



## Operating Instructions



**DESCAL NIROSTAR 2000-A**

# DESCAL with NIROSTAR 2000-A

## Original Operating Instructions

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# 1. Declaration of conformity



The product complies with the requirements of the applicable European directives. The conformity was declared. The documents to which the declaration relates and the original declaration of conformity are available at the manufacturer.

## 2. Introduction

### **Intended use**

DESCAL is designed for descaling heat exchangers, hot water tanks, boilers and water cooled industrial machinery.

The following descaling agents were tested with the device and are approved for using

- Manufacturer: SANIT – product name: KalkLöser and CitroPlus KalkLöser
- Manufacturer: SOTIN – product name: Entkalker 212, 212 W and 212 TW

ZUIWA can not be held liable for damages on the device caused by the use of agents not listed herein.

### **Notes on the documentation**

This manual provides important information for a safe and correct operation of the DESCAL NIROSTAR 2000-A.

The manual is designed for qualified personnel who are trained and specialised in installing heating systems. Service and maintenance works must only be carried out by approved specialists.







### **Subject to technical modifications**

The continuous development and improvement of our products may cause minor modifications of technical data and illustrations.

## 2.1 Further applicable documents

- Parts list

## 2.2 Legend

|   |   |
|---|---|
|   | Immediate danger of death and severe injury |
|   | Danger of death from electric shock         |
|   | Danger of scald burn                        |
|   | Danger of chemical burn                     |
|  | Danger of environmental and material damage |
|  | Information, note                           |

## 3. Safety

### 3.1 General safety instructions

**Store these instructions in such a way that they are accessible at all times for operating personnel!**

In addition to these operating instructions the following documents of related components and of the pumping media should be applicated:

- technical specifications
- material safety data sheets
- operating instructions



The manufacturer shall not be held liable for damage resulting from non-adherence to the operating instructions.



**Danger**

#### **Danger of death due to electric shock**

- > Prior to work on the pump, always disconnect the drive from the power supply.

**Danger****Danger of death due to explosion**

- > Do not pump any liquids with a flash point of less than 55 ° C.
  - > Do not pump petrol or solvents.
- 

**Warning****Danger of burn due to hot motor casing**

- > Do not block neither suction nor pressure hose more than 1 minute to avoid overheating of the motor.
- 

**Warning****Danger of chemical burn at contact with descaling agent**

- > Wear acid proof gloves when working with descaling agent.
  - > Connect hose couplings tight and check for tightness regularly.
  - > Collect spills and dispose off in accordance with manufacturers' instructions or local regulations
-

## **3.2 Safety instructions for potentially hazardous liquids**

**Follow the safety data sheet of the agent and the users manual**

### **3.2.1 First Aid after contact with agent**

**General instructions:**

Remove stained, soaked clothing. Remove affected persons from danger zone and lay down.

**After inhaling:**

Care for fresh air, consult a doctor.

**After skin contact:**

Wash with water and soap. Consult a doctor in case of cutaneous reactions.

**After eye contact:**

Flush with plenty of water for 15 minutes. Medical care is obligatory.

**After swallowing:**

Clean mouth with plenty of water. Sip lots of water to dilute the acid. Do NOT vomit. Call a doctor immediately!

### **3.2.2 Measures after accidental release of descaling agent**

**Personal precautions:**

Care for sufficient ventilation. Avoid contact with skin or eyes. Keep away unauthorised personnel.

**Environmental protection:**

Avoid agent from getting into drain systems, surface or ground water.

**Decontamination/Absorption:**

Use absorbing materials (acid binder). Dispose off in accordance with local and/or governmental regulations.

**Additional advise:**

Neutralise large quantities with Soda.

**Please see the EC safety data sheet of the agent in use with regard to warehousing, toxicology, ecology, disposal and transport.**

## 4. Technical Data

| DESCAL  | NIROSTAR 2000-A   | NIROSTAR 2000-A   |
|---|-------------------|-------------------|
|   | for SANIT agents  | for SOTIN agents  |
| Voltage   | 230 V             | 230 V             |
| Frequency   | 50 Hz             | 50 Hz             |
| Maximum power consumption                           | 370 W             | 370 W             |
| Maximum fluid temperature                           | 80 °C             | 80 °C             |
| Approved impeller and shaft seal                    | NBR / EPDM        | VITON / VITON     |
| Maximum operating pressure                          | 5 bar             | 3 bar             |
| Maximum flow rate with water / heat transfer medium | 30 / 27 Ltr./Min. | 30 / 27 Ltr./Min. |
| Diameter return hose / pressure hose                | ½ / ½ Zoll        | ½ / ½ Zoll        |
| Tank content  | 30 Ltr.           | 30 Ltr.           |
| Motor protection class                              | IP 55             | IP 55             |
| Dimensions (height/width/depth)                     | 985/495/555 mm    | 985/495/555 mm    |
| Weight without packaging (empty tank)               | 28 kg             | 28 kg             |

## 5. Transportation and unpacking

- > After unpacking, immediately check the filling unit for completeness and damage.
- > Immediately report any transit damage to the supplying company.
- > Dispose off packaging material in accordance with local regulations.

