

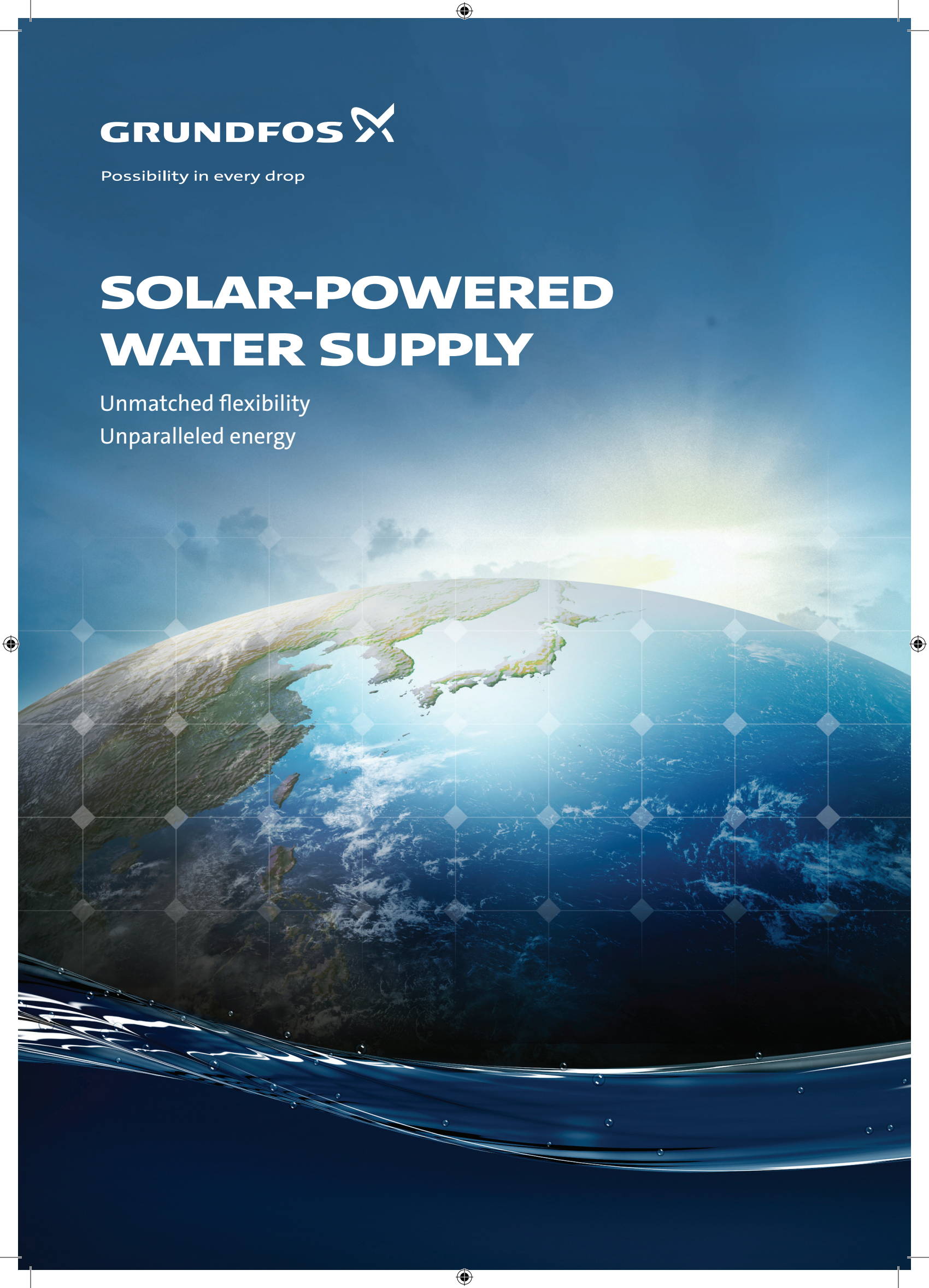
GRUNDFOS 

Possibility in every drop

SOLAR-POWERED WATER SUPPLY

Unmatched flexibility

Unparalleled energy

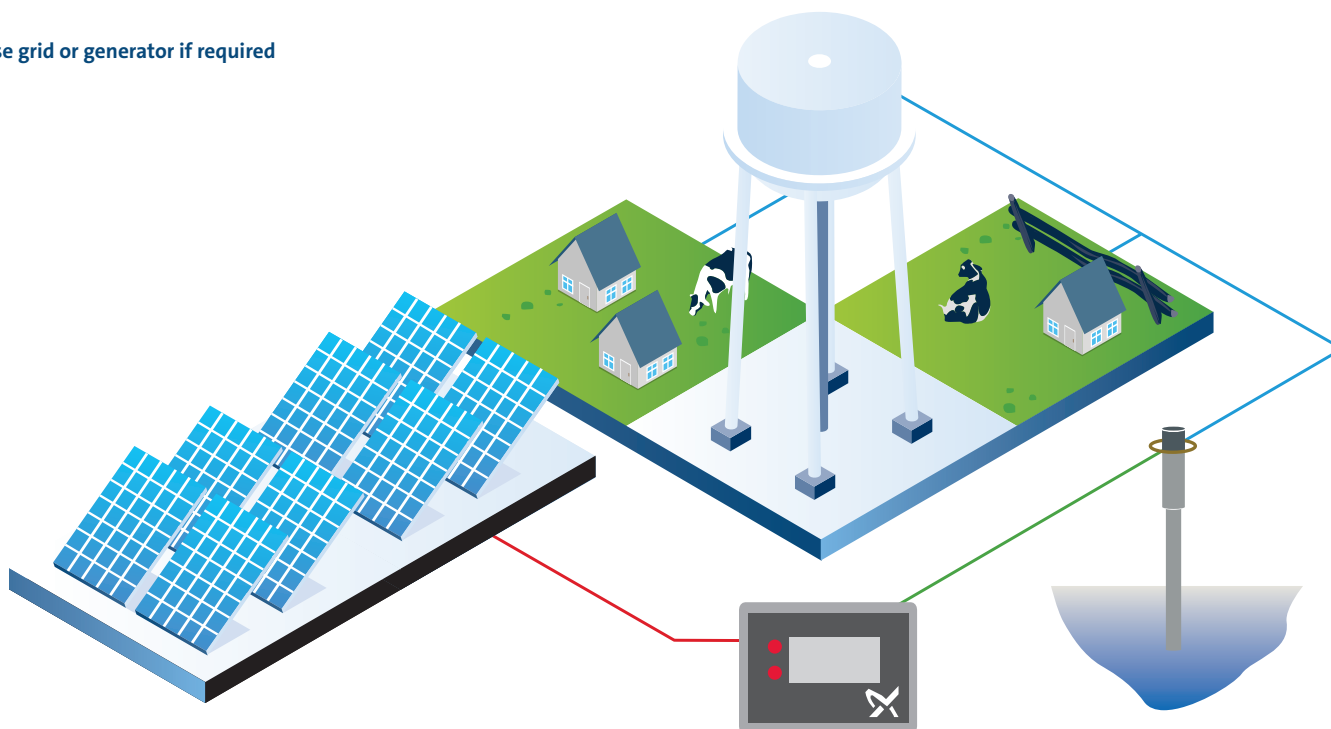


Bringing water where it is needed the most



Grundfos solar water solutions provide the dependable water supply essential for communities

Use grid or generator if required



Energy and water are pressing concerns worldwide, particularly in developing nations. A feasible solar water solution ensures communities have the dependable water supply they need. Grundfos solar water solutions empower water service providers to fulfill these needs.

OUR DELIVERY BUILDS ON:

- An established distribution network and an ability to advise all partners about their water solution investment
- We optimise the entire solar water solution cycle, including system monitoring and control
- A trusted partner for all stakeholders
- A leader in water technology innovation
- A global player that leads the way developing sustainable water solutions

A Grundfos solar water solution provides community water supply from source to tap with zero energy costs and extremely low running costs. It also delivers the high levels of reliability and viability required by water service providers.

Our delivery to water service providers – including NGOs and government utilities – gives them the flexibility they require to support remote communities and informal settlements.

This helps communities build a stronger base for sustainable development and greater resilience when facing challenges from, for example, climate change or lack of infrastructure.

