THERMO/SOLAR Žiar s.r.o.
Na vartičke 14
965 01 Žiar nad Hronom
tel.: ++421/45/601 6080, 601 6081
fax: ++421/45/671 6244, 672 2844
e-mail: obchod @ thermosolar. sk

FILLING AND FLUSHING STATION 1.1
ORD. NO. S4227

Filling and flushing station (FFS)

User manual

Content:

Fig. 1 Description of FFS

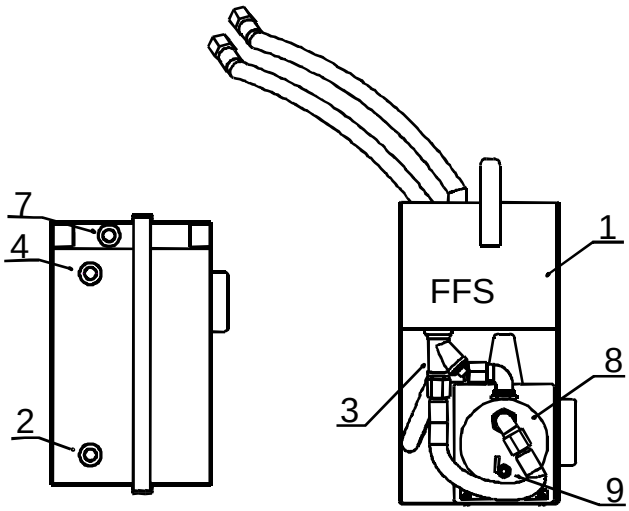


Fig. 2 Connecting the FFS to SIU

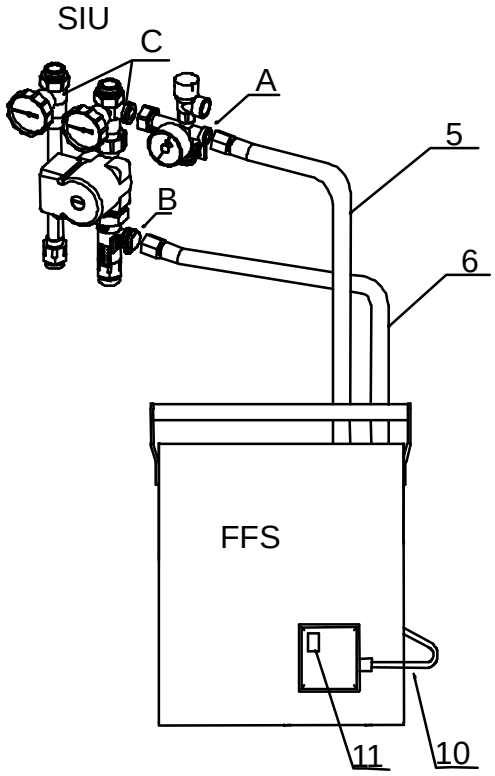
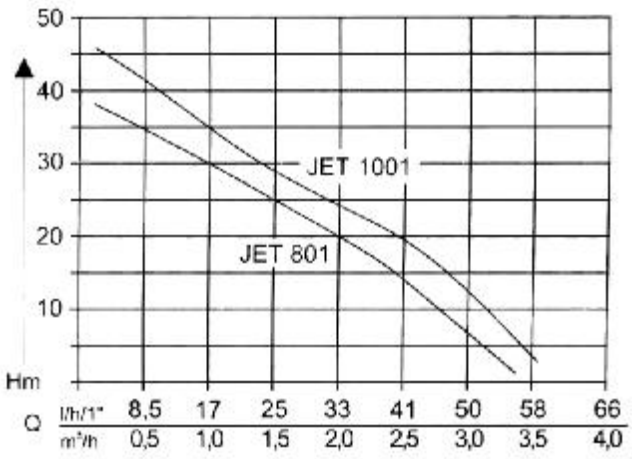


Fig. 3 Hydraulic scheme of the pump



Before putting the filling and flushing station (FFS) into operation, read carefully this user manual to prevent any accidents and to secure reliable operation of FFS.

You will find the following signs in the manual:

G DANGER
This sign refers to proceedings that must be followed to avoid any exposure of users or other persons to safety risks.

r ATTENTION
This sign refers to rules that must be followed to avoid any damage to the device.

i NOTE
This informative sign refers to technical characteristics that must be respected.

