

# Maintenance and Operating Instructions

## IRRITROL

### Pop-up sprinkler with integrated valve

### SIS 120P/SISF



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### **1. General**

We presume, that you are experienced in the field of irrigation. Therefore we have kept this instruction as brief as possible, and have included such information only, which you must have for the use of this product.

A guarantee can be accepted only, if the sprinkler has been operated in accordance with these instructions, and if the defect occurs within the guarantee period.

#### **1.1. Application**

The sprinkler is used for the uniform distribution of the water. The water should be pre-cleaned, and free of coarse and fibrous impurities.

Max. water temperature will be 50 degree C.

Max. ambient temperature will be 75 degree C.

## 2. Safety

These operation and safety instructions include basic remarks and hints for the assembly, installation, operation, maintenance, inspection and repair. For this reason these instructions must be read by the fitter, as well as by the customers authorised staff, prior to the installation and commissioning.

Apart from the general safety instructions of this paragraph the special safety instructions included in other paragraphs of these operating instructions have to be observed also.

### 2.1. Symbols of hints given in these operating instructions

The non-observance of the safety instructions mentioned in these operating instructions can endanger persons, are

marked with the general danger symbol



especially.

Safety instructions which can endanger the sprinkler and its function, if not observed, are specially marked and the word

**ATTENTION**

has been inserted.

### 2.2. Dangers if the safety instructions are not observed

Non-observance of the safety instructions can endanger persons as well as the environment and the sprinkler. Non-observance of the safety instructions can result in a loss of all claims for indemnity.

### 3. Description

Recommended operating pressure    5 to 6 bar  
Permissible operating pressure        3 to 8 bar

**ATTENTION**    The pressure at the sprinkler must not exceed 10 bar.

### 4. Assembly (Sprinkler Valve in Head)

SIS120-FV	Sprinkler to impact 360° with sod cup for natural turf and valve in head
SIS120-PV	Sprinkler to impact 30°-330° with valve in head
SIS120-PGV	Sprinkler to impact 30°-330° with valve in head and artificial grass

- ☆ Flush pipe work thoroughly before assembling
- ☆ Threaded connection on the sprinkler is 1½“ female thread.
- ☆ For sealing the thread, Teflon strip has to be used.
- ☆ Installation of the sprinkler should occur according to the “Installation layout for PERROT pop-up sprinkler LVZR 22 VAC“ (see next side).  
To avoid burden pressure on the conduit pipe use in any rate a sprinkler swing joint.
- ☆ It is recommended to assemble a gravel package, as shown in the installation layout.
- ☆ The connection of the control cables is only allowed with approved watertight connections.
- ☆ To screw the sprinkler on the swing joint hold on to the housing border or use a strap wrench.

