequence: Material damage right through to destruction of the unit.

- The device is not suitable for outdoor operation
- Take suitable measures to protect the device from environmental influences such as:
  - UV rays.
  - Moisture.
  - Frost, etc.

### 3 FUNCTIONAL DESCRIPTION

The APY Series is a positive displacement pump. The process fluid is conveyed by the rotor squeezing the hose in the direction of flow. No valves are required for this. This ensures gentle handling of the process fluid.

The APY Series has been designed for safe and uncomplicated operation, as well as straightforward maintenance.

The APY Series can be used for many different media. However, this pump type is often the optimal solution for abrasive, shear-sensitive and viscose media.

Typical areas of use include processes where only a low discharge pressure is required (max. 2 bar).

#### 3.1 Construction

Main modules: – Drive Unit, – Tubing, – Base frame

The pump housing is closed off with a screwed front cover in order to avoid the risk of injury.

The motor serves to drive the rotor. Three rollers at the ends of the rotor serve to press the pump hose against the pump housing.

The rotary movement of the rotors alternately press and relax the rollers in relation to the pump tube. This serves to suck the media and convey it into the process line.

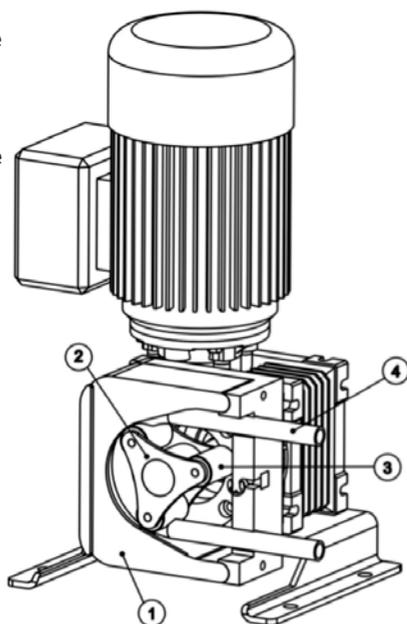


Fig. 1: Diagram of functional principle

1 Casing

2 Rotor

3 Rollers

4 Tube

## **4 TRANSPORT AND STORAGE**

### **4.1 Transport**

- The pump is protected by a cardboard packaging.
- The packaging materials are recyclable.

### **4.2 Storage**

- The pump should be in a resting position. (The hose should not be compressed).
- Avoid areas open to harsh weather or excessive humidity.
- For storage periods of longer than 60 days, protect the coupling surfaces (clamps, reducers, motors) with adequate anti-oxidant products.
- Spare hoses should be stored in a dry place away from direct light.

## 5 ASSEMBLY AND INSTALLATION

### 5.1 Ambient conditions

Assembly is to be carried out in the following order. When positioning the pump, ensure that sufficient room for access is provided for all types of maintenance work.

#### Limit values for hose temperature and pressure

Material Hose	Min. Temp. (°C) Feed chemical	Max. Temp (°C) Feed chemical	Min. Temp (°C) Environment	Max. Pressure (Bar)
Norprene A60F	-10	120*	-40	2
Norprene A60G	-10	120*	-40	2
SOLVA	-10	70*	-40	2
SILICONE	-10	135*	-40	2
TYGON	-10	70*	-40	2

*\* At max. temperature, the life of hose is drastically reduced. Please contact authorized relax distributor for high temperature application.*

### 5.2 Correct installation of the pump

#### 5.2.1 Suction side

The pump is to be positioned as near as possible to the liquid container, so that the suction side is kept as short and straight as possible. The suction line must be absolutely airtight and made of a suitable material, so that it is not squeezed together under vacuum. The diameter must correspond to the rated diameter of the pump tube. A larger diameter is recommended in the event of viscous liquids. The pump is self-priming and does not require an admission valve. The pump is reversible and the suction connection can therefore comprise of one of two options. Normally the option is selected which is best suited to the physical conditions of the installation. It is recommended to use a flexible transition between two fixed pipes and the hydraulic connection of the pump, in order to avoid the transmission of vibrations.

