

Solar distillation systems

Millions of people do not have access to potable drinking water. This is a scarce and precious commodity. People often only have access to seawater, brackish water, or contaminated raw water. Solar distillation is an excellent solution to gain potable water from such sources.

Due to its very high quality the distilled water can be readily used as technical water for batteries, in pharmaceutical and chemical industries, in hospitals, and for many other applications.

This system is totally self-sufficient with no connection to power supplies needed.

Sunset Solar has the following solar distillation systems, as fully operational sets, on offer:

I. Family sized solar distillation unit

For a daily production* of up to 20 l suitable for four to seven people

- 1 x **Solar Distillation Collector F6-250**,
Gross area 2,5 m², 1000 mm x 2500 mm x 85 mm
- 1 x **Storage tanks for distillate**, 45 litre
- 1 x **Controller**: incl. sensor, rechargeable battery, solenoid valve
- 1 x **PV Module**
- 1 x **Substructure**, hinge bracket, spacing beam, thread rod,
Installation material: Cable, distillate filter (for start-up), pressure reducer, nipples, plugs, PE pipe and connection tubes.

II. Village sized solar distillation system

For a daily production* of up to 1,000 l

- 42 x **Solar Distillation Collector F6-300**,
Gross area 3,0 m², 1000 mm x 3000 mm x 85 mm
- 1 x **Storage tanks for raw water**, 150 litre
- 1 x **Controller**: incl. sensor, rechargeable battery, solenoid valve
- 1 x **PV Module**
- 42 x **Substructure**, hinge bracket, spacing beam, thread rod,
Installation material: Cable, distillate filter (for start-up), pressure reducer, nipples, plugs, PE pipe and connection tubes.

* Yearly insolation of approx. 2,000 kWh/m²

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The quality of water taped directly from the collector has been tested by several official institutes, and was awarded a gold medal by the American Water Association. The following test was carried through on water from a group of F4-300 collectors, purifying seawater from an industrial harbour. The seawater was not pre-treated, only passing a filter to keep out large particles. A comparison with the purified water illustrates the enormous cleaning power of the collectors. The salt content is almost totally eliminated and bacteria cannot be detected.

Parameter	Unit	Results	Method
Impure water (Raw water)			
pH	-	8,06	IRSA-CNR 2080
Conductivity at 25°C	ì S/cm	47800	IRSA-CNR 2030
Chloride ions (Cl)	mg/l	19497	IRSA-CNR 4070/C
Culture count (Incubation test at 36°C for 48 hours)	UFC/ml	560	IRSA-CNR 7050
Waste water (brine)			
pH	-	8,25	IRSA-CNR 2080
Conductivity at 25°C	ì S/cm	61200	IRSA-CNR 2030
Chloride ions (Cl)	mg/l	27651	IRSA-CNR 4070/C
Culture count (Incubation test at 36°C for 48 hours)	UFC/ml	380	IRSA-CNR 7050
Purified water (condensate)			
pH	-	6,7	IRSA-CNR 2080
Conductivity at 25°C	ì S/cm	4,77	IRSA-CNR 2030
Chloride ions (Cl)	mg/l	<3,5	IRSA-CNR 4070/C
Culture count (Incubation test at 36°C for 48 hours)	UFC/ml	not measurable	IRSA-CNR 7050

Working principal