**ATTENTION**

## 5. Commissioning / Winterise

### 5.1.1 Connection

#### Measurements:

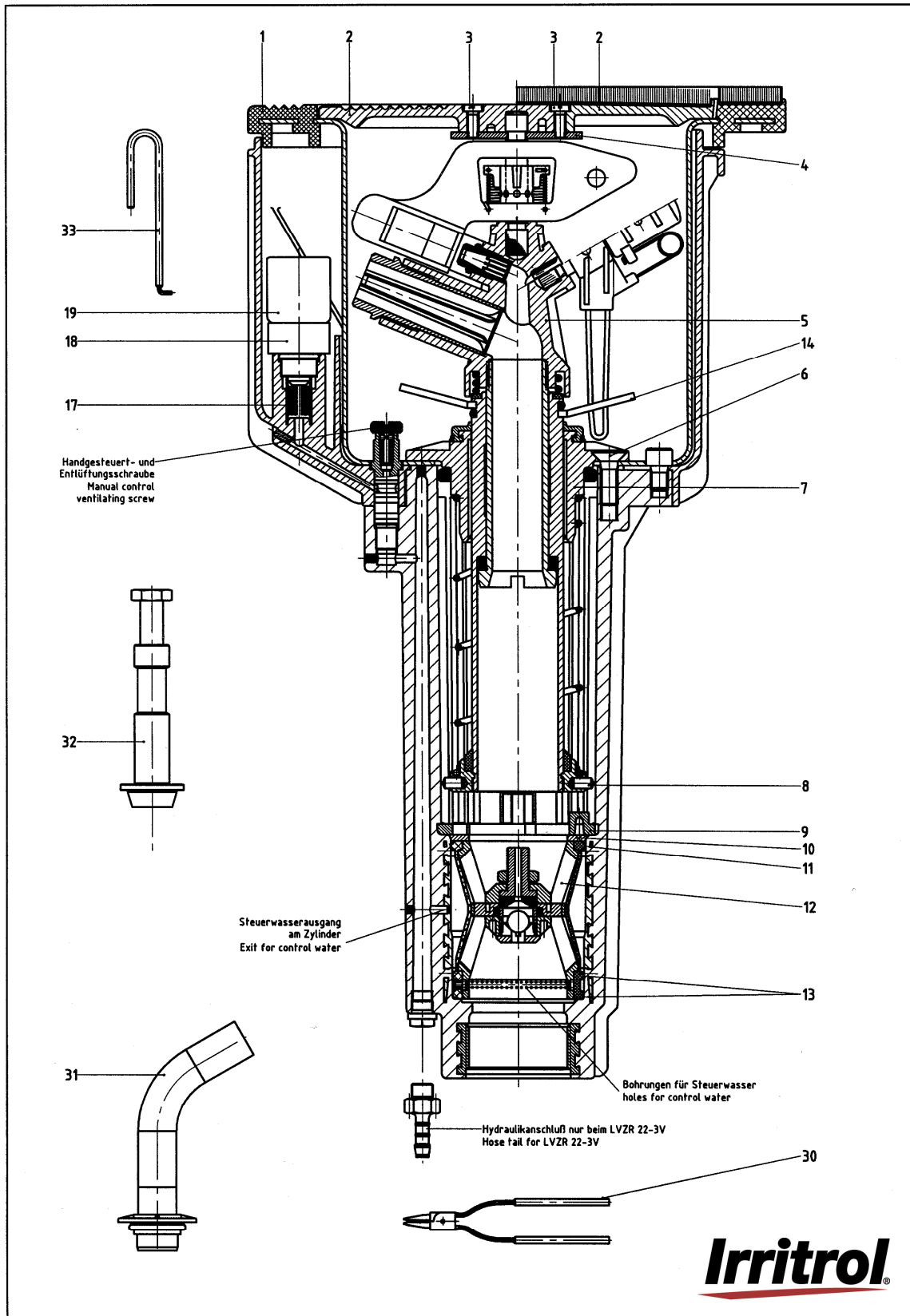
Sprinkler type	SIS 120PV-PGV	SIS120FV
Installation height	450 mm	660 mm
Rising height	99 mm	206 mm
Outer Ø housing	246 mm	246 mm
Outer Ø lid	180 mm	242 mm

### 5.1.2 Measurements

- a) Check of electrical function :  
Before the water supply to the valve is opened, the coil has to be triggered through a control unit. Through an acoustic “click” on the coil, the correct electrical function can be determined. (The click arise through attracting the relay armature.)
- b) Open water supply to the sprinkler slowly. Probably the valve opens for a short time, but after 30 sec. it should close on its own.
- c) After opening the water supply and after the max. working / operation pressure is reached, every seal has to be checked / examined.
- d) Check valves and sprinkler for perfect function, when opening the valve manual.
- e) While operation of the sprinkler, there is the possibility to adjust the desired irrigation sector on the spring stop [14].
- f) After the complete ventilation of the sprinkler the current supply to the coil must be stopped, than the sprinkler has to close.

## 5.2 Winterise

- ☆ Before beginning of the frost period the sprinkler has to be totally drained off.  
Therefore there must be connected a powerful compressor on the network / main circuit.  
Open the valve on the sprinkler until only air is coming out of the nozzle.
- ☆ Sprinkler is equipped with a automatic drainage valve and could be winterised by gravity, just by drainage the pipe.
- ☆ After the drainage the solenoid has to be activated at least 5 times, so that remaining water can be pressed out of the solenoid housing.



picture 1

## 6. Maintenance

- ☆ Clean interior space of the sprinkler with a industrial type vacuum cleaner or a similar device.
- ☆ Clean / relieve sprinkler housing from overgrown grass. This work should be done conveniently before commissioning in spring.

