



Green  | Reliable  | Innovative 

CLEAN WATER
FOR EVERYONE

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Water Crisis

Water Crisis

Sufficient water access must be considered a human right. Water scarcity is a worsening global crisis which especially affects remote area.



1 in 3 people
globally do not have access
to safe drinking water

Every 2 minute
a child dies due to
dirty water

30% of agriculture
fields in South Africa
are dried out

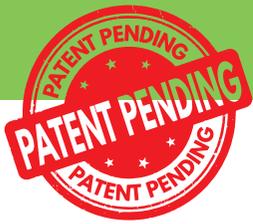
A glass of water sits on a mossy log against a green bokeh background. The glass is partially filled with water and has some condensation on it. The log is covered in vibrant green moss and is positioned diagonally across the lower half of the frame. The background is a soft, out-of-focus green, suggesting a forest or natural setting. On the left side, there is a vertical blue gradient bar with a white curved shape overlapping it.

Solution

Green  | Reliable  | Innovative 

Why Grino ?

Green | Reliable | Innovative



Grino provides an efficient, economical and environmentally sustainable technology in an innovative way



Energy Losses



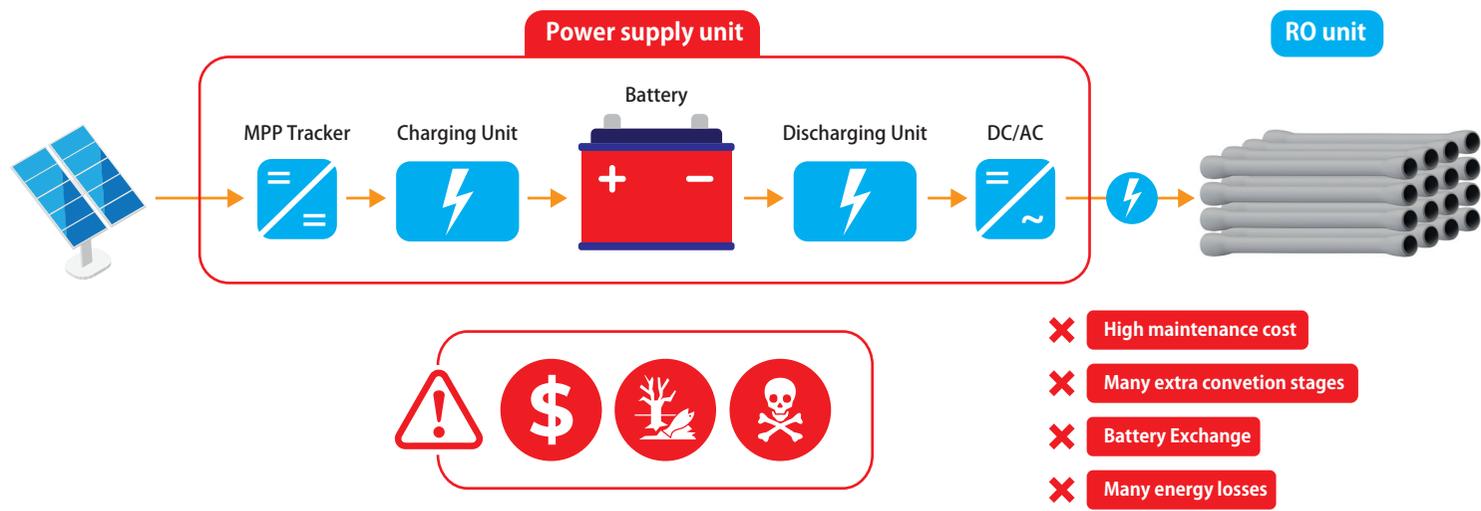
Water Price



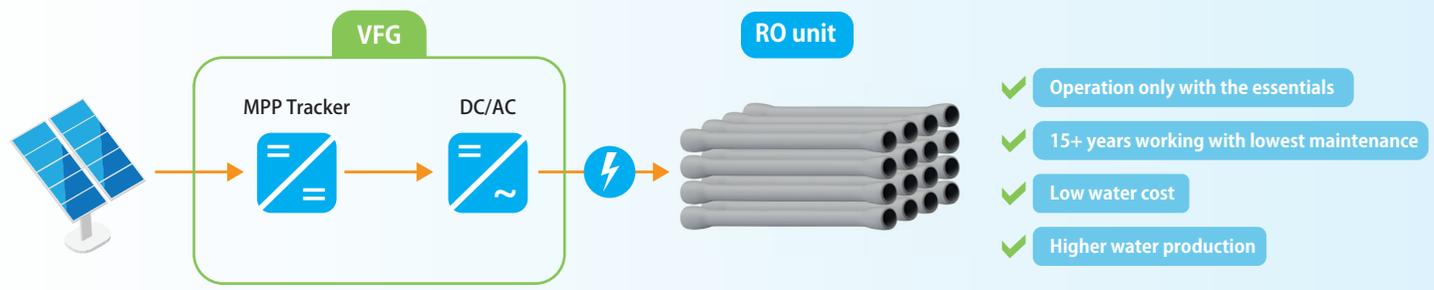
