ZUWA-Zumpe GmbH

Pumps and Sprayers

Operating Instructions

Solar Filling Unit

SOLARCHECK MOBILCENTER UNISTAR 2000-A

Original Operating Instructions
Solarcheck Mobilcenter UNISTAR 2000-A

Content

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
The filling unit is designed for filling, flushing and venting thermal solar systems and heat pump systems. Any other use or extended use is considered to be improper. The manufacturer is not liable for any resulting damage.

Notes on the documentation

This manual provides important information for a safe and correct operation of the solar filling unit Solarcheck Mobilcenter UNISTAR 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 Legend

	**Danger: immediate danger of death and severe injury**
	**Danger: danger of death from electric shock**
	**Danger: danger of scald burn**
	**Danger of environmental and material damage**
	**Information, note**

2.2 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.

Danger

Danger of scald burn due to high media temperature

> Fill the solar system only when cold – if necessary cover the solar collectors.

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 injury due to splashing liquid

> Connect the hoses tightly to the pump.

Caution

Material damage due to dry running

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

Material damage due to tilting of the cart on uneven ground

> Operate the filling unit only on even ground.

Danger of environmental damage due to hazardous pumped media

> Collect escaping pumped media and dispose of according to the locally applicable regulations.

Material damage due to improper storage

> Prior to extended periods of pump down time clean pump to avoid adhesions and damage to the impeller.

> Store pump under frost-protected conditions.

3. Transportation and unpacking

> After unpacking, immediately check the filling unit for completeness and damage.

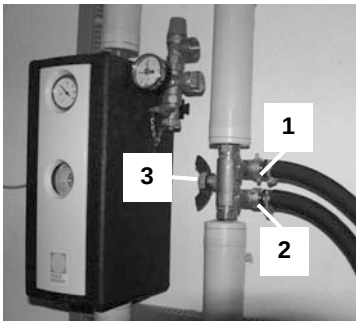
> Immediately report any transit damage to the supplying company.

> Dispose of packaging material according to the respective local regulations.

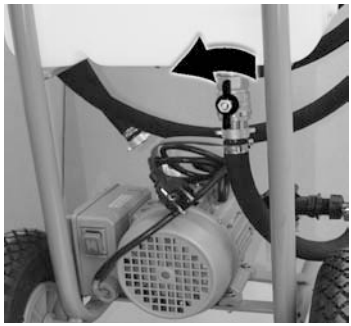
4. Mounting and commissioning

1. Connect filling hose to pump outlet.

2. Connect return hose to tank.



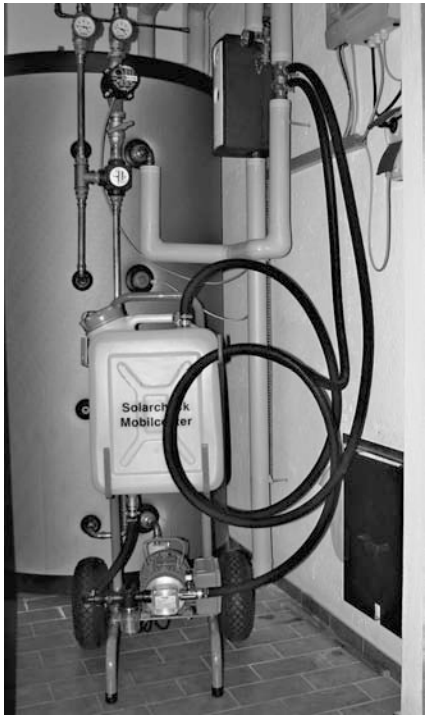
3. Connect filling hose (1) and return hose (2) to the fill/vent valves and open valves. Close stop valve (3).



4. Fill tank and open ball valve.

5. Insert cable of pump motor into socket.

6. Switch on pump.

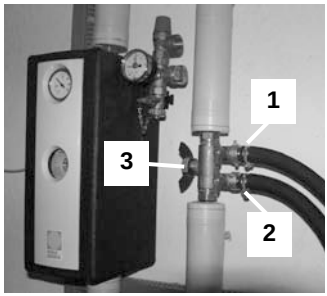


7. Open tank lid to ensure the circulation of the air.

Caution: Make sure the fluid inside the tank does not go lower than the 10 litres mark. Refill in time to avoid air getting into the solar circuit.

8. Flush the solar circuit with the fluid. Check at the vision panel of the filter or through the tank opening if there are still air bubbles in the heat transfer fluid. Continue flushing until there is no air remaining in the fluid.

5. End of operation



After filling and flushing the solar system:

> Switch off pump.
> Close fill and vent valve (1+2) at the solar station.
> Open stop valve (3) between fill and vent valve.