## 7. Break-down and elimination of the defects

### 7.1 Disassembly

- ⇒ Unscrew the screws [3] from the lid [2] Take off lid [2] and securing bracket [4].
- ⇒ Unscrew the screws [6] and pull out the sprinkler insert [5].
- ⇒ The sheet metal housing with edge [1] can be pulled out for repair or inspection on the electrical parts in case of the pop-up sprinkler types LVZR 22-2VDC/VAC/VDE

#### Disassembly valve piston



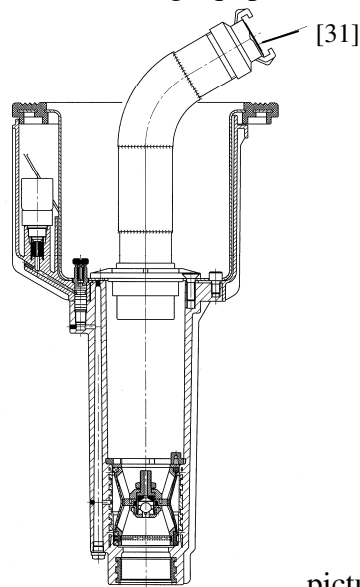
Before the following mentioned work is carried out, it must be sure that the sprinkler is depressurised.

- ⇒ The solenoid [19] can be screwed out with or without the solenoid adapter [18] by turning anti clockwise. The filter has to be pulled out for cleaning.
- ⇒ Pull out the retaining circlip [9] with the installation hook [33]. Push the installation hook from the left (arrow) into the bore and turn the installation hook to the left whilst pulling it out again.
- ⇒ Screw the valve lifter [32] into the valve insert [12]. Loosen the valve insert [12] by applying slight blows with the sleeve around the lifting tool. Pull out the valve insert.

## 7.2 Assembling of the sprinkler

### 7.2.1 Flush sprinkler

- ☆ In case that the valve contains soil particles, the sprinkler has to be flushed before assembling.
- ☆ Assemble flushing equipment [31] in the sprinkler housing (see picture 2) and open water supply. Connect hose on flushing equipment, so that water can be derived.



picture 2

### 7.2.2 Assembly of valve

- ☆ Screw the valve insert [12] with the stainless steel [10] onto the valve lifter [32]. The chambered surface of the stainless steel must point to the valve insert [12]. The valve insert must be greased slightly at the sealing beads [11] and [13] before it is pushed back into the housing.
- ☆ The control drilling between the two sealing beads [13] must point towards the manual control device or ventilating screw during assembly. ( $\pm 3$  degree or  $\pm 5$ mm at the diameter of the sealing beads [11]). Push the valve insert [12] into the housing accompanied by slight hits with the sleeve around the valve lifting tool.
- ☆ Replace the retaining circlip [9] into the groove by using the pliers [30]. Make sure that the circlip fits properly! If necessary push with the taper at the valve lifter [32] towards the outside.

### 7.2.3 Sprinkler assembly

- ☆ Place the sprinkler insert with its guide pins [8] in any small groove. Press the flange [7] and fasten with screws.
- ☆ Fit housing lid [2] with securing bracket [4] and screws [3].
- ☆ The sprinkler is now completely assembled. Now the function can be checked as described under point 5.1.



## 7.3 Break-down and elimination of the defects

Break down	Cause / reason	Elimination
Valve opens / closes only manual not by electrical, Control signal	Coil or coil seat is dirty	Remove coil and clean it, see point 7.1.
	Supply voltage is too low (24VAC/DC)	Check supply voltage and cable connections
	Coil is broken	Check coil resistance (must be appr. ca. 30Ω)
	Plunger in coil is seated	Change coil
Valve does not open, even not manual	Seal of valve insert is defect	Change valve insert (see point 7.1.)
	Exit for control water on cylinder of the valve is blocked	Disassembly control pipe out off connection and blow through backwards
Valve does not close, even not manual,	Filter for control water is dirty	Disassembly valve insert and clean filter or change it (see point 7.1.)
	Leakage in the control water path	Check all connections, control pipe and pressure regulators units for leakage's and eliminate them.
The pressure on the sprinkler nozzle is too low.	Valve is blocked	Disassembly valve and flush pipes (see point 7.1)