Investment Cost

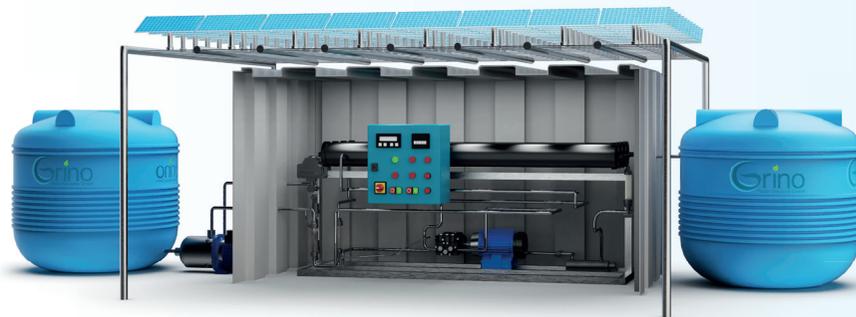
Comparison of conventional system with Grino

Conventional systems use batteries, which leads to higher price, higher maintenance costs, less efficiency and additional energy conversion stages.



Grino uses just the essentials to produce water – Battery-free | Simple | Affordable





Standard RO units are not able to adapt to the changing power of sunlight. Therefore, the operation is strictly limited to the times when solar energy is enough to operate in nominal power. So cost intensive, short life-time batteries are required.

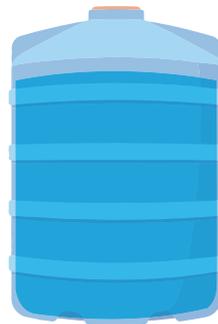
In comparison, Grino continues to operate, while adjusting to the available solar power.

Grino's new power management unit has been developed (Patent pending) to perform the important task of compensating for the PV-power fluctuations by regulating the speed of the pumps, water flow rate and membrane pressure.

Conventional system water production

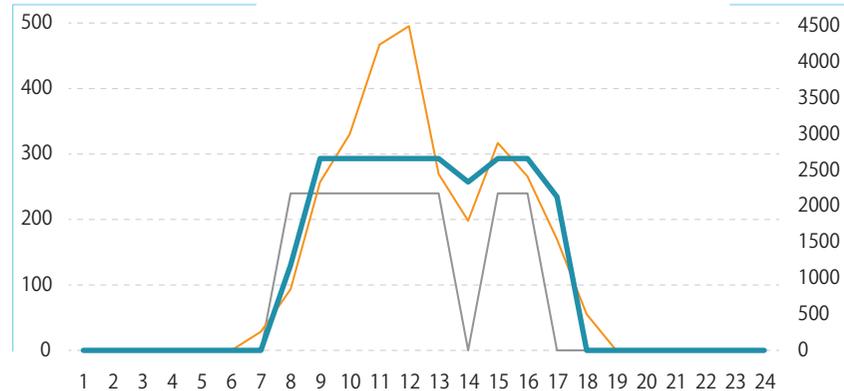


Grino water production



Water production (l/h)

Power (W)



● Grino Water production ● Conventional system water production ● Solar power

Grino developed a completely battery-free desalination system that uses solar energy.

