

NEOL

Photovoltaic AG

Operation and Installation Manual
40 Liter Solar Water Heater



www.nexol-ag.com

Table of Contents

Introduction.....	4
Safety	5
Safety terminolgy and symbols.....	6
Product warranty.....	7
Transportation and Storage.....	7
Inspect the delivery.....	7
Transportation guidelines.....	7
General Use.....	8
Technical Data.....	9
Specifications.....	9
Detail on Consumption.....	11
Installation.....	12
Appliance Description.....	12
Installation Site.....	12
Water connection.....	13
Solar/Net connection.....	13
Boiler operation - LCD display	13
Commission Process.....	14
First heat cycle.....	14
Environment and recycling.....	14

Introduction

The delivered product is a prototype. It may be used for the daily use. The required standards were kept to the best of the producers ability, but are not yet confirmed.

In case of misuse no liability may be assumed.

If you have any question, comments or complaints please don't hesitate to contact us.

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Purpose of this manual

The purpose of this manual is to provide necessary information for:

- Installation
- Operation

CAUTION:

Failure to observe the instructions contained in this manual could result in personal injury and property damage. Read this manual carefully before installing and using the product.

NOTICE:

Save this manual for future reference and keep it readily available.

Safety

WARNING:



- The appliance may be used by children aged 8 and older and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.
- Fix the appliance in position as described in chapter „Installation“.
- The appliance is pressurized. During the heat-up process, expansion water will drip from the safety valve.
- Regularly vent the expansion valve and temperature and pressure valve (P&T) until a full water jet is discharged.
- Install a type-tested safety valve in the cold water supply line. Please note that, depending on the static pressure, you may also need a pressure reducing valve.
- Size the drain so that water can drain off unimpeded when the safety valve is fully opened.
- Fit the discharge pipe of the safety valve with a constant downward slope and in a room free from the risk of frost.
- The safety valve discharge aperture must remain open to atmosphere

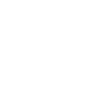
Safety terminology and symbols

About safety messages

It is extremely important that you read, understand, and follow the safety messages and regulations carefully before handling the product. They are published to help prevent these hazards:

- Personal accidents and health problems
- Damage to the product
- Product malfunction

Hazard levels

Hazard level	Indication
	DANGER A hazardous situation which, if not avoided, will result in death or serious injury
	WARNING A hazardous situation which, if not avoided, will result in serious injury.
	CAUTION A hazardous situation which, if not avoided, could result in minor or moderate injury
	NOTICE • A potential situation which, if not avoided, could result in undesirable conditions • A practice not related to personal injury

Hazard categories

Hazard categories can either fall under hazard levels or let specific symbols replace the ordinary hazard level symbols.

Burns hazards are indicated by the following specific symbol:



WARNING Burns

There is a risk of scalding at outlet temperatures in excess of up to 55 °C.

Product warranty

Warranty

The water tank is a stainless steel tank only for drinking water quality. The warranty conditions of our German company is not granted to products purchased outside of Germany. Special conditions might be negotiated with partner companies and local distributors. Only local distributors and subsidiaries can issue such warranties in their countries. No other guaranty will be granted.

Transportation and Storage

Inspect the delivery

Inspect the package

1. Inspect the package for damaged or missing items upon delivery.
2. Note any damaged or missing items on the receipt and freight bill.
3. File a claim with the shipping company if anything is out of order. If the product has been picked up at a distributor, make a claim directly to the distributor.

Inspect the unit

1. Remove packing materials from the product. Dispose of all packing materials in accordance with local regulations.
2. Inspect the product to determine if any parts have been damaged or are missing.
3. If applicable, unfasten the product by removing any screws, bolts, or straps. For your personal safety, be careful when you handle nails and straps.
4. Contact your sales representative if anything is out of order.

Transportation guidelines

WARNING:



Dropping, rolling or tipping units, or applying other shock loads, can cause property damage and personal-injury. Ensure that the unit is properly supported and secure during lifting and handling