Caution: Collect escaping pumped media in a container.

The pressure that is generated between pump outlet and fill valve when flushing the pipe can be released by opening the filter at the pump inlet. It will be easier then to unscrew the filling hose from the fill valve.

> Unscrew the filter casing and flush remaining liquid.
> Unscrew the filling hose from the fill valve.
> Unscrew return hose from vent valve.
> Screw open hose ends together with the provided connecting piece in order to avoid dripping or escaping of fluid during transport.

6. Maintenance

Danger

Danger of death due to electric shock

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

Caution

Danger of environmental damage due to hazardous pumped media

> Collect escaping pumped media and dispose of according to the locally applicable regulations.

6.1 Connections

> Check regularly if hose couplings are tight.

6.2 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.

6.3 Disassembling the pump

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

6.4 Replacing components

Impeller

To change the impeller we recommend to use a special tool. See chapter 8, Accessories.

> 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.

Lateral discs

> Turn around or replace

Seals

> Replace O-rings and push firmly into the recesses

Replacing shaft gasket:

1. Remove retaining ring with suitable pliers
2. Push out bearing and shaft gasket
3. Push in new shaft gasket and bearing
4. Insert retaining rings

6.5 Assembling the pump

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

1. Connect lateral disc with punched hole to the rear of the casing
2. Push casing with impeller and second lateral disc onto the shaft
3. Insert and tighten bolts
4. Attach lines

The lateral discs and O-rings must lie precisely in the recesses to ensure that the O-rings are not pinched.

7. Troubleshooting

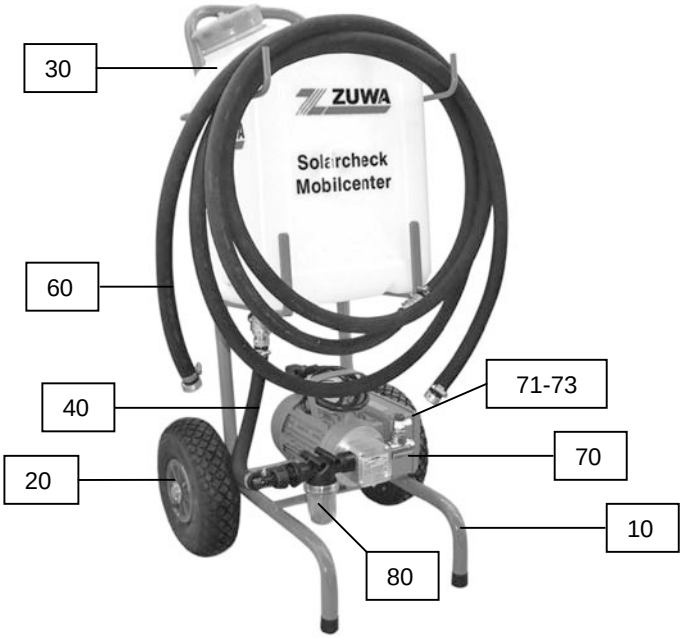
Fault	Possible cause	Remedy
Pump does not take in liquid	Intake line is not leaktight	Seal connection or line
	Impeller worn or damaged	Replace impeller
	Suction line or foot valve is blocked	Clean suction line or foot valve
	Pressure line closed or blocked	Open fittings on the pressure side or clean 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 6, 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

8. Accessories

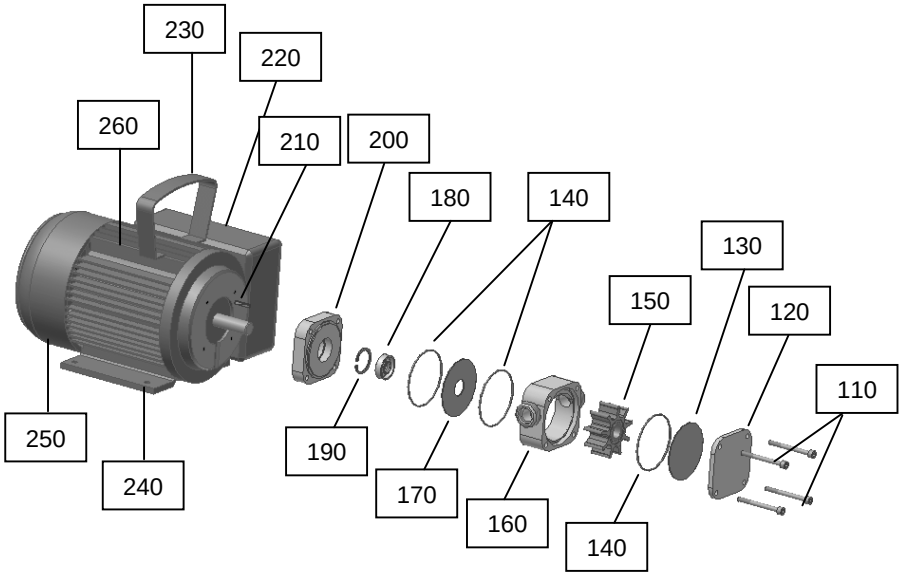
- Multifunction valve with bypass for mixing the heat transfer medium on-site
- Kit for filling ground loops including two 150 litre tanks, hose extension, additional stop valves and multifuncion valve to switch the suction line from external tanks to internal tank
- Remote control with 10 metre cable
- Tool for changing the impeller
  A useful tool to install the impeller easily into the casing. Suitable for all ZUWA impellers. Article No.: 110 124 00

