

Operating Instructions

Solar Filling Unit



SOLARCHECK MOBILCENTER
UNISTAR 2000-A

Original Operating Instructions Solarcheck Mobilcenter UNISTAR 2000-A

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1. Assembly Instructions

Step 1

① = Axle
② = Hexagon screw with snap ring
③ = Disc
④ = Eyebolt
⑤ = Wheels
⑥ = Telescopic bail

Tools required:
Wrench 10 mm
Pliers

GB

Please check for completeness and damages right after unpacking.
Please inform carrier immediately in case of transport damages.
Dispose off packaging according to local regulations.

Step 2

Fix axle ① to trolley using the hexagonal screws ② and the 10mm wrench.

Step 3

Put wheels ⑤ to the axle ①, with valve to the outside. Put on disc ③ and eyebolts ④ to secure.

Step 4

Insert telescopic bail ⑥ into trolley, fix and release with catch ⑦.

Step 5

The telescopic bail can be fixed in three different positions. The catch can be fixed by a quarter turn.

2. Declaration of Conformity



EG-Konformitätserklärung nach Maschinenrichtlinie 2006/42/EG Anhang II 1.A

Der Hersteller / Inverkehrbringer
ZUWA-Zumpe GmbH
Franz-Fuchs-Str. 13-17
83410 Laufen

erklärt hiermit, dass folgendes Produkt

Produktbezeichnung: **Solarcheck Mobilcenter UNISTAR 2000-A KOMPAKT**
 Fabrikat: **UNISTAR 2000-A**
 Seriennummer:
 Serien-/Typenbezeichnung: **Befüllstation für thermische Solar- und Erdwärmesysteme**
 Beschreibung:
 Diese Befüllstation dient ausschließlich zum befüllen und spülen von thermischen Solar- und Erdwärmeeinrichtungen.

allen einschlägigen Bestimmungen der oben genannten Richtlinie sowie den weiteren angewandten Richtlinien (nachfolgend) - einschließlich deren zum Zeitpunkt der Erklärung geltenden Änderungen - entspricht.

Folgende weitere EU-Richtlinien wurden angewandt: EMV-Richtlinie 2014/30/EU
 Niederspannungsrichtlinie 2014/35/EU
 RoHS-Richtlinie 2011/65/EU

Die Schutzziele der EG-Richtlinie 2006/95/EG werden eingehalten.

Folgende harmonisierte Normen wurden angewandt:

EN 1005-1:2001+A1:2008	Sicherheit von Maschinen - Menschliche körperliche Leistung - Teil 1: Begriffe
EN 1005-2:2003+A1:2008	Sicherheit von Maschinen - Menschliche körperliche Leistung - Teil 2: Manuelle Handhabung von Gegenständen in Verbindung mit Maschinen und Maschinenteilen
EN 60034-1:2010	Drehende elektrische Maschinen - Teil 1: Bemessung und Betriebsverhalten (IEC 60034-1:2010 (modifiziert))
EN 60034-5:2001/A1:2007	Drehende elektrische Maschinen - Teil 5: Schutzarten aufgrund der Gesamtkonstruktion von drehenden elektrischen Maschinen (IP-Code) - Einteilung (IEC 60034-5:2000/A1:2006)
EN 60034-9:2005	Drehende elektrische Maschinen - Teil 9: Geräuschgrenzwerte (IEC 60034-9:2003 (modifiziert))
EN 61000-3-2:2014	Elektromagnetische Verträglichkeit (EMV) - Teil 3-2: Grenzwerte - Grenzwerte für Oberschwingungsströme (Geräte-Eingangsstrom <= 16 A je Leiter) (IEC 61000-3-2:2014)
EN 809:1998+A1:2009/AC:2010	Pumpen und Pumpenaggregate für Flüssigkeiten - Allgemeine sicherheitstechnische Anforderungen
EN ISO 12100:2010	Sicherheit von Maschinen - Allgemeine Gestaltungsgrundsätze - Risikobeurteilung und Risikominderung (ISO 12100:2010)

Name und Anschrift der Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen: **Jürgen Huber**

Ort: **83410 Laufen**
 Datum: **18.04.2016**

(Unterschrift)
H. Wimmer Geschäftsführer

(Unterschrift)
J. Huber Technische Leitung

3. 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 this 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 heat 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.