Battery-free

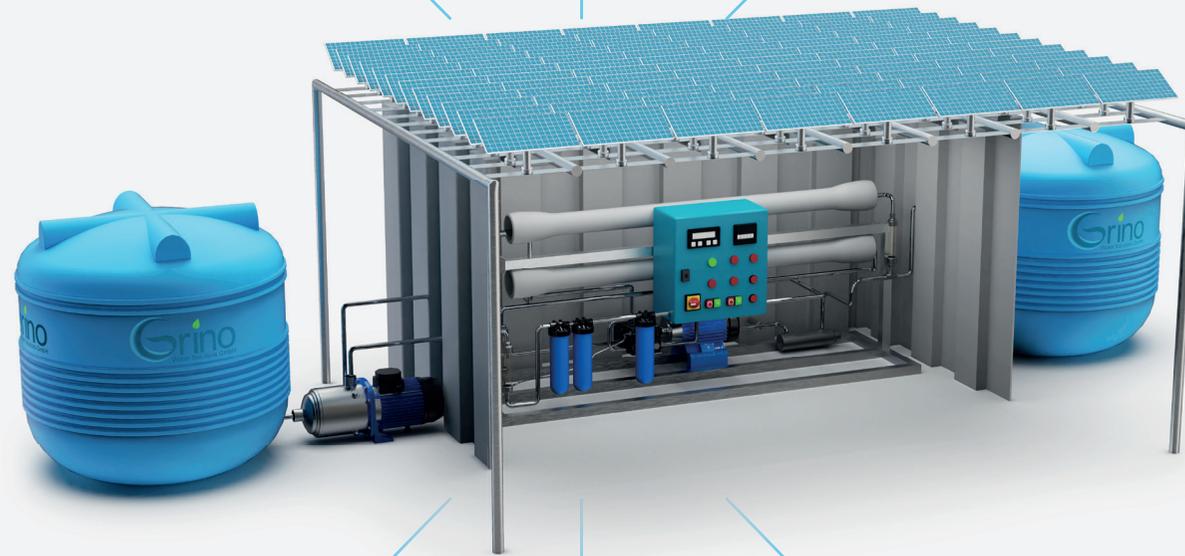
Using the unique Variable Frequency Generator from Grino allows a battery-free energy supply for the desalination/purification unit.

Simple and Robust

Compared to complex systems the simple design guarantees an easy use. The robust system is completely reliable for remote areas

Lifetime Value

The innovative and reliable process leads to lower costs of the system over its 15-years life time. High-quality affordable for everyone.



High Energy Efficiency

Less DC-AC/AC-DC stages decrease the energy losses significantly. The Variable Frequency Generator (VFG) including the new process increases the water out put.

Low Maintenance

The lack of a battery makes maintenance easier. Batteries would normally require changing every 3-5 years. The fully automatic system (e.g. automatic backwash) is optimised to reduce service needs.

Sustainable

PV-based energy saves tons of CO₂ emissions. Avoiding fossil fuel usage benefits the environment.

Ready to deploy, Easy to operate.



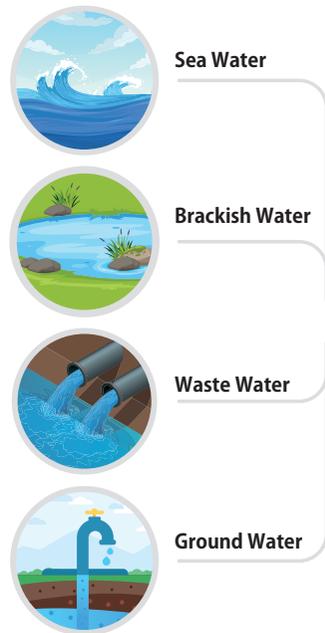
- **Independent Off-grid Solution**
- **Easy to operate**
- **Scalable**
- **Fast solution for emergency cases**

FLEXIBLE ENERGY INPUT

Besides our high efficiency solar version, Grino system can be adopted for different energy input.