## 6. Mounting and commissioning

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### Warnung

**Danger of chemical burn after contact with descaling agent**

- > Wear acid proof gloves when working with descaling agents.



### Caution

**Material damage due to overheating of the pump**

- > Never allow the pump to run dry for more than 1 minute.



When working with heavily stained liquid it is recommended to hinge additional fleece filters into the tank to protect the fine filter.

Article code fleece filter set: 132003

Article code lid complete for fleece filters: 805531



1. Place the device on a flat spot to avoid the device from tilting over.
2. Connect filling hose to pump outlet.
3. Connect return hose to tank.
4. Fill tank.

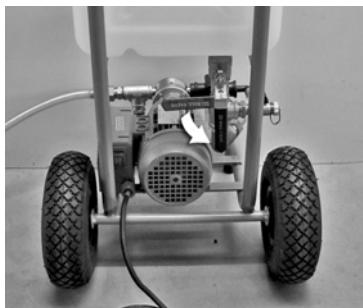


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**Caution:** danger of chemical burn from leaking liquid

- > **Do not fill the tank with more than 50% with descaling agent.** The chemical reaction between agent and scale cause heavy foaming.
- 

5. Open tank lid to ensure the circulation of the air.



6. Open ball valve, switch on pump and flush the installation.

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**Caution:** Damage due to dry run

- > Monitor fluid level in the tank and, if necessary, refill anti scale agent to prevent air entering the solar circuit.
  - > Take a look at the filter inside the vision panel for sedimentations.  
In case the fine filter is clogged with stains stop working and clean the filter sieve as follows.
- 



## 6.1 Cleaning the filter during application

---



**Danger of chemical burn through leaking liquid**

- > Collect agent with an appropriate cup and refill into tank.

- > Close ball valve beneath tank.
- > Turn on pump for 2-3 seconds.
- > Place cup beneath pressure relief valve and open the valve (see also chapter 7, picture 1).
- > Carefully unscrew the filter casing and refill the the liquid inside into tank.
- > Pull off filter and clean with plenty of water.

## 7. End of operation

### After flushing:

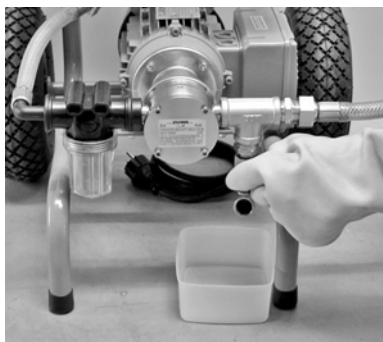
- > Turn off pump.
- > Close ball valve beneath tank.



**Warning**

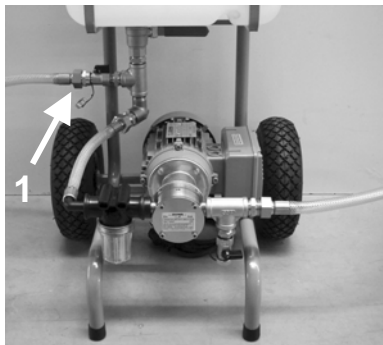
### **Danger of chemical burn through leaking liquid**

- > Collect agent in an appropriate cup and dispose off in accordance with the prescriptions in the safety data sheet of the manufacturer.



1. Place cup with sufficient size beneath pressure relief valve and open the valve.

By opening the drain valve at the pump outlet you can release the pressure that is generated between pump outlet and fittings when flushing the pipe



2. Flush the pump with water. Close ball valve at tank. Connect a water hose with the rinsing device (1) and flush with working pump thoroughly. Dispose off wash water and leftovers of the agent in accordance with the manufacturers instructions.

3. Unscrew filling hose and return hose from the fittings.
4. Screw open hose ends together with the provided connecting piece in order to avoid dripping or escaping of fluid during transport.
5. Empty the tank completely. Dispose off leftovers of the agent in accordance with the manufacturers instructions. Wash tank with clean water.

## 8. Warehousing

- > Clean pump and tank and empty completely.
- > Store in a frost-free place

## 9. Maintenance



It is recommended to return defective components to ZUWA for repair works.