3.1 Legend

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

3.2 General safety instructions

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

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

- ▶ 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 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 solar systems only when cold- if necessary cover the solar collectors. Danger of scald burn due to hot motor casing Suction and compression Hose may be only locked for 60 seconds, otherwise the pump may likely overheat
 Warning	Danger of injury due to splashing liquid Connect the hoses tightly to the pump and regularly control the connection.

 Caution	Material damage due to dry running Never allow the pump to dry run for more than 60 seconds.
	Material damage due to tilting of the cart on uneven ground Operate the filling unit only on even ground.
	Material damage due to improper storage Prior to extended periods of pump down time clean the pump to avoid adhesion and therefore damage to the impeller.
	Danger of environmental damage due to hazardous pumped media Collect escaping pumped media and dispose it according to the locally applicable regulations.

4. Transportation and Unpacking

- ▶ After unpacking, immediately check the fillung unit for completeness and damage.
- ▶ Immediately report any transit damage to the logistic company in charge.
- ▶ Dispose the package material according to the respective local regulations.

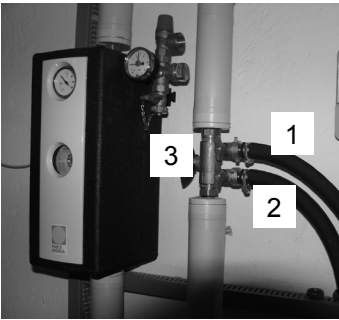
5. Mounting and Commissioning



1. Connect filling hose to pump outlet.



2. Connect return hose to the container.



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



4. Fill container and open the ball valve.



5. Insert the pump's cable into the socket.



6. Switch on the pump.



7. Open the containers lid in order to insure air circulation.

Caution: Observe the fill level of the container and if neccessary refill heat medium to make sure that no air gets into the system. (The heat medium level in the container should not be less than 10 l)

8. Flush the colar circuit with the fluid. Observe through the vision panel of the filter if there are air bubbles in the heat medium. Continues flushing until there is surely no air within the remaining fluid.

Caution: Spilled fluids shall be collected with a basin.

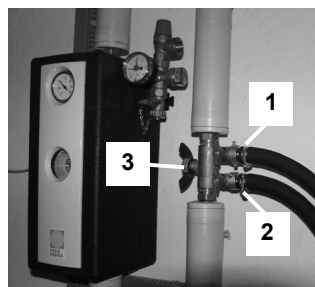
► Unscrew filter cup and empty remaining fluid.

6. End of Operation

After filling and flushing the solar system:

- ▶ Switch off pump.
- ▶ Close fill and vent valves (1+2) at the solar system.
- ▶ Open stop valve (3) between fill and vent valve.

Caution: Collect spilled heat medium in a basin or container.



The pressure, which occurs while flushing between pump exit and the ball valve of the filling unit can be released by opening the filter on the pump inlet. Afterwards the filling hose can be removed easier.

- ▶ Turn green handwheel of the venting valve in order to remove remaining fluid.
- ▶ Filling and and return hose from the valves.
- ▶ Connect open hose ends to each other with the also delivered connecting piece to avoid dripping and spilling of fluid during transport or storage.

7. 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 accordingly to the locally applicable regulations.

7.1 Hose connections

- ▶ Check regularly if hose coupling are tight.

7.2 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 regularly and clean the filter when you see dirt deposits on the strainer.

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

7.3 Disassembling the Pump

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

7.4 Replacing components

Impeller

To change the impeller we recommend to use a special tool. See chapter 9 (Accessories).