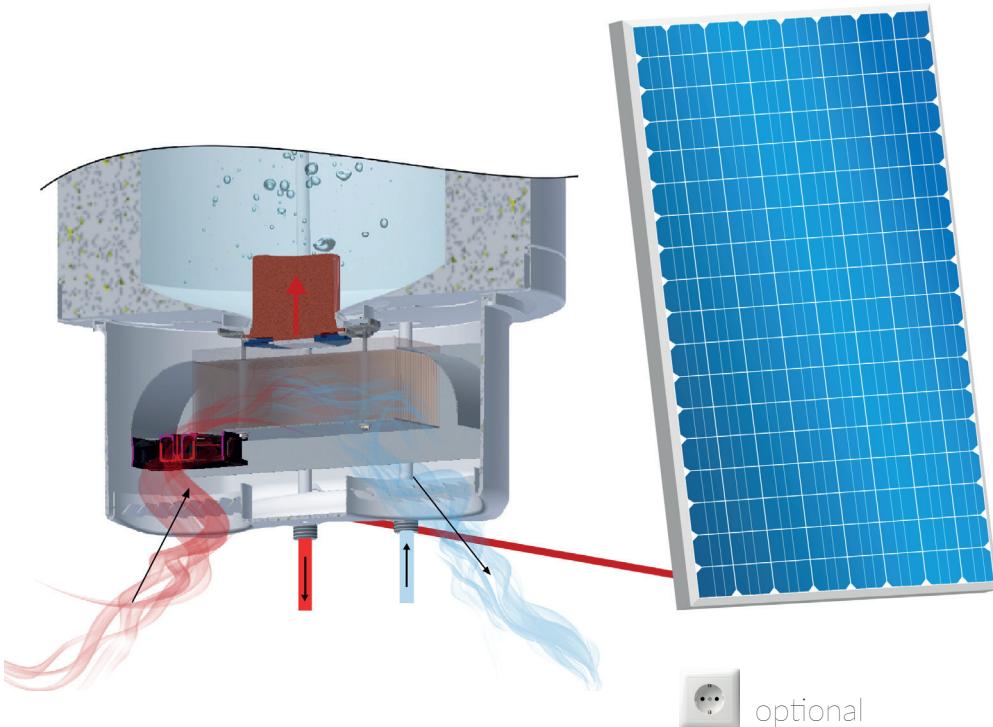
General Use

General Use

We have developed a new innovative way of solar water heating. Our boiler use semiconductor technology, which not only harvest the electrical energy from solar cells, in addition to that it also harvest energy from the environment.

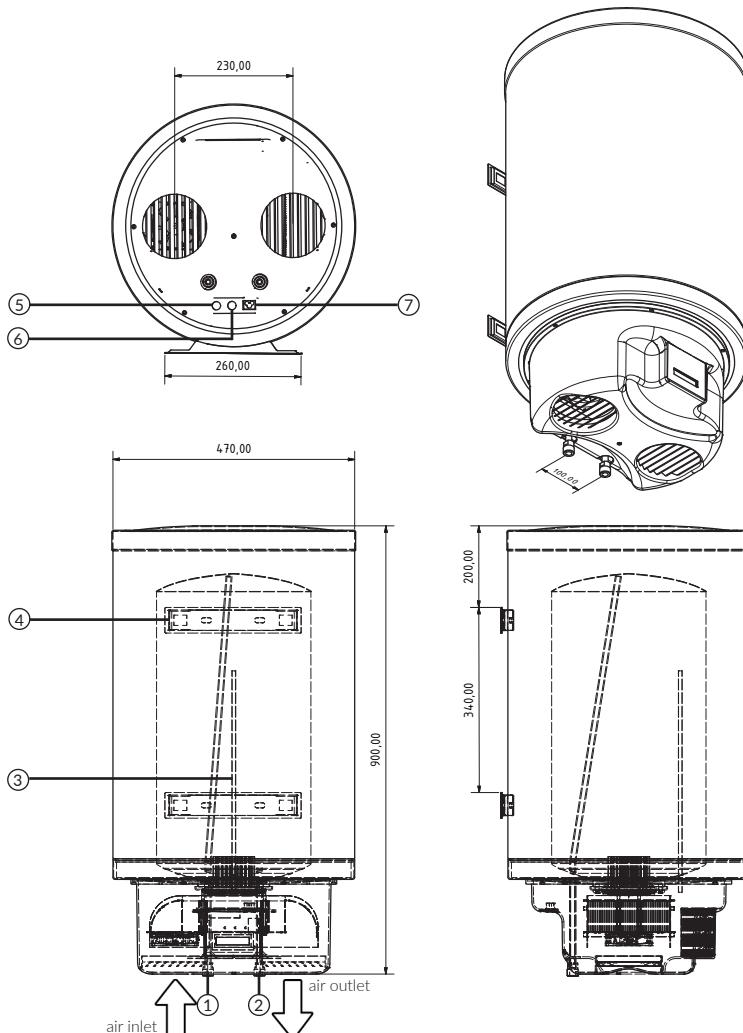
The Nexol-Boiler produces clean green energy without any CO₂ emission with unbeatable low energy cost.

Due to the solid state semiconductors, our product has a very long lifespan and after being connected to a water supply it doesn't need any more than a cable straight to the solar generator, which leads to an easy installation and low installation costs.