**Gefahr**

### **Danger of death due to electric shock**

- > Prior to work on the pump, always disconnect the drive from the power supply.
- 

### 9.1 Connections

- > Check regularly if hose couplings are tight.

### 9.2 Cleaning the filter

There is a built-in fine filter on the suction side of the pump to filter out sold and welder residues. Check the vision panel at the filter regularly and clean the filter when you see dirt deposits on the strainer.

- > Screw off the filter casing, remove the strainer and clean both with rinsing water or compressed air.

### 9.3 Disassembling the pump

1. Disconnect line connections.
2. Unscrew bolts on the pump side.
3. Remove casing cover and side disc.
4. Pull casing with impeller and rear side disc off the shaft.

## 9.4 Replacing components

### Impeller

- > Push impeller out of the casing.
- > Insert a new impeller. Observe direction of impeller wings (see adjacent illustration): Impeller wings must be bent to the opposite side of the rotating direction.

*Intake**Outlet*

### Bush bearing

- > Remove old bearing and press in the new one.

### Seals

- > Replace O-rings and push firmly into the recesses.

### Replacing shaft gasket

- > Remove retaining ring with suitable pliers.
- > Push out bearing and shaft gasket.
- > Push in new shaft gasket and bearing.
- > Insert retaining rings.

## 9.5 Assembling the pump

Assembly of the pump is the reverse of disassembly – see exploded drawing.

- > Connect lateral disc with hole to the rear of the casing.
- > Push casing with impeller and second lateral disc onto the shaft.
- > Insert and tighten bolts.
- > Attach lines.

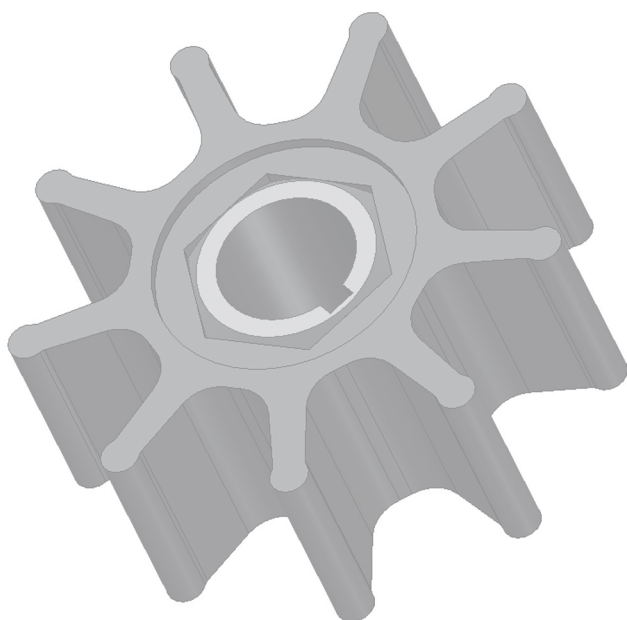
## 10. Troubleshooting

| <b>Fault</b>                    | <b>Possible cause</b>                              | <b>Remedy</b>   |
|---------------------------------|--|---|
| Pump does not take in liquid    | Intake line is not leaktight                       | Seal connection or line   |
|                                 | Impeller worn or damaged                           | Replace impeller  |
|                                 | Suction line or foot valve is blocked              | Clean suction line or foot valve  |
|                                 | Pressure line closed or blocked                    | Open fittings on the pressure side or clean pressure line                 |
|                                 | Ball valve at the tank outlet closed or tank empty | Open ball valve or fill tank  |
| Pump does not build up pressure | Impeller or lateral discs are worn                 | Replace impeller or lateral discs   |
|                                 | Filter clogged                                     | Clean filter (see chapter 9.2, Maintenance)                               |
|                                 | Ball valve at the tank outlet closed               | Open ball valve   |
| Liquid escapes from the pump    | Shaft gasket or O-ring is missing or defective     | Check whether part is in place and insert or replace defective component  |
| Pump does not start             | Impeller blocked                                   | Fill pump with the medium to be pumped                                    |
|                                 | Impeller clogged up or macerated                   | Use an impeller appropriate to the medium                                 |
|                                 | Motor defective                                    | Have motor checked by specialist personnel and have repaired if necessary |

## 11. Accessories

- Filter bags of nonwoven fabrics and lid with integrated hose connector  
Article code fleece filter set: 132003  
Article code Lid complete for filter bags: 805531
- Tool for changing the impeller  
Article code: 11012400
- Remote control with 10 metre cable  
Article code: 80283





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