1. Safety regulations

G FFS may be connected only to electric grid that complies with the standards EN 60335-1, EN60335-2-41, EN55014-1, EN55014-2, EN61000-3-2, EN61000-3-3. For safety reasons make sure that a 10 A circuit-breaker and a residual current device with differential switch-off rated current of max. 30 mA have been installed.

G If it is necessary to use an extension cord, use only 3x1,5 mm^2 cable that complies with standards DIN 57282/57245, equipped with a plug adapter that is protected against water stream.

G FFS must not be put into operation by:
- persons who have not read or understood this user manual
- persons under the age of 16 years

G FFS may only be used for its original purpose. Before connecting the FFS, make sure that:
- the pump, feed cable and connection hoses have not been damaged
- the electric parts of FFS will not be exposed to direct water stream or rain

G Do not connect the FFS to electric grid if any of its parts has been damaged. Repairing of damaged parts must be done by a specialized company.

G While carrying the FFS, it may be held only by the handle. Do not use the feed cable to unplug the plug connection from the grid.

G Unplug the FFS form the electric grid before any maintenance operation, cleaning or repairing, and in case of failure.

2. Use

r FFS is designed for filling, flushing and pressurising of the primary solar system circuits. FFS can be connected by pressure hoses to the inlet and outlet valves of the solar installation unit (SIU). An external tank with filling liquid can be connected to the FFS. FFS may only be used for purposes that comply with its technical characteristics.

r FFS is suitable for pumping the following liquids:
- anti-freeze liquid for solar systems based on propyleneglycol
- pure water

Prohibited use

r FFS must not be used for non-stop operation. FFS is not suitable for pumping:
- salt water
- liquid food
- corrosive substances
- acidic, flammable, explosive or volatile substances
- water containing sand or other impurities
- any liquid with temperature higher than 35°C

3. Description of FFS (Fig. 1, 2)

1. Small tank for liquid
2. Suction inlet
3. Filter
4. Discharge hole
5. Flexi discharge hose (2m long)
6. Flexi return hose (2m long)
7. Damper
8. Pump with a motor
9. Release valve
10. Feed cable
11. ON/OFF switch

A Inlet and discharge valve in the safety group
B Inlet and discharge valve above flowmeter
C Clack valves of the SIU

Operation

The pump (8) sucks the liquid from the small tank for liquid (1) through the suction inlet (2) and filter (3). The liquid is pumped through the discharge hole (4) to the connected hose (5) and SIU into the primary solar circuit. Through the return hose (6) connected to the SIU the liquid returns to the damper (7) and subsequently into the small tank (1). The FFS pump is controlled by the ON/OFF switch (11).

i Thermal protection of the pump

The FFS pump is equipped with a thermo switch that turns the pump off in case of its overheating. After the pump cools down - that takes 15 – 20 minutes depending on thermal conditions - it is automatically switched on.

4. Installation and putting the FFS into operation

- Place the FFS on a flat, firm, horizontal surface. Place it in a position where it can be connected to SIU with the 2 metres long connection hoses (5) a (6)
- Make sure that the FFS is protected from rain and spurting liquid
- Check the connection of hoses to the FFS
- Connect the discharge hole (4) with the inlet valve (A) on the SIU by the discharge hose (5)
- Connect the release valve (B) on the SIU with the damper (7) on the FFS by the return hose (6)
- Fill the small tank (1) with liquid
- Ensure that the switch (11) is in OFF position and plug the feed cable into the grid
- Turn the switch (11) ON and open the valves (A) and (B) on the SIU
- If it is necessary, refill the small tank (1) with liquid
- It is necessary to controll the level of the liquid in the small tank to avoid sucking of air

- Close a few times the valve (B) to rise the pressure. By the means of quick opening of the valve it is possible to remove air bubles.