### 5.2.2 Discharge side

The discharge line is to be kept as straight and short as possible, in order to avoid performance reduction. The diameter must correspond to the rated diameter of the pump tube. A larger diameter is recommended in the event of viscose liquids. It is recommended to use a flexible transition between two fixed pipes and the hydraulic connection of the pump, in order to avoid the transmission of vibrations.

## 6 COMMISSIONING

### 6.1 Testing prior to commissioning the pump

The following tests are to be carried out:

- Ensure that the pump has not been damaged during transportation or storage. Immediately report any damage to the supplier.
- Check that the mains voltage is suitable for the motor.
- Ensure that the tube is suitable for the fluid to be conveyed and that it is not damaged.
- Make sure that the temperature of the liquid does not exceed the recommended temperature range.
- Only switch the pump on if the front cover has been properly attached.
- Check that the rollers are correctly fitted and fastened.
- Check that the pump drive and the inner of the rollers are correctly greased. The specially formulated grease can be obtained from the authorised realax pump distributor.
- Check that the thermal overload protection (not included in the delivery scope) corresponds to the value specified on the motor type plate.
- Check whether the direction of rotation is correctly adjusted.
- Check that the optional electrical components are connected and are working properly.
- Install a pressure gauge in the pressure line if the back-pressure value is unknown.
- Check the operating instructions in order to ensure that the flow values, pressures and power consumption of the motor do not exceed the rated values.
- Install a pressure relief valve in the discharge line in order to protect the pump in the event that a valve is unintentionally closed off or the line is blocked in another way.

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## **7 MAINTENANCE, REPAIR, MALFUNCTIONS, DISPOSAL AND SPARE PARTS**

### **7.1 Lubrication:**

Check that the rollers and the hose are sufficiently lubricated. Use only the original relax silicone grease.

- Check every 300 operating hours.

Gear reducer:

- The lubrication is permanent. Servicing is not necessary.

### **7.2 Exchanging the pump hoses**

#### **7.2.1 Exchanging the pump tubes**

*Refer to section 8 for parts lists and drawings*

- 1 Close off all valves, in order to prevent leakage of the feed chemical.
- 2 Dismantle the pump pipes from both discharge and suction sides.
- 3 Remove the front cover (10).
- 4 Remove the pump body from the support (2).
- 5 Remove the tube.

#### **7.2.2 Exchanging the pump tubes- installation**

- 1 Clean the interior surfaces of the pump casing.
- 2 Lubricate the internal surfaces of the pump casing at the contact surfaces to the pump hose (19) with original silicon grease.
- 3 Check the rollers (4). Ensure that the roller surfaces are not damaged.
- 4 Lay the pump tube (19) into the pump support (1).
- 5 Mount the pump body (2) on the support (1).
- 6 Attach the front cover (10) to the pump body, pulling the tube a little bit to ensure that the tube (19) is installed in its correct position.
- 7 Adjust the position of the front cover (10) wing bolt until the tube become correctly pressed.
- 8 Mount the pipes from both discharge and suction sides.
- 9 Open all of the valves.

## 7.3 Troubleshooting

Problem	Possible cause	Solution
Increased pump temperature	Pump tube has no lubricant	Lubricate pump tube (19) – see section 7.2
	Increased product temperature	Reduce product temperature*
	Insufficient or poor suction conditions	Check suction line for blockages
	Pump speed too high	Reduce pump speed – consult distributor
Reduced flow or pressure	Valves on discharge and or suction side completely or partially closed	Open valves
	Pump hose insufficiently compressed	Check roller fastening (3)
	Pump tube rupture (the product leaks out into the housing)	Exchange pump tube (19) – see section 7.2
	Partial blockage of the suction line	Clean pipe
	Insufficient product quantity in storage container	Fill storage container or exchange pump
	Insufficient diameter on the suction side	Increase the diameter on the suction side, as far as possible
	Suction line too long	Shorten the suction line, as far as possible
	High viscosity of medium	Reduce viscosity, as far as possible, reduce pump speed*
Reduced flow or pressure	Air introduction in the suction connections	Check connections and accessories for air tightness
	High pulsation on suction	Tighten connections and accessories. Mount anti-pulsation equipment. Reconsider application (speed, etc.)*