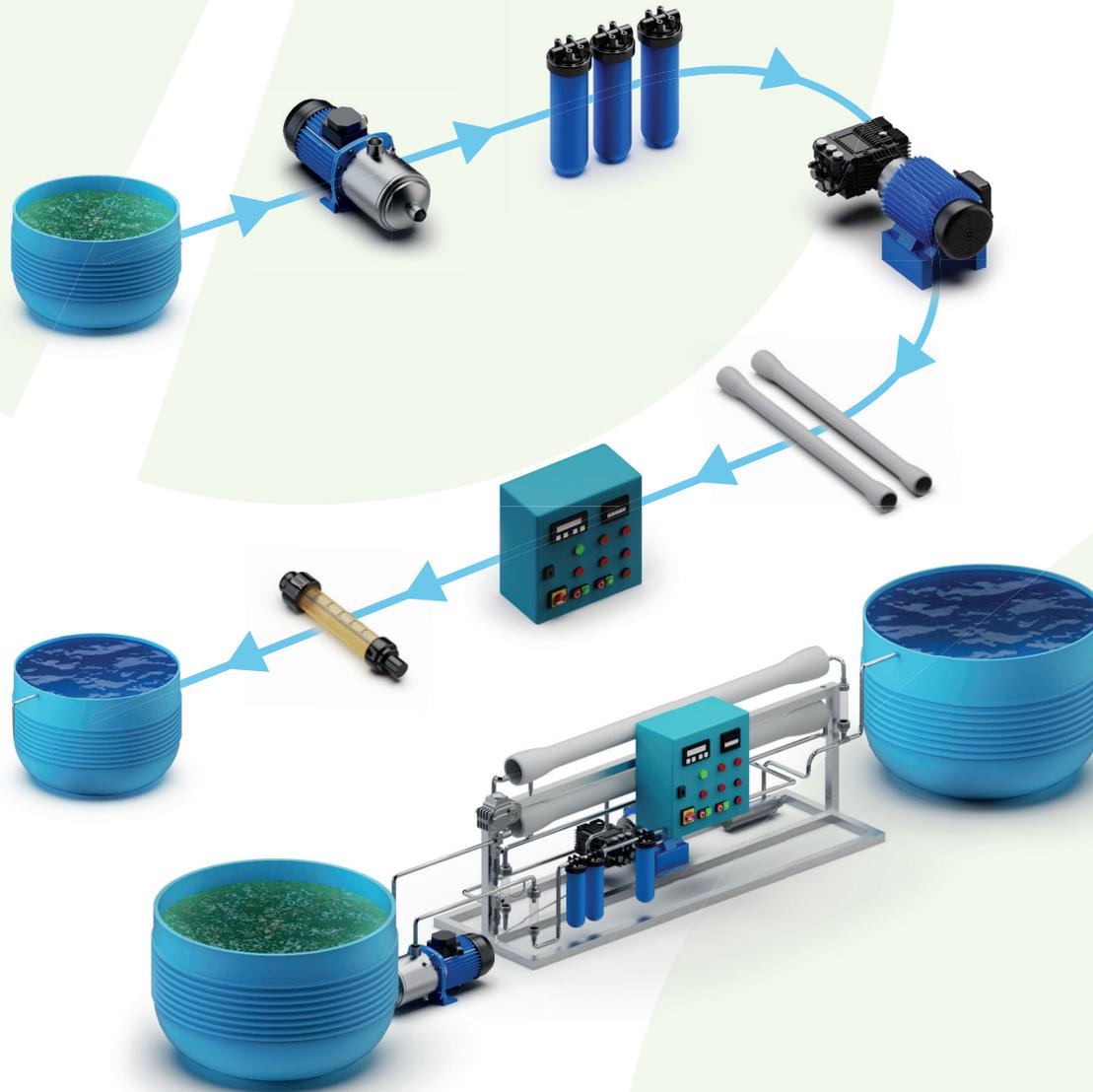
FLEXIBLE WATER INPUT



FLEXIBLE WATER OUTPUT



Value creation through simplicity



To satisfy any specific need we offer a vast range of Add-ons

Plug & Play

This version is a perfect solution for emergency cases. Solar panels are ready in 60 seconds. Push-fit coupling are applied, and piping is ready in a very brief time.

Post-Treatment Filter

The output water of Grino products is based on the WHO standard. However, it is also possible to enrich the output water by adding useful minerals to the water.

Energy Stabilizer

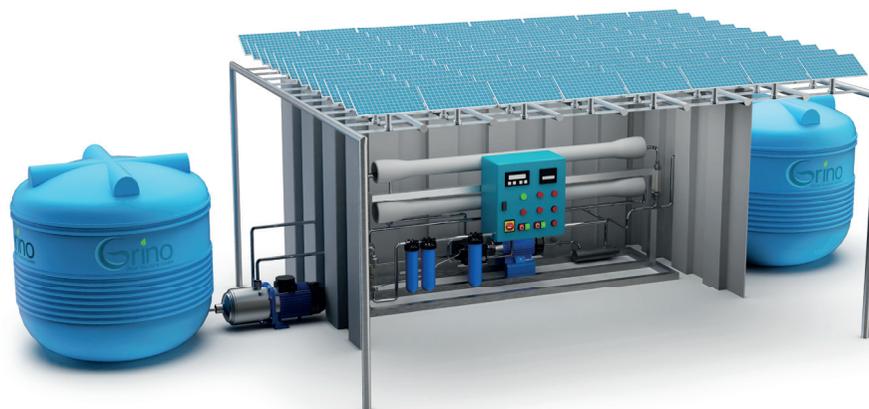
The power unit can easily stabilize the energy even in cloudy days and rainy seasons. A customized supercapacitor is designed for regions with high fluctuation solar radiation.