### 7.3.1 How to check sprinklers, which do not open

- ☆ Check solenoid in or at the controller for efficient operation.
- ☆ Engage valve and check at the relief exit of the controller for a brief water splash to come out
- ☆ Exchange solenoid at the controller only when there is **no pressure** in the line

### 7.3.2 How to check sprinklers, which doesn't close

- ☆ Control line has not been ventilated completely.
- ☆ Foreign particles are blocking the valve
- ☆ There is a leak in the hydraulic system.
- ☆ The retaining circlip [9] on top of the valve is not fitted correctly and the valve has been pushed out of it's seat by the operating pressure.
- ☆ Check the outlet of the solenoid valve for correct functioning. To implement this, disconnect the control line. The valve at the controller is normally open (without current).

Subject to change without prior notice.

## Attached

### SIS 120F/ SIS 120P without valve



## Contents

1. Description
2. Installation
3. Commissioning
4. Adjustments
5. Maintenance / Cleaning / Repair
6. Preparation for winter time
7. Troubleshooting + Solutions
8. Disassembly and assembly of sprinklers

### 1. Description

Recommended operating pressure    5 to 6 bar  
Permissible operating pressure        3 to 8 bar

**ATTENTION**

The pressure at the sprinkler must not exceed 10 bar.

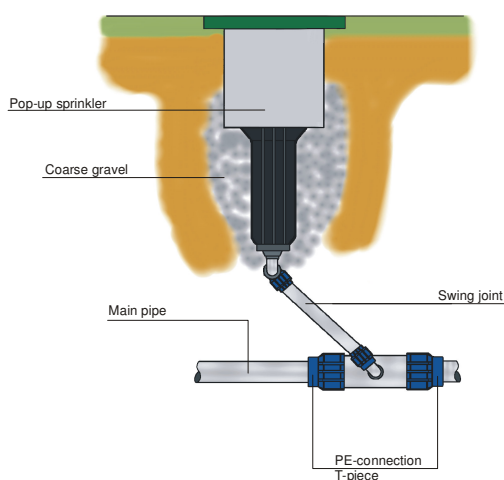
SIS120-P	Sprinkler to impact 30°-330°
SIS120-PG	Sprinkler to impact 30°-330° with artificial grass
SIS120-F	Sprinkler to impact 360° with sod cup for natural turf

## 2. Installation

### Dimension

Sprinkler type	SIS 120P-PG	SIS 120F
Installation height	370 mm	573 mm
Rising height	98 mm	205 mm
Outer Ø housing	246 mm	246 mm
Outer Ø lid	180 mm	242 mm

- When installation to the public water supply system, you must pay attention to the regulations of the water utility respectively guideline of the DVGW (Deutscher Verein der Gas- und Wasserfachmänner e.V.).
- On stony ground, pipes are to be laid in a sand bed. The sand bed should surround the pipe everywhere 10 cm.
- It is necessary that the installation of the pop-up sprinkler is in the same level as the ground.
- Under each sprinkler there must be, a gravel packing of 3 – 10 buckets of gravel, grading approximately 32. A perfect drainage of the sprinkler housing is very important.



- **Flush the pipes proper before installation of the sprinklers**

## 3. Commissioning

Pipes must always be filled slowly, that means you must open the gate valve gradual, under observance of the assigned operating pressure. Despite of a thoroughly flushing it may happen that the sprinkler nozzle is blocked. To clean the nozzle you must turn off the nozzle and flush the sprinkler. To unscrew the nozzle you must put a block under the lid or take off the cover. (Use socket spanner)

## 4. Adjustments

### 4.1 Sectors

- The sectors of the reference part circle of sprinklers are adjusted by pushing the spring stop at the end, which expand the spring. You achieve a crude adjustment before installation, the fine adjustment should be done on the working sprinkler.

### 4.2 Casting range

- The casting range is regulated through the application of different nozzles and pressures. (Further information see catalogue)

### 4.3 Jet deflector screw (type SIS120P no adjustment available)

- The jet deflector screw is for adjustment of the near irrigation around the sprinkler. If you screw in further the screw in the water jet, the „rainfall“ consistency around the sprinkler increases, the casting range decreases. If you unscrew the interruption screw the irrigation around the sprinkler decreases and the casting range increases.

