

REMS Solar-Push I 80 REMS Solar-Push K 60



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REMS GmbH & Co KG
Maschinen- und Werkzeugfabrik
Stuttgarter Straße 83
71332 Waiblingen
Deutschland
Telefon +49 7151 1707-0
Telefax +49 7151 1707-110
www.rems.de



Fig. 1 Solar-Push I 80



Fig. 2 Solar-Push K 60



Fig. 3

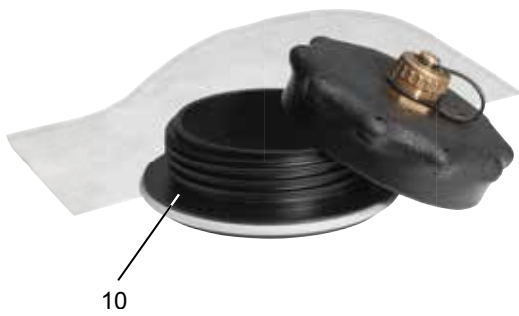


Fig. 4



Fig. 5



Fig. 6



Translation of the Original Instruction Manual

Fig. 1–6

1 Connection pressure line	8 Pressure relief valve
2 Connection return line	(Solar-Push I 80,
3 Plastic tank	accessory for Solar-Push K 60,
4 Ball valve	art.-no. 115217)
5 On / Off switch	9 Bleed screw
6 Large opening with screw cover	(Solar-Push K 60)
7 Inspection glass, fine filter	10 Adapter

General power tool safety warnings

WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

1) Work area safety

- Keep work area clean and well lit. Cluttered or dark areas invite accidents.
- Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
- Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.

2) Electrical safety

- Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
- Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
- Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
- Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
- If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. Use of an RCD reduces the risk of electric shock.

3) Personal safety

- Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- Use personal protective equipment. Always wear eye protection. Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
- Dress properly. Do not wear loose clothing or jewellery. Keep your hair and clothing away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.
- If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.
- Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles. A careless action can cause severe injury within a fraction of a second.

4) Power tool use and care

- Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
- Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.

- Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
 - Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
 - Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
 - Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.
 - Keep handles and grasping surfaces dry, clean and free from oil and grease. Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.
- 5) Service
- Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

Safety Instructions for Electrical Filling and Flushing Unit

WARNING

Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

- Do not use the electrical device if it is damaged. There is a danger of accident.
- Only connect the power tool of protection class I to a socket/extension lead with a functioning PE conductor. There is a danger of electric shock.
- Examine the hoses and seals for damage every time before using. Damaged hoses can burst and cause injury.
- Only use original hoses, fittings and couplings for the electrical device. This ensures that the safety of the electrical device is maintained.
- Apply the electrical device horizontally and dry for operation. Penetration of water into the electrical device increases the risk of electric shock.
- Do not aim liquid jets at the electrical device, not even for cleaning. Penetration of water into the electrical device increases the risk of electric shock.
- Do not suck up inflammable or explosive liquids, for example petrol, oil, alcohol, solvent, with the power tool. The fumes or liquids can ignite or explode.
- Do not operate the electrical device in rooms where there is a risk of explosion. The fumes or liquids can ignite or explode.
- Protect the electrical device against frost. The electrical device could be damaged. Empty the pump body, the plastic tank and the hoses of the electrical device.
- Never let the electrical device operate unattended. Switch off the power tool during longer work breaks, pull out the mains plug and remove all hoses/plugs. Electrical devices can cause hazards which lead to material damage or injury when left unattended.
- Do not operate the electrical device on a closed pipe system for a prolonged period of time. The electrical device could be damaged by overheating.
- Children and persons who, due to their physical, sensory or mental abilities or lack of experience and knowledge are unable to operate the electrical device safely may not use this electrical device without supervision or instruction by a responsible person. Otherwise there is a risk of operating errors and injuries.
- Only allow trained persons to use the electrical device. Apprentices may only operate the electrical device when they are older than 16, when this is necessary for their training and under the supervision of a trained operative.
- Check the power cable of the electrical device and the extension leads regularly for damage. Have these renewed by qualified experts or an authorised REMS customer service workshop in case of damage.
- Only use approved and appropriately marked extension leads with a sufficient cable cross-section. Use extension leads up to a length of 10 m with cable cross-section 1.5 mm², from 10–30 m with cable cross-section 2.5 mm².