- ▶ Push impeller out of casing.
- ▶ Insert new impeller. Make sure to put in the new impeller with the wings bending to the opposite direction of the rotation direction.

Side Discs

- ▶ Turn in order to use outer side as inner side or replace.

Sealings

- ▶ Replace o-rings and push firmly in the recesses.
- ▶ Replace 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.

7.5 Assembling the Pump

Assembly of the pump is the reverse order of the disassembly:

1. Put the side disc with the hole for the shaft on the backside of the housing.
2. Put housing with impeller, bearing, sealing and side disc onto the shaft.
3. Put front side disc into the fitting recess and onto that the front.
4. Insert and tighten bolts.
5. Attach lines.

See the exploded drawing on page 16.



The side discs and o-rings must be positioned precisely into the recesses in order not to pinch the sealings.

8. Troubleshooting

fault	possible cause	remedy
Pump does not run	impeller is blocked	fill pump with liquid to be conveyed
	impeller clogged or macerated	Clean impeller or use another, for the liquid suitable impeller
	motor defective	Check motor by specialist personnel and repair or replace if necessary
Pump does not build up vacuum to take in liquid	intake line is not leak-tight	tighten connection or seal connection and line
	impeller worn or damaged	replace impeller
	suction line or foot valve is blocked	Clean suction or foot valve
	pressure line is 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 side discs are worn	replace impeller or side discs
	filter clogged	Clean filter (see chapter 7)
	Ball valve at the tank outlet closed	open ball valve
	medium too hot	let medium cool down
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

9. Zubehör

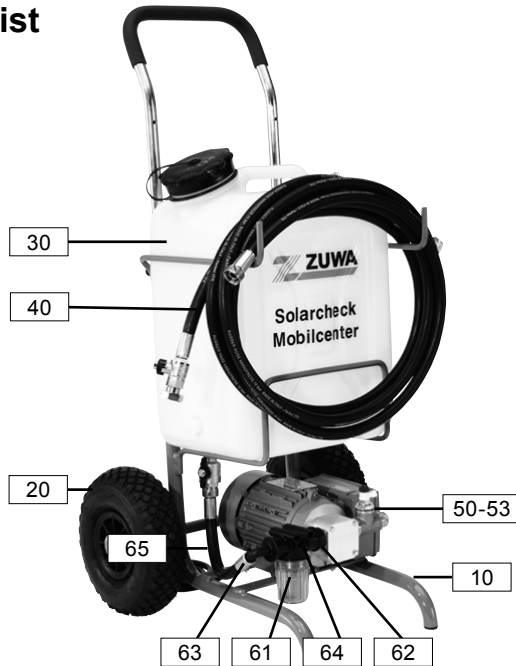
- ▶ Multiposition valve with bypass to mix heat transfer fluid.
- ▶ Set for filling earth collectors and probes with two 150 l containers, hose extensions, additional shut-off valves and a multi position valve to switch suction line from external containers to the internal container
- ▶ Remote control with 10 m cable
- ▶ Tool for impeller exchange
- ▶ Aid for inserting the impeller into the housing, suiting all models, art.No. 110 124 00