Heavy-Duty design

Special design for harsh and high-temperature environments

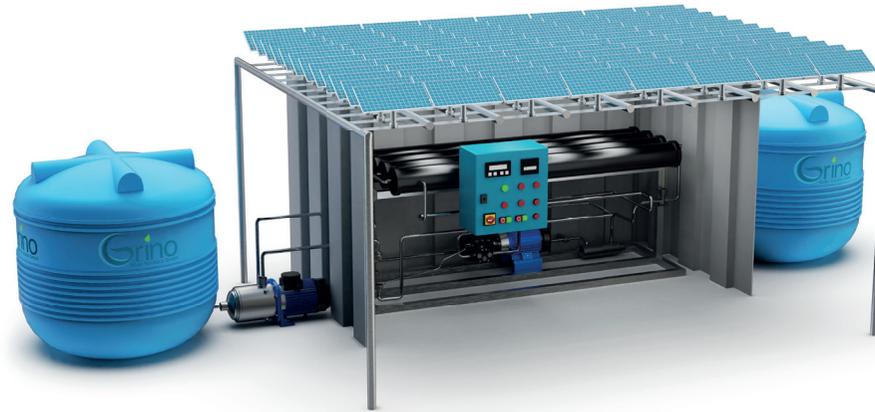
Remote-Monitoring

Customers can access the system data remotely.



Seawater models - (operating conditions: Seawater 25 °C – max. 45000 ppm)

	Grino-SW6	Grino-SW24	Grino-SW70
Max. capacity	240 l/hr	1040 l/hr	2900 l/hr
Output water quality	According to World Health Organization (WHO) drinking water guidelines		
Max. working pressure	69 bar (1000 psi)		
Input power	Solar energy (PV panels), Hybrid (Solar + Grid/Wind/Genset) is possible		
Max. energy consumption	2.2 kWh	5.2 kWh	14.3 kWh
RO membranes	TFC Seawater, Spiral Wound Ø2.5"-L40"	Seawater High Flow, Ø4"-L40"	Spiral, Thin Film Composite Ø8"-L40"
Pre-filtration stages	3 x Cartridges: Activated Carbon + 5 µm + 20 µm		2 x Cartridges: 5 µm + 20 µm
Sand filtration	Hydrocyclonic Pre-filtration 50 µm (loose supply)		
Noise level	60 db (A)	65 db (A)	65 db (A)
Ro pump	Triplex plunger pump SS AISI316-L		
Feed Pump	Horizontal centrifugal pump, SS AISI316-L (loose supply)		
Control unit & remote monitoring	Texas instruments microprocessor		
Flushing system	Daily – Automatic		
Optional equipment	Anti-Scalant system, Mineralising Post-Filter		
Average recovery ratio	%29	%43.5	%48



Brackish water models - (operating conditions: Brackish water 20 °C – max. 2000 ppm)

	Grino-BW6	Grino-BW48	Grino-BW100
Max. capacity	250 l/hr	2000 l/hr	4200 l/hr
Output water quality	According to World Health Organization (WHO) drinking water guidelines		
Max. working pressure	15 bar (1000 psi)	16 bar (1000 psi)	16 bar (1000 psi)
Input power	Solar energy (PV panels), Hybrid (Solar + Grid/Wind/Genset) is possible		
Max. energy consumption	0.34 kWh	2.18 kWh	4.05 kWh
Pre-filtration stages	5 µm Cartridge filter		
Sand filtration	Hydrocyclonic Pre-filtration 50 µm (loose supply)		
Noise level	60 db (A)		
Control unit & remote monitoring	Texas Instruments microprocessor		
Flushing system	Daily – Automatic		
Optional equipment	Anti-Scalant system, Mineralising Post-Filter		
Average recovery ratio	%43	%70	%75



Follow us on social media:



Email: hello@grinowater.com
www.grinowater.com

Phone: +49 911 37677-230

Grino Water Solutions GmbH
Allersberger Str. 185 N
90461 Nuremberg, Germany

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