Explanation of symbols

WARNING

Danger with a medium degree of risk which could result in death or severe injury (irreversible) if not heeded.

CAUTION

Danger with a low degree of risk which could result in minor injury (reversible) if not heeded.

NOTICE

Material damage, no safety note! No danger of injury.



Read the operating manual before starting



Power tool complies with protection class I



Environmentally friendly disposal



CE conformity mark

1. Technical data

Use for the intended purpose

⚠ WARNING

Only use REMS Solar-Push for the intended purpose of filling, flushing and venting solar systems, geothermal systems and floor/wall heater systems and for filling tanks. Permissible media: heat transfer liquids, antifreeze, water, aqueous solutions, emulsions.

All other uses are not for the intended purpose and are prohibited.

1.1. Scope of Supply

Electrical filling and flushing unit, 2 flexible fabric hoses, instruction manual

1.2. Article numbers

REMS Solar-Push K 60	115302
REMS Solar-Push I 80	115301
PVC fabric hose ½" T60	115314
EPDM fabric hose ½" T100	115315
EPDM fabric hose ½" T165	115319
30 l plastic tank	115375
Pressure relief valve	115217
Fine filter with filter cartridge 90 µm	115323
Fine filter cartridge 90 µm	043054
Fine filter with fine filter bag 70 µm	115220
Fine filter bag 70 µm (10 bags)	115221
Adapter for canister lid	115379
Shut-off valve ¾"	115324
Changeover valve	115325
Changeover valve flow direction	115326
REMS CleanM	140119

1.3. Applications

	Solar-Push I 80	Solar-Push K 60
Plastic tank volume	30 l	30 l
Transport height	≤ 63 m	≤ 54 m
Volume flow	≤ 1.6 m³/h	≤ 3 m³/h
Transport capacity at 40 m pumping head	18 l/min	16 l/min
Transport volume	≤ 27 l/min	≤ 36 l/min
Transport pressure	≤ 0.65 MPa/6.5 bar 94 psi	≤ 0.55 MPa/5.5 bar 80 psi
Temperature of the transported media (constant load)	≤ 80 °C	≤ 60 °C
pH value of the transported media	6.5–9.5	6.5–9.5

1.4. Electrical data

	230 V~; 50 Hz; 1000 W	230 V~; 50 Hz; 940 W 110 V~; 50 Hz; 940 W
Protection class	I	I
Type of protection	IP 55	IP 44
Operating mode	S3 50% (AB 5/10 min)	Continuous operation

1.5. Dimensions

L × W × H	550 × 480 × 970 mm (21.7" × 18.9" × 38.3")	550 × 480 × 970 mm (21.7" × 18.9" × 38.3")
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1.6. Weights

with PVC fabric hoses	20.4 kg (45 lb)	20.2 kg (44.5 lb)
with EPDM fabric hoses	20.0 kg (44.2 lb)	20.5 kg (45.2 lb)

1.7. Noise information

Workplace-related emissions value	L _{pA} = 73 dB (A) K = 3 dB (A)	L _{pA} = 70 dB (A) K = 3 dB (A)
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1.8. Suction and pressure hoses

	PVC-fabric hose T60	EPDM-fabric hose T100	EPDM-fabric hose T165
Hose length	3 m	3 m	3 m
Hose size	½"	½"	½"
Hose connector, both sides	¾"	¾"	¾"
Temperature resistance	≤ 60 °C	≤ 100 °C	≤ 165 °C