SUSTAINABLE WATER FOR ANY ENVIRONMENT



In the remote Kashmir Valley in northern India, locals had to spend hours a day pumping water by hand. An erratic power supply discouraged installing water distribution systems with electric pumps.

GRUNDFOS SUPPLIED:

For the solar pumping stations, Grundfos supplied its SQFlex 2.5-2 groundwater pump along with a GL 419 PC controller. For more information on sustainable, off-grid groundwater pumping solutions.

THE OUTCOME

Mr. Mohammad Shareef Gujjar, Village Head of Kasnad Khiram, says, "It is my dream to make water available at all times for the community. When I see happiness on my people's faces, I feel satisfied"



A villager in Navargaon in a remote part of Maharashtra fetches water at her doorstep – a common occurrence in this village today after the Grundfos solar pump unit was installed. Previously the village faced acute water shortages.

Villagers had an acute water shortage In Kaorchi Taluk, one of the most remote municipalities in the Gadchiroli District in Maharashtra, India.

GRUNDFOS SUPPLIED:

They chose a Grundfos groundwater SQFlex pump, which comes in a package with a storage tank and photovoltaic (PV) solar panels. The simple, automated system is plug and play, designed so that human interference is very low. "The pump is reliable, rigid and flexible in the sense of discharge – from 10,000 to 25,000 litres per day."

THE OUTCOME

"Doorstep water has made life much easier," says Mrs. Kaushalya Katange. "After our village, many other small villages are requesting to have such a scheme."

Mr. Nitin Patil says the feedback from the village has been very positive. "They are happy with this scheme. We are transforming together to give water to all villages of rural areas in India."

PROVEN SOLAR PUMPING TECHNOLOGY



Horticulture is one of the major economic drivers of the Kashmir valley as the soil and prevailing climatic conditions help farmers produce tasty, healthy and quality fruits. However, since the plantations are in remote locations within the valley, critical farming support aspects like access to water and electricity remained unstable.

GRUNDFOS SUPPLIED:

For the solar pumping stations, Grundfos supplied its SP Solar 9-6 groundwater pump along with a SPC controller.

Relying on traditional methods of getting water through electric motors is not feasible as there is no steady and stable electricity supply. As a result, inconsistent and unreliable water supply affected the plantations severely, and reaping a good harvest became practically impossible for farmers.

THE OUTCOME

- Continuous and reliable supply of 25000 litres of water per day that sufficient for the 20 hectares orchid farm.
- Uninterrupted running of the pump ensures nonstop water supply during day time.



Nestled in the majestic embrace of the Himalayas, Himachal Pradesh—known as the “DevBhoomi” (Abode of the Gods)—isn’t just a land of breathtaking landscapes. It’s a land brimming with potential. The diverse topography and climatic tapestry offer the state a golden ticket to agricultural prosperity. Yet, this potential was stifled. Why? Because the lifeblood of agriculture, water, and its conduit, electricity, were sporadic luxuries in these remote valleys.

GRUNDFOS SUPPLIED:

Together with its partner, M/s. Primus Energy Pvt Ltd, Grundfos embarked on a mission that went beyond merely recognizing the issue at hand. To eliminate the reliance on unpredictable electricity and usher in a new era where a steady supply of water is guaranteed. Through the groundbreaking Grundfos solar pumping solution, which harnesses the power of the robust 3HP MMS400P motor, the user-friendly SA controller, and the highly efficient SP pumps. This solution wasn’t just designed to deliver water; it was designed to promise a brighter future.

Increase Production Using Solar Energy



IN AGRICULTURE AND FARMING

A Grundfos solar water solution can increase crop yields and ensure effective watering for livestock and game



Grundfos solar water solutions offer a smarter and more viable means of delivering reliable water for irrigation and livestock. In addition to reducing energy costs to zero, system operating costs are also extremely low. This, ultimately, ensures a solid return on investment and makes the solar water solution economically sustainable in the long-term.