Putting the FFS with an external tank of filling liquid into operation

- Place the FFS on a flat, firm, horizontal surface. Place it in a position where it can be connected to SIU with the 2 metres long connection hoses (5) a (6)
- Make sure that the FFS is protected from rain and spurting liquid
- Pour small amount of liquid (approx. 1 litre) into the small tank for liquid (1)
- Screw the hose adapter* to the suction inlet (2) and immerse the free end of the hose into the liquid in the external tank
- Connect the discharge hole (4) with the inlet valve (A) on the SIU by the discharge hose (5)
- Connect the return hose (6) to the release valve (B) on the SIU and immerse the free end of the hose into the liquid in the external tank
- Ensure that the switch (11) is in OFF position and plug the feed cable into the grid
- Turn the switch (11) ON and open the valves (A) and (B) on the SIU

*it is not a part of FFS shipment

5. Putting the FFS out of operation

After flushing the primary solar circuit and pushing the air out of the solar system, put the FFS out of operation:

- Close the release valve (B) on the SIU
- With the help of the FFS pressurize the primary solar circuit to required pressure according to the manometer on the SIU
- Close the inlet valve (A) on the SIU and turn the FSS pump switch (11) OFF
- Disconnect the feed cable from the grid
- Release the liquid from the pump and the small tank through the release valve (9)
- Disconnect the hoses from the SIU

Putting the FFS with an external tank of filling liquid out of operation

After flushing the primary solar circuit and pushing the air out of the solar system, put the FFS out of operation:

- Close the release valve (B) on the SIU
- With the help of the FFS pressurize the primary solar circuit to required pressure according to the manometer on the SIU
- Close the inlet valve (A) on the SIU and turn the FSS pump switch (11) OFF
- Disconnect the feed cable from the grid
- Unscrew the hose adapter from the suction inlet (2) and pull the hose out of the external tank
- Release the liquid from the pump and the small tank through the release valve (9)
- Disconnect the discharge hose (5) from the SIU

6. Maintenance and cleaning

G Before any maintenance operation or cleaning, the FFS must be disconnected from the electric grid.

Cleaning the FFS filter

r If the pump's power output decreases and it does not suck in and push out the liquid, it is necessary to check and clean the filter (3)

Protection against frost

r Protection the FFS against frost both during its operation and while out of operation, especially if it has been previously used for pumping water. Before storing the FFS in a place that is protected against frost, do not forget to empty the FFS pump with the release valve (9)

7. Failures

G Before any maintenance operation or cleaning, the FFS must be disconnected from the electric grid.

Failure	Cause	Troubleshooting
The FFS pump motor does not work	The thermal switch has turned OFF	Wait until the thermal switch turns the FFS pump ON again
	Electric grid failure	Check the circuit-breakers, have the electric power supply checked by a specialized electrician
The FFS pump works but it does not push the liquid out	Dirty pump filter	Clean the pump filter
	The discharge hose is closed	Open the valve on the SIU
	The discharge hose is bent too much	Straighten the discharge hose
The amount of transported liquid is too small	The discharge hose is bent too much	Straighten the discharge hose
	Dirty pump filter	Clean the pump filter
	The discharge height is too big	Observe the max. discharge height (see Technical specifications)

8. Technical specifications

Type	PPS 1.1
Pump	JET 1001 INOX
Voltage	230 – 240 V / 50Hz
Power requirement	1000 W
IP	x4
Noisiness	86 dB (A)
Max. discharge	48 m (4,8 bar)
Tank volume	20 l
Total weight	18,5 kg
Dimensions (width x height x depth)	255 x 552 x 420 mm

9. Declaration of conformity with EU standards

SK

Potvrdenie Zhodnosti s Normami Európskeho Spoločenstva

Podľa smerníc Eur. Spol. čís. 98/37/Eur. Spol. vzťahujúcich sa k strojom a zariadeniam prehlasujeme, že výrobok následovne popísaný v svojom pojatí, technickom prevedení a vo verzii uvedenej do predaja, zodpovedá základným zdravotným a bezpečnostným požiadavkám noriem Evr. Spol. V prípade modifikácie výrobku , ktorá nebola nami vopred povolená, toto prehlásenie stráca svoju platnosť.