1.9. Fine filter with fine filter bag 90 µm (accessory Art. No. 115323)

Rated width	DN 70
Rated volume flow at pressure loss	5m³/h at 20 kPa/0,2 bar/2,9 psi
Rated pressure	300 kPa/3 bar/43,5 psi
Operating temperature	≤ 45 °C
Operating pressure	≤ 800 kPa/8 bar/116 psi

2. Start-up

NOTICE

REMS Solar-Push is not intended/suitable for permanent connection to the installation. Disconnect all hoses from the installation after completing the work. REMS Solar-Push may not be operated unattended.

2.1. Electrical connection

⚠ WARNING

Caution: Mains voltage present! Before connecting the electrical filling and flushing unit, check whether the voltage given on the rating plate corresponds to the mains voltage. Only connect electrical devices of protection class I to a socket/extension lead with a functioning protective contact. On building sites, in a wet environment, indoors and outdoors or under similar installation conditions, only operate the electrical device on the mains with a fault current protection switch (RCD) which interrupts the power supply as soon as the leakage current to earth exceeds 30 mA for 200 ms.

2.2. Connecting the electrical filling and flushing unit to the solar system

Connect one of the two fabric hoses to the pressure line connection (1). Connect the 2nd fabric hose to the return line connection (2) of the plastic tank (3). Connect the respective free end of the pressure or return line to the ball valves of the solar system and open the ball valves. Close the connecting valve between the two ball valves of the solar system. Fill the plastic tank (3) with transported medium and open the ball valve (4). Plug the mains plug of the electrical filling and flushing unit into the socket with a protective earth.

⚠ CAUTION

Danger of injury due to escaping transported medium. Tighten the hose screw connections and check for leaks regularly.

2.3. Screw cover with return line connection ¾" and fine filter bag 70 µm (accessory art. no. 115220, Fig. 3)

Remove the screw cover (6). Replace the inner plate of the screw cover (6) by an adapter (10). Screw the screw cover (6) with adapter to the plastic tank. Insert the fine filter into the opening in the adapter, screw the screw cover with ¾" return line connection to the adapter, screw the return line to the return line connection, close the return pipe (2) connection.

2.4. Fine filter unit with large dirt collection vessel (accessory art. no. 115323, Fig. 4)

Fasten the fine filter unit to the return line connection (2), connect the return line to the fine filter unit.

2.5. Changeover valve for alternative suction of the transport medium from another tank (accessory art. no. 115325, Fig. 5)

Unscrew the line from the plastic tank (3) to the pump at the ball valve (4) and screw on the changeover valve for alternative suction of the transport medium at the ball valve (4). Connect one outlet of the T-piece to the pump line, connect a line to another tank to the other outlet of the T-piece. Control the flow direction with the valve handle.

2.6. Flow direction changeover valve (accessory art. no. 115326, Fig. 6)

The flow direction changeover valve serves for clearing deposits/sludge in solar stations and underfloor heating. Screw the flow direction changeover valve with connection (P) to the pressure line connection (1). Connect connection (R) of the flow direction changeover valve and the return line connection (2) with the enclosed ½" T100 EPDM fabric hose. The two "solar station" connections on the flow direction changeover valve are connected to the outlets on the solar station with the two ½" fabric hoses belonging to the REMS Solar-Push. The pressure line and return line to and from the solar station are switched by turning the lever on the flow direction changeover valve with the pump running. Deposits/sludge are loosened by the generated pressure pulses.

3. Operation

NOTICE

REMS Solar-Push is not intended/suitable for permanent connection to the installation. Disconnect all hoses from the installation after completing the work. REMS Solar-Push may not be operated unattended.

Do not switch the Solar-Push K 60 pump on until it is filled completely with liquid. Do not allow the pump to run dry! Procedure for filling the Solar-Push K 60: The plastic tank (3) must be filled with liquid. The pressure line (1) and return line (2) must be connected. Open the ball valve (4). Open the bleed screw (9). Close the bleed screw (9) as soon as liquid emerges.