• Drip and sprinkler irrigation

Perfect when using smaller pumps with an integrated solar inverter, as the drippers or emitters are most water efficient and work with pressurised and gravity systems

• Flood and pivot irrigation

These applications generally require a larger pump with an external solar inverter. Pivots are most effective in pressurised systems, whilst flood irrigation works well with pressurised or gravity feed

• Livestock watering

Pump water either directly to the watering station or to a tank, flowing to the watering station when the rancher decides

• Wildlife and game farms

Provides watering for wildlife and game within the confines of the reserve; the water supply can be managed as for livestock

• Pumping to tank

Offers the advantage of solar water pumping to a holding tank while the sun is shining, from where water is released either pressurised or by gravity feed

• Domestic water supply

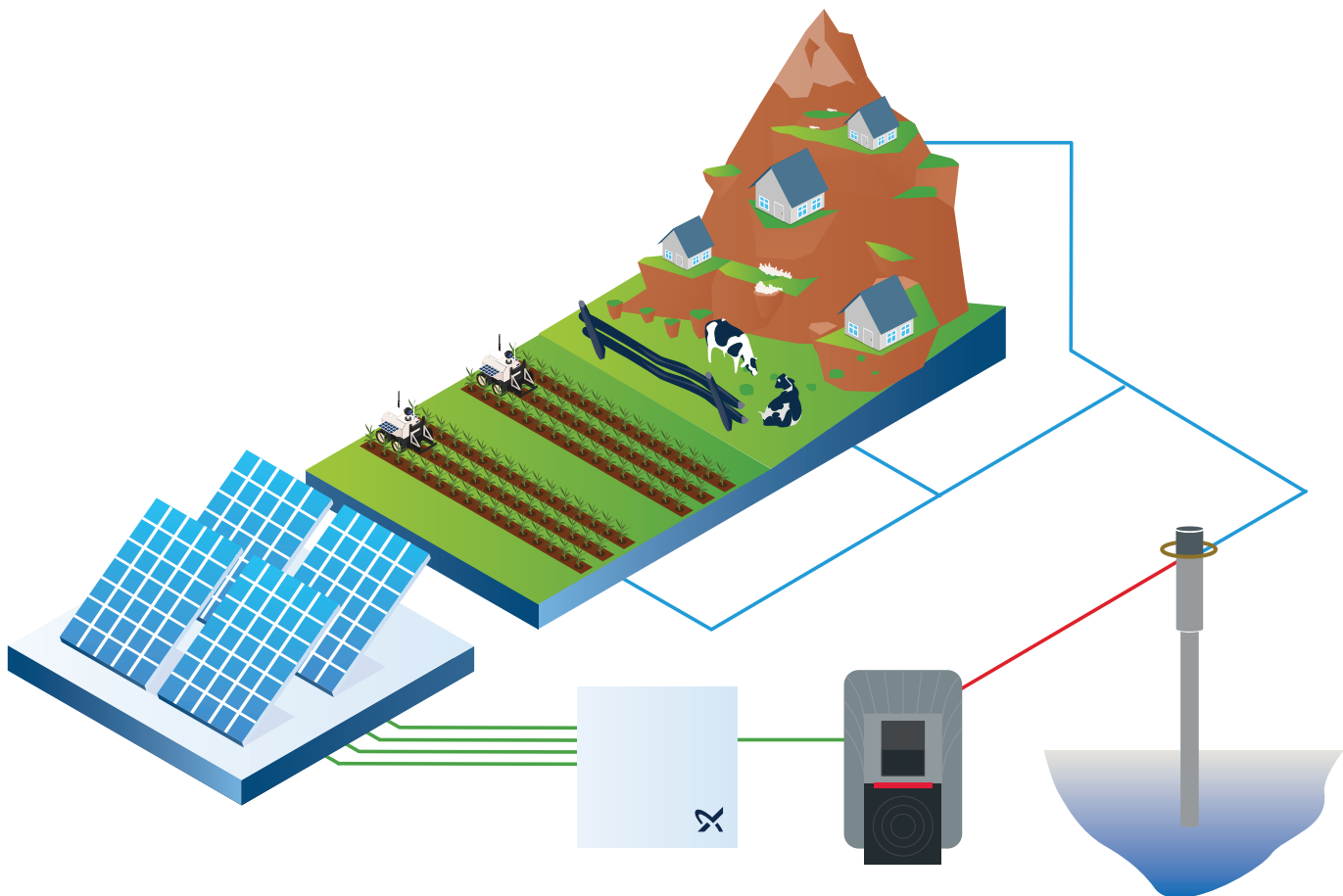
Meets domestic needs on the farm, ranch or any remote location, including supplying potable water for homes