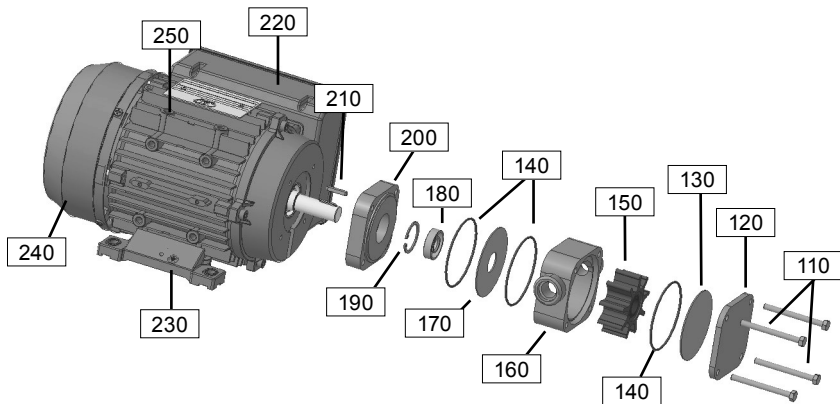
impeller exchange tool



10. Part List



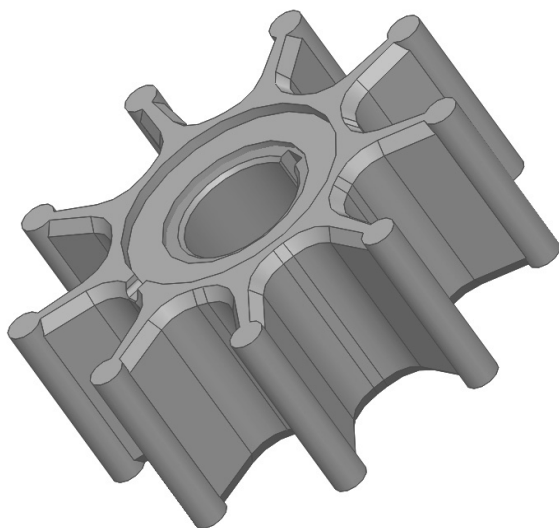
Pos.:	name	art.No.	Amount
10	cart solar with telescopic handles RAL 6011	13405110BT11	1
20	air wheel	80120	2
30	container 30 l capacity (with return flow and valve)	13405	1
40	hose set SMC-KOMPAKT 2 x 3 m, 13 x 3 mm hot water	1311231	1
50	T-piece 3 x 3/4" iG	80110	1
51	reduction plug 3/4" - 3/8" iG	132236	1
52	emptying plug 3/8"	132232	1
53	thread nipple brass 3/4" aG x 3/4" aG	131215	1
60	pressure line filter with suction line (Pos. 61-65)	13405220	1
61	pressure line filter 3/4" iG	8105042	1
62	extension nipple 3/4" iG x 3/4" aG	52452033	1
63	bent hose connection 3/4" aG	8011201	1
64	O-ring 26-3	80011	2
65	intake line SMC-KOMPAKT 13 x 3 complete	300261	1



Pos.:	Name	Art.No.	Amount
110	hexagonal screw M5 x 55	70031	4
120	Front cover	11012002	1
130	side disc - stainless steel without hole	11012009	1
140	O-ring 56-2 NBR	80003	3
150	impeller Perbunan Type A - sleeve: polyamid	11012909	1
160	housing UNISTAR-A EN AC-43400	11012001	1
170	side disc - stainless stell with hole	11012709	1
180	shaft seal NBR 14 x 26 x 7	80537	1
190	locking ring I 26 x 1,2	70284	1
200	Back cover UNISTAR/PF	12000502	1
210	feather key A 3 x 3 x 16	70315	1
220	electronic control box for motor	80628	1
230	feet motor	FUSS00071	2
240	fan cover of motor	80621	1
250	motor 230 V; 0,37 kW; 2800 rpm, no handle	80607MF	1
260	starting capacitor 40 µF (ohne Abbildung)	80620	1
270	operating capacitor 20 µF (ohne Abbildung)	80623	1

11. Technical Data

Solarcheck Mobilcenter UNISTAR 2000-A	
voltage	230 V
frequency	50 Hz
max. Power input	370 W
max. medium temperature	80°C
permitted media	water, heat transfer fluid
max. operating pressure	5 bar
max. conveying capacity for water and heat transfer fluid	30/27 l/min
return hose/pressure hose	hot water hose 13x3 mm with 3/4" coupling, 10 bar operating pressure, -40°C to 100°C (for short perios up to 120°C)
volume	30 l
protection class motor	IP 55
dimensions (hxwxd)	760-1000-1100 x 490x510 mm
total weight without packaging and empty container	21 kg



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