\*Consult your realax distributor

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Vibrations on pumps and pipe-lines	The pipes are not correctly fastened	Fasten pipes correctly (e.g. wall brackets)
	Pump speed too high	Reduce pump speed *
	Insufficient nominal width of the pipes	Increase nominal width
	Pump base plate loose	Fasten base plate
	Pulsation dampers insufficient or missing	Install pulsation dampers on suction and / or discharge side *
Short operational lifetime of the hoses	Chemical exposure	Check the compatibility of the hose with the liquid being conveyed, the cleaning fluid and the lubricant *
	High pump speed	Reduce pump speed *
	High conveying temperature	Reduce product temperature *
	High operating pressure	Reduce operating pressure *
	Pump cavitation	Check the suction conditions *
	Abnormal elevation of temperature	Check rollers shaft mounting (5)
	Unsuitable lubricant	Use original realax silicone grease.
Pump hose pulled into the pump housing	High inlet pressure	Reduce inlet pressure *
	Pump hose (19) filled with deposits	Clean or replace the pump hose
	Holder (press flange) insufficiently tightened	Re-tighten holder (press flange)
	Insufficient grease	Top lubricant
The pump does not start up	Insufficient motor performance	Check motor and replace if necessary
	Insufficient output from frequency converter	The frequency converter must match the motor
	Blockage in the pump	Check voltage. Start occurs at minimum 10 Hz
	Blockage in the pump	Check if the suction or discharge side is blocked. Rectify blockage

\*Consult your realax distributor



<b>Pos.</b>	<b>Description</b>	<b>Quantity</b>	<b>Reference</b>
7	Pump screw S.S.	2	115.00.12
8	Pump wing bolt	2	115.00.13
9	Base plate	1	115.00.14
	Base plate S.S.	1	115.00.15
10	Front cover plastic part	1	115.00.16
11	Tube pressing part S.S.	1	115.00.18
12	Front cover S.S. part	1	115.00.20
13	Tube wing bolt S.S.	1	115.00.22
14	Tube wing bolt plastic part	1	115.00.23
15	Spring	1	115.00.24
16	Wing bolt circlip	1	115.00.25
17	Insert S.S.	1	115.00.27
18	Driver	1	
19	Tube	1	

## 9 DECLARATION OF CONFORMITY

- Original-

### EC Declaration of Conformity

We hereby declare, **AxFlow Holding AB**  
**Wenner-Gren Center**  
**Sveavaegen 166, floor 14**  
**SE-113 46 Stockholm**  
**Sweden**

That the following designated product complies with the pertinent fundamental safety and health requirements of the EC Directive in terms of its design and construction and in terms of the version marketed by us.

This declaration loses its validity in the event of a modification to the product not agreed with us.

**Description of the product:** Peristaltic pump RealAx APY

**Product type:** APY

**Serial no.:** Refer to nameplate on the device

**Pertinent EC Directives:** CE Declaration of Conformity (Ann. II. A, 2006/42/CE): The pump is conform to the safety requirements according to the 2006/42/CE norms and amendments

**Manufacture Declaration (Ann. II. B, 2006/42/CE):** The pump cannot be operated before the machine in which is assembled the pump, will be declared in conformity with the safety requirements according to the 2006/42/CE norms and amendments.

**Signature:**

**Details of the signatory:**



**Hakan Bjerner**

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## **10 WARRANTY**

We guarantee against all manufacturing defects and guarantee the materials that compose the relax pump for two years from the date of delivery. This guarantee does not cover the hose or the lubricant as these are elements that have a normal function wear, irrespective of their duration.

This guarantee is valid as long as the equipment is operated in accordance with this document.

This guarantee includes materials and work but not the cost for transportation of the equipment to the authorized repair shop or its return to the customer.



**DK**

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Telefax: +45 7010 3555

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**Za više informacija o realax peristaltičkim pumpama obratite se na adresu:**

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