Ensure Water Access In Elevated Mountains

6 CLEAN WATER
AND SANITATION

HEIGHT IS NEVER A PROBLEM

With Grundfos solar water solutions, lift water up to 600 m



In the remote heights of mountainous regions, communities often reside far from accessible water sources, necessitating the lifting of water from significant depths. Moreover, the consistent availability of dependable power sources poses a significant challenge. In response to these demanding conditions, Grundfos solar water pumps have emerged as a symbol of sustainability. Specifically designed for high lifts (up to 600 m), these pumps play a vital role in ensuring access to clean water at elevated altitudes

These are just some of the reasons Grundfos solar water solutions make sense for:

- **Harnessing Solar Energy:**

Nestled amidst remote valleys and rugged slopes, traditional power sources can be scarce. Grundfos Solar water pumps, however, tap into the abundant sunlight available at high altitudes. Their photovoltaic panels convert the sun's energy into electricity, making them an eco-friendly and cost-effective choice for pumping water.

- **Reliable Water Supply:**

Grundfos SP/SPE pumps are designed to lift water up to 600 m which cannot be met by many of the pumps available. They are relatively lighter, shorter, and exceptionally efficient, reducing the requirement of number of solar panels

- **Sustainability in Action:**

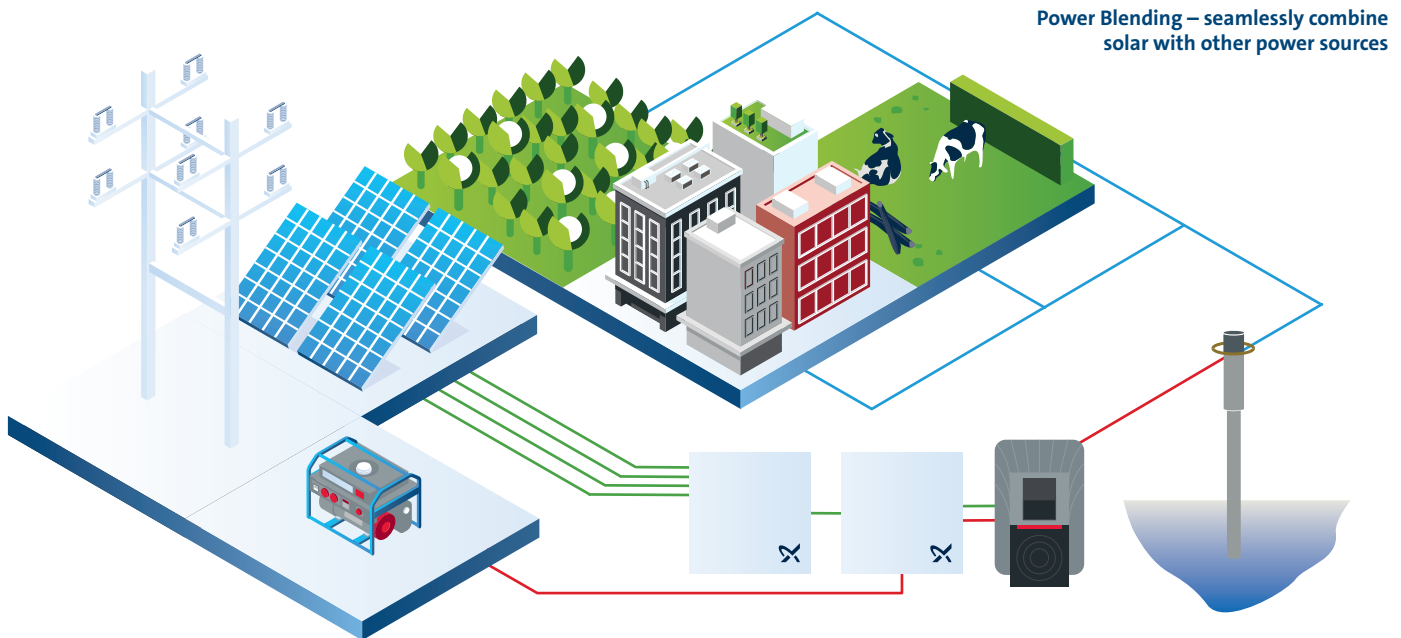
Beyond meeting the daily water needs of local residents, solar water pumps support sustainable agricultural practices in these areas. Farmers can cultivate crops and tend to livestock, reducing their dependence on unpredictable weather patterns Remote communities and informal settlements