The pump of the Solar-Push I 80 also sucks dry.

Switch the pump on at the On / Off switch (5). Open and remove the screw cover (6) on the plastic tank (3) so that the air can escape from the system. Observe the liquid level in the plastic tank and, if necessary, refill with transported medium so that no air enters the solar circuit. Flush the solar circuit with the transported medium. At the inspection glass of the fine filter (7) or by looking into the large opening of the plastic tank (6), check whether there are still air bubbles in the transported medium. Continue the flushing process until there is no more air in the transported medium.

Do not close the pressure and return lines of both pumps for longer than 60 s because the pumps otherwise run hot and will be damaged.

Switch off the pump (5) after the end of the filling and flushing process. Close the ball valves on the solar system, open the connecting valve between the two ball valves of the solar system. Close the ball valve (4). On the REMS Solar-Push I 80, reduce the pressure in the pressure line by opening the pressure relief valve (8). On the REMS Solar-Push K60, reduce the pressure in the pressure line by slightly unscrewing the inspection glass on the fine filter (7). The pressure relief valve (8) is available as an accessory for the REMS Solar-Push K 60.

⚠ CAUTION

Danger of scalding at high transported medium temperature. Fill the system only when it is in its cold state; cover the solar collectors if necessary.

First unscrew the pressure and return lines on the filling and flushing unit, connect the open hose ends with a connecting piece, e.g. ¼" double nipple in order to prevent transported medium from dripping of running out during transport.

NOTICE

Avoid environmental damage from outflowing transported media. Collect outflowing transported medium immediately and dispose of it in accordance with the national regulations that apply.

To flush heavily contaminated systems, e. g. underfloor heating and to clear slurries, use a fine filter unit with a large dirt collection vessel (accessory) (page 2.4.) or a screw lid with return connection ¼" and fine filter bag 70 µm (accessory) (see 2.3.).

NOTICE

Danger of frost: If the pump is exposed to temperatures $\leq 5^{\circ}\text{C}$, the pump body, the plastic tank and the hoses must be completely emptied to avoid damage. This procedure is also recommended at normal temperatures when the pump is not used for long periods of time.

4. Maintenance

Notwithstanding the maintenance described below, it is recommended to send in the electrical filling and flushing unit to an authorised REMS contract customer service workshop for inspection and periodic testing of electrical devices at least once a year. In Germany, such periodic testing of electrical devices should be performed in accordance with DIN VDE 0701-0702 and also prescribed for mobile electrical equipment according to the accident prevention rules DGUV, regulation 3 "Electrical Systems and Equipment". In addition, the respective national safety provisions, rules and regulations valid for the application site must be considered and observed.

4.1. Maintenance

⚠ WARNING

Pull out the mains plug before maintenance work!

Clean the pump regularly in order to prevent the pump parts from sticking, particularly if they are not used for a n extended period. Store the pump in a frost-proof location. Check hoses, hose connectors and seals for damage before every use. Do no used damaged hoses and seals.

Check the fine filter of the pump for contamination regularly through the sight glass (7) and clean if necessary. To do this, unscrew the sight glass (7) on the file filter, remove the filter screen and clean both under running water or with compressed air. Replace damaged filters.

Clean plastic parts (e.g. housing) only with REMS CleanM machine cleaner (Art. No. 140119) or a mild soap and a damp cloth. Do not use household cleaners. These often contain chemicals which can damage the plastic parts. Never use petrol, turpentine, thinner or similar products for cleaning.

Make sure that liquids never get onto or inside the pump motor.

4.2. Inspection / maintenance

⚠ WARNING

Pull out the mains plug before carrying out maintenance or repair work!

This work may only be performed by qualified personnel.

5. Faults

⚠ WARNING

Switch off the On/Off switch and pull out the mains plug before repairing the fault on the electrical filling and flushing unit.