tool for changing the impeller

9. Parts lists



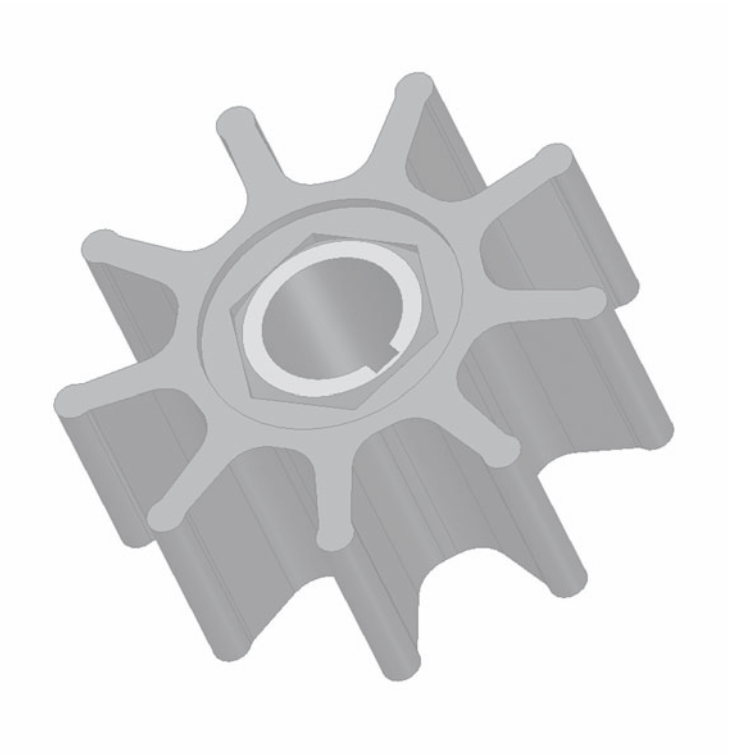
Pos.:	Part / Designation	Code	Number
10	chassis	13405110BT	1
20	inflatable wheel	80120	2
30	30 litre tank	13405	1
40	steam suction hose 13 x 6	30026	1
60	steam hose 13 x 6 3 m	131123	2
70	T-piece brass 3 x ¾“ internal thread	80110	1
71	reducer plug ¾"- ⅜" internal thread	132236	1
72	drain valve ⅜"	132232	1
73	threaded nipple brass ¾" x ¾" external thread	131215	1
80	pressure pipe filter series 324-o ½" int. thread	53240T0235	1



Pos.:	Part / Designation	Code	Number
110	hexagon screw M5 x 55	70031	4
120	front plate	11012002	1
130	lateral disc – stainless steel	11012009	1
140	O-ring 56-2 NBR	80003	3
150	Perbunan impeller narrow with brass bush	11012907	1
160	housing UNISTAR-A small	11012001	1
170	lateral disc – stainless steel with hole	11012709	1
180	rotary shaft seal NBR 14 x 26 x 7	80537	1
190	locking ring I 26 x 1,2	70284	1
200	rear plate	12000502	1
210	fitting key A 3 x 3 x 16	70315	1
220	control box	80628	1
230	handle for CEG motor	14000202	1
240	motor base	FUSS00071	1
250	fan cover for CEG motor	80621	1
260	motor 230 V; 0,37 kW; 2800 rpm	80607	1

10. Technical data

Solarcheck Mobilcenter UNISTAR 2000-A	
Voltage	**230 V**
Frequency	**50 Hz**
Maximum power consumption	**370 W**
Maximum fluid temperature	**80 °C**
Approved pumping media	**water, heat transfer medium**
Maximum operating pressure	**5 bar**
Maximum flow rate with water / heat transfer medium	**30 / 27 L/min**
Diameter return hose / pressure hose	**Inch ½ / ½**
Tank content	**30 L**
Motor protection class	**IP 55**
Dimensions (height / width / depth)	**985 / 495 / 555 mm**
Weight without packaging (empty tank)	**21 kg**



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