## 5. Maintenance / Cleaning / Repair

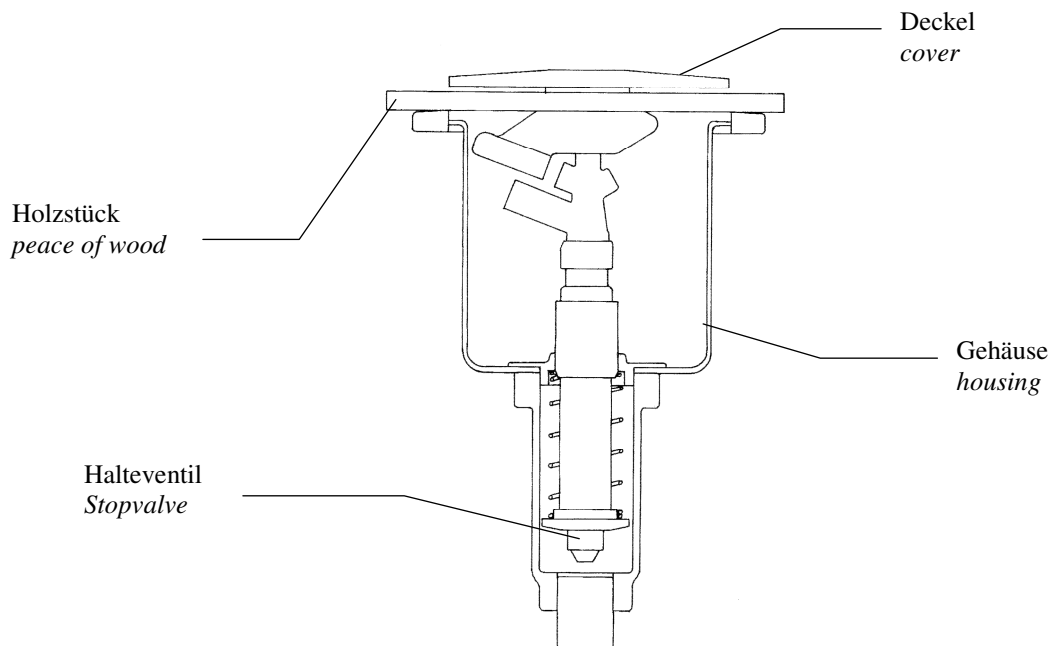
- ☆ To clean or suction the housing you must lift the sprinkler by hand or remove the cover from time to time.
- ☆ Examine function of gravel package
- ☆ In case that the sprinkler insert or nozzle head is dirty, only clean it with water. Do not use lubricants or grease, other wise the gliding plate in the sprinkler might be damaged!!!
- ☆ Please dismount defect parts immediately and repair them or send them to repair.

## 6. Preparation for winter time


Before winter the pipe system and the pumping station are to be drained. The drainage valve must be open until the next in commissioning.

By sprinklers with a stop valve (H), the water above the stop valve cannot discharge itself. Because of that reason the sprinkler insert of the installation are to be lift on the cover ( e.g. for winterising). When the sprinkler insert are lift, the water can flows out off the guiding housing and air can enter into the conductions.

Therefore it is the best to put a piece of wood with approximately 2 cm between cover and housing until the installation is empty.



## 7. Troubleshooting + Solutions

- ☆  **Attention !!!**  
Before above-mentioned works are executed, it must be ensure that the valve is pressure-less.
- ☆ In case of less casting range of some sprinklers it might be garbage in the filter. Then you must dismount the sprinkler insert and clean the filter.
- ☆ **Flushing the pipe**  
Only with flushing insert, otherwise the water which flows back can take garbage with it in the housing and can than enter to the pipe system.

## 8. Disassembly and assembly of sprinklers

That work can be done with help of standard tools.

### **Disassembly**

- ☆ Unscrew slot screws in the cover.
- ☆ Remove screw / nut and pull out sprinkler insert

### **Assembly**

- ☆ Tighten sprinkler insert with screw / nut
- ☆ Mount cover with screws and retainer for cover

Subject to change without prior notice.