Technical Data

Specification



① Hot water outlet

② Cold water inlet

③ Temperaturesensors

④ Wall mount

⑤ PV -

⑥ PV +

⑦ Net connection

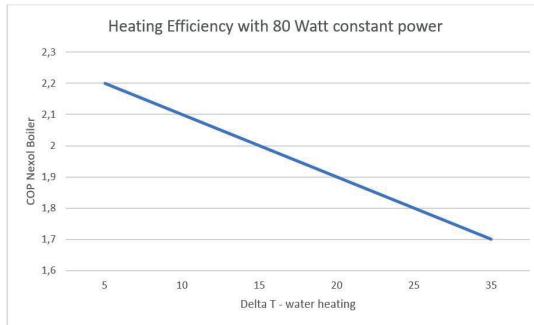
Specification

Mechanical and Thermal Characteristic	
Height	900 mm
Diameter	470 mm
Empty Weight	24 kg
Water Capacity	40 L
Layer of Insulation	85 mm
Thermal Losses	0,515 W/K
Material Tank	Stainless Steel
Performance Characteristics	
Operating Temp. Range	0 – 65 °C
Effective Temp. Range	15 – 50 °C
Environment Temperature	8 - 40 °C
Coefficient of Performance (COP)	1,8 grid opp.
Coefficient of Performance (COP)	2,0 PV opp.
Max. Pressure	6 bar
Acoustic Noise	36 dB
Electrical Characteristic	
Rated Voltage	45 VDC
Rated Current	14 A
Rated Power Consumption	80 W const. / Max. 150 W
Solar Module	200 Wp
MMP Tracking	yes
LCD Display	yes
Additional grid plug	yes
Overcurrent protection	no
Overheating protection	yes

Details on Energy Consumption

Demanded energy for heating process in Wh:

AT	Eth	Eel
5	221,7	103
10	442,9	211
15	663,8	332
20	882,6	464
25	1099,9	611
30	1315,6	774



The thermal surplus is gained by extract thermal energy from the surrounding area. The efficiency is reducing while the temperature gradiant to the environment is increasing. In the upper table the estimated energy demand is listed. In this case ΔT is related to the water temperature. The values relate to the heating process with a constant power input. In this specific case 80 Watt input power was applied.

Installation

Installation

Only qualified installers should carry out installation, commissioning, maintenance and repair of the appliance.

Appliance Description

The following are delivered with the prototype appliance:

- Tank
- Network Adapter (80 W)

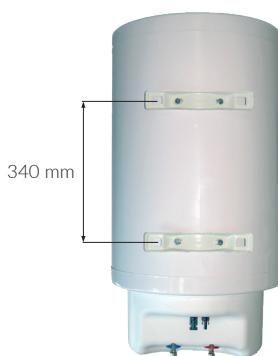
Further components are needed:

- Safety Valves
- Solar Generator (200-300 Wp)
(Number cells 36, 48, 54, 60, 72)
- Wall Suspension

Installation Site

Always install the appliance in a room free from the risk of frost and near the needed warm water extraction or draw-off point to reduce unwanted losses.

The tank is mounted to the wall. It needs to be checked that the wall is stable and can easily hold up to 70 kg. The tank can be mounted by an easy wall suspension consisting of 2 to 4 hooks.



The height of the mounting parts can vary a bit. It is necessary to confirm the distance between the bottom and the top part!

The distance in the upper picture is just a reference. Confirm the value by measuring it. Every tank can vary due to the fact that they are prototypes!!!

Water connection

The Nexol Boiler can be connected to water supply systems with up to 6 bar. The water connection should be done by qualified contractors. Security valves need to be installed at water in- and outlet.



Solar/Net connection

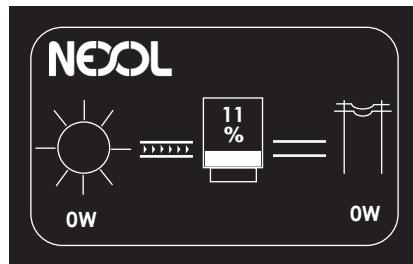


CAUTION:
No Reverse polarity protection

The solar panel is connected via a MC4 connector connected. The mains adapter is inserted in the appropriate socket is plugged in. In the following figure the Connection terminals shown:



Boiler operation - LCD display

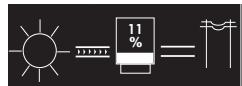


If there is enough power coming from the PV panel or the Net, the system is powered on.

Commission Process

First heating cycle

After the installation of the boiler, it can also be controlled via take one day to heat up the boiler completely. This depends on solar radiation and environmental temperature.



The tank temperature is being displayed in form of loading status, it means if the status shows 0% the tank temperature is 10°C or below. In case the tank reaches 100% the system shuts off and the water temperature has reach 60°C.

The display also shows the energy source and the amount of energy in watt.

Environment and recycling

We are working to provide a sustainable and clean product and therefore would kindly ask our costumer to help protect the environment. After use, dispose of various materials on accordance with national regulations.

In case any questions occur, please don't hesitate to contact us or your local supplier.



Visit our website for the latest version of this document and more information.

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