Popis výrobku
Čerpadlo, elektrické

Výrobca
AL-KO Geräte GmbH
Ichenhauser Str. 14
D-89359 Kötz

Typ

JET 801, JET 801 Inox, JET 1001, JET 1001 Inox

Použité normy Eur. Spol.
97/23/ Eur. Spol
98/37/ Eur. Spol
89/336/ Eur. Spol
73/23/ Eur. Spol
2000/14/ Eur. Spol

Harmonizované použité normy
EN 60335-1:1994
EN 60335-2-41:1996
EN 55014-1:1993
EN 55014-2:1997
EN 61000-3-2:1995
EN 61000-3-3:1995

Nameraná hladina zvuku 83,5 dB(A)
Garantovaná hladina zvuku 86 dB(A)

Aplikovaná metóda na vyhodnotenie konformity:

Annex V

Kötz, 10.11.2004

(Antonio De Filippo, Vývojové odd.)

CZ

Potvrzení Shodnosti s Normami Evropského Společenství

Podle směrnic Evr. Spol. čís. 98/37/Evr. Spol. vztahujících se ke strojům a zařízením prohlašujeme, že výrobek následovně popsaný ve svém pojetí, technickém provedení a ve verzi uvedené do prodeje, odpovídá základním zdravotním a bezpečnostním požadavkům norem Evr. Spol. V případě modifikace výrobku, která nebyla námi předem povolena, toto prohlášení ztrácí svou platnost.

Popis výrobku
Čerpadlo, elektrická

Výrobce
AL-KO Geräte GmbH
Ichenhauser Str. 14
D-89359 Kötz

Typ

JET 801, JET 801 Inox, JET 1001, JET 1001 Inox

Použité normy Evr. Spol.
97/23/ Evr. Spol
98/37/ Evr. Spol
89/336/ Evr. Spol
73/23/ Evr. Spol
2000/14/ Evr. Spol

Harmonizované použité normy
EN 60335-1:1994
EN 60335-2-41:1996
EN 55014-1:1993
EN 55014-2:1997
EN 61000-3-2:1995
EN 61000-3-3:1995

Naměřená hladina zvuku 83,5 dB(A)
Zaručená hladina zvuku 86 dB(A)

Provedené vyhodnocení řízení o shodě:

Annex V

Kötz, 10.11.2004

(Antonio De Filippo, Vývojové odd.)

D

EG-Konformitätserklärung

Gemäß der EG-Maschinenrichtlinie 98/37/EWG erklären wir hiermit, dass das nachfolgend bezeichnete Produkt aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.

Produktbeschreibung
Gartenpumpe, elektrisch

Hersteller
AL-KO Geräte GmbH
Ichenhauser Str. 14
D-89359 Kötz

Typ

JET 801, JET 801 Inox, JET 1001,
JET 1001 Inox

Angewendete einschlägige EG-Richtlinien
97/23/EWG
98/37/EWG
89/336/EWG
73/23/EWG
2000/14EWG

Angewendete harmonisierte Normen
EN 60335-1:1994
EN 60335-2-41:1996
EN 55014-1:1993
EN 55014-2:1997
EN 61000-3-2:1995
EN 61000-3-3:1995

Schalleistungspegel:

Gemessen	83,5 dB(A)
Garantiert	86 dB(A)

Angewandtes Konformitätsbewertungsverfahren:

Anhang V

Kötz, 10.11.2004

(Antonio De Filippo, Entwicklungsleitung)

GB

EU Certificate of Conformity

In accordance with the EU Machine Guidelines 98/37/EWG we hereby certify that this product has been designed and constructed so that it is in compliance with the relevant basic safety and health requirements stipulated in the EU guidelines. Should any changes or modifications which have not been approved by us be made to the product, this certificate shall be null and void.

Product description
Garden pump, electric

Manufacturer
AL-KO Geräte GmbH
Ichenhauser Str. 14
D-89359 Kötz

Type

JET 801, JET 801 Inox, JET 1001,
JET 1001 Inox

Applicable EU Guidelines
97/23/CEE
98/37/CEE
89/336/CEE
73/23/CEE
2000/14/CEE

Applicable Harmonized European Standards
EN 60335-1:1994
EN 60335-2-41:1996
EN 55014-1:1993
EN 55014-2:1997
EN 61000-3-2:1995
EN 61000-3-3:1995

Sound power level:

Measured	83,5 dB(A)
Guaranteed	86 dB(A)

Conformity assessment procedure followed:

Annex V

Kötz, 10.11.2004

(Antonio De Filippo, Development Manager)

10. Warranty conditions

They are stated in the warranty deed that is provided with the FFS.

Abbreviations

FFS filling and flushing station
SIU solar installation unit