Provide Safe, Reliable Drinking Water 24/7



IN ANY WATER SUPPLY SITUATION

Grundfos solar water solutions - even when the sun isn't shining



For water service providers like local waterworks and utility companies, dependability is of the utmost importance. Grundfos has developed a unique PowerAdapt power blending solution so solar energy savings can be realised without having to compromise on reliable operation.

Power blending makes it possible

PowerAdapt works by allowing solar (DC) to be used as a primary source of pump energy while topping up any additional power needs with a connected (AC) energy source. Working in conjunction with Grundfos RSI Solar inverters, this solution ensures constant pumping power, 24 hours a day, seven days a week.

To optimise operations, Grundfos digital solutions like our solar sizing app for precise specification and on site information, the Grundfos Product Center and remote management can help size, monitor and administer solar pumping operations remotely.

These are just some of the reasons Grundfos solar water solutions make sense for:

- **Subdivisions and local waterworks**

Solar water supply saves energy and reduces energy costs to zero. Those are savings that shorten return on investment times and can eventually be passed on to utility users.

- **Water utility distribution**

Grundfos' large renewable solar inverters (RSI) provide up to 250kW of pumping power. This makes solar a feasible energy source for even larger pumps and water utility pumping operations.

- **Off-grid locations**

For areas without access to grid energy or places where centralised energy is sporadic or overly expensive, Grundfos solar water solutions help water suppliers create grid-independent water supply.

- **Remote communities and informal settlements**

Grundfos delivers total solutions that help small service providers and NGOs effectively utilise ground and surface water in remote communities that lack infrastructure. In areas without running water, Grundfos can even provide manual or automated water kiosks and intelligent water ATMs that are mobile payment enabled.

PRODUCT RANGE

SQFlex solar submersible pump

The Grundfos SQFlex AC/DC powered submersible pump range now includes high-speed models to ensure even better coverage of your solar-powered water pumping needs.

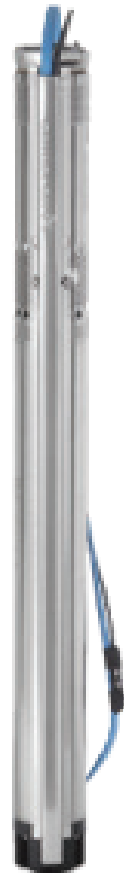
Designed with over 75 years of pump experience and over 40 years of solar technology expertise, the SQFlex is built with proven technology for reliable operation.

TECHNICAL SPECIFICATIONS

Max flow rate:	18 m ³ /h (90 m ³ /day) 79 gpm
Max head:	250 m 820 ft
Liquid temperature:	0°C to +40°C 32°F to 104°F
Max. submergence depth below static water level:	152 m 500 ft
Voltage range:	30 to 300 VDC (100 to 300 VDC for SQF3-105, SQF 5-70, SQF 7-55), 1x90-240 VAC, 50/60 Hz
Max current:	12 A
Pump enclosure class:	IP68

DESIGNED FOR YOUR NEEDS:

- AC/DC power inverter with a universal connection (not polarity specific), built directly into the pump
- Capable of tolerating the widest incoming voltage range on the market (30-300 VDC | 90-240 VAC)
- High-efficiency PM/BLDC motor
- AISI stainless steel 304 and 316 construction options with sacrificial anode available
- Virtually no maintenance
- Integrated dry run and motor protection
- Reliable and proven water supply technology



SYSTEM CONTROLS



SC 212

SC 212 is an in-built programmed device, designed and developed exclusively for SQFlex pumps, which are mostly used in solar based water supply systems.



SC 419PC

SC 419PC is an efficient way to monitor and control the large SQFlex solar pump installations online with our internet-based solution, user will get reliable performance data from the pump installation in real-time.