5.1. Fault: Pump does not suck up or is not working.

Cause:

- Unsuitable transport medium.
- Leaking suction pipe.
- Suction pipe or fine filter blocked.
- Pressure hose is blocked.
- Ball valve (4) is closed.
- The plastic tank (3) is empty.
- Air in the pump (Solar-Push K 60).
- Pump has seized (Solar-Push K 60).
- Power cable defective.
- Pump/motor defective.

Remedy:

- Only use approved transport media (see 1. Intended Use and 1.3.).
- Change seal/suction pipe.
- Clear the blockage in the suction pipe. Clean file filter7filter screen (see 4.1.) or change filter screen.
- Clear the blockage in the pressure hose.
- Open ball valve.
- Fill or refill the plastic tank with transport medium (see 3. Operation).
- Fill liquid into pump (see 3. Operation).
- Push a flat screwdriver through the middle hole in the motor fan cover and release the blockage by turning abruptly to the left and right several times.
- Have the power cable changed by qualified personnel or an authorised REMS customer service workshop.
- Have the pump/motor checked/repared by an authorised REMS customer service workshop.

5.2. Fault: Pump builds up no pressure or does not transport the medium.

Cause:

- Transport height exceeded.
- Unsuitable transport medium.
- Ball valves/solar unit connecting valve not opened/closed correctly.
- Fine filter blocked.
- Pump/motor defective.

Remedy:

- Check transport height (see 1.3.).
- Only use approved transport media (see 1. Intended Use and 1.3.).
- Open/closed ball valves according to 2.2.
- Clean the fine filter/filter screen (see 4.1.) or change the filter screen.
- Have the pump/motor checked/repared by an authorised REMS customer service workshop.

5.3. Fault: Liquid escapes from the pump.

Cause:

- Seals of the pump connections are defective.
- Pump seals are defective.

Remedy:

- Change seals.
- Have the pump checked/repared by an authorised REMS customer service workshop.

6. Disposal

The electrical filling and flushing unit may not be thrown in the domestic waste after use. It must be disposed of properly by law.

7. Manufacturer's Warranty

The warranty period shall be 12 months from delivery of the new product to the first user. The date of delivery shall be documented by the submission of the original purchase documents, which must include the date of purchase and the designation of the product. All functional defects occurring within the warranty period, which are clearly the consequence of defects in production or materials, will be remedied free of charge. The remedy of defects shall not extend or renew the warranty period for the product. Damage attributable to natural wear and tear, incorrect treatment or misuse, failure to observe the operational instructions, unsuitable operating materials, excessive demand, use for unauthorized purposes, interventions by the customer or a third party or other reasons, for which REMS is not responsible, shall be excluded from the warranty

Services under the warranty may only be provided by customer service stations authorized for this purpose by REMS. Complaints will only be accepted if the product is returned to a customer service station authorized by REMS without prior interference and in a fully assembled condition. Replaced products and parts shall become the property of REMS.

The user shall be responsible for the cost of shipping and returning the product.

A list of the REMS-authorized customer service stations is available on the Internet under www.rems.de. For countries which are not listed, the product must be sent to the SERVICE-CENTER, Neue Rommelshäuser Strasse 4, 71332 Waiblingen, Deutschland. The legal rights of the user, in particular the right to make claims against the seller in case of defects as well as claims due to wilful violation of obligations and claims under the product liability law are not restricted by this warranty.

This warranty is subject to German law with the exclusion of the conflict of laws rules of German International Private Law as well as with the exclusion of the United Nations Convention on Contracts for the International Sales of Goods (CISG). Warrantor of this world-wide valid manufacturer's warranty is REMS GmbH & Co KG, Stuttgarter Str. 83, 71332 Waiblingen, Deutschland.

8. Spare parts lists

For spare parts lists, see www.rems.de → Downloads → Parts lists.