BENEFITS

- IP65 enclosure suitable for outdoor installation and is weather-proof
- It is suitable for continuous as well as intermittent operations
- Auto and Manual operation
- LED indication for Pump status and alarm

TECHNICAL DATA

- Power Size: 1.4Kw
- Voltage Range: 1Ph, 90 -240 VAC and 60-300 VDC
- Enclosure class: IP65
- Ambient Temperature: -10°C to 55°C

BENEFITS

- IP65 enclosure suitable for outdoor installation and is weather-proof
- Auto and Manual operation
- Remote monitoring connectivity
- LED indication for Pump status and alarm
- RS 485 Modbus RTU data communication
- LCD Screen Display (20 x4)
- SD card backup for 1year data with time stamping
- GPS and Geo-tagging

TECHNICAL DATA

- Power Size: 2.4Kw
- Voltage Range: 1Ph, 90 -240 VAC and 60-300 VDC
- Enclosure class: IP65
- Ambient Temperature: -10°C to 55°C

PRODUCT RANGE

SP Solar System

Grundfos solar water solution helps farmers to get freedom from power cuts and any interruption due to poor grid power quality. Poor power quality often causes pump failure which disrupts the water supply for irrigation.

With Grundfos solar water solution, farmers become more self-reliant and choose to water their crops when it is most required there by increasing their crop yield. Zero energy cost and reduced maintenance cost keep the overall operating cost extremely low. Increased productivity and reduced operating cost make the solar water solution economically sustainable.

TECHNICAL SPECIFICATIONS

Max flow rate:	207,000 Liters per day
Max head:	180m
Ambient temperature:	0°C to +60°C
AC Input	3HP: 1Ph, 220-240V, 50Hz 5, 7.5, 10HP: 3Ph, 380-415V, 50Hz
DC Input (MPPT Voltage range)	3HP: 100-400(Vdc) 5, 7.5, 10HP: 220-750(Vdc)
Motor Power	3, 5, 7.5, & 10HP
Pump enclosure class:	Motor: IP68 Controller: IP65



THE PUMP

With its unsurpassed reliability, Grundfos's SP is the obvious choice that features improved sand resistance, longer life and best in class energy efficiency

BENEFITS

- Reliability proven in the market for more than 50 year
- Superior hydraulic design for greater energy efficiency
- Wide range of flow sizes
- 100 % stainless steel (304) construction offers better corrosion resistance
- Permanent magnet technology for higher energy efficiency
- Easy rewindable & repairable water filled design
- Increased temperature rating (standard 60 °C) for wider application use and longer lifetime
- 100 % stainless steel (304) construction offers better • corrosion resistance



SA - SOLAR PUMP CONTROLLER

SA – Easy to install intelligent off grid solar pump controllers available in 3 HP & 5 HP variants

BENEFITS

- More than 98% controller efficiency
- More than 99% MPPT efficiency
- Equipped with analog and digital IO's
- Protection against power oscillation due to rapid cloud movement
- Rust free and natural cooling through heatsink ensures longer life of electronic component



SPC - THE SOLAR PUMP CONTROLLER

SPC – An intelligent off grid solar pump controller, tested together with SP and forms a perfect fit for Grundfos submersible pump of 7.5 HP & 10 HP

BENEFITS

- With 99% MPPT efficiency
- Able to run on both PV array input and regular AC input
- Boost converter feature helps early start & late stop
- Protection against power oscillation due to rapid cloud movement
- Rust free and natural cooling through heatsink ensures longer life of electronic component

PRODUCT RANGE



SP Submersible Pumps

Complete range of submersible pumps for groundwater applications built to deliver optimum efficiency during periods of high demand, with long product life and easy maintenance.

BENEFITS

- State-of-the-art hydraulics provide high efficiency and low operating costs
- Made entirely of stainless steel to ensure high reliability and long lifetime, even in corrosive environments
- One supplier of the pump, motor and controls for an optimal pumping system

TECHNICAL DATA

- Maximum Flow: 280 m³/hr
- Maximum head: 600 m
- Max. motor size: 250 kW



SPE Submersible Pumps

The SPE system combines reliability and energy efficiency, giving you lower costs over the lifetime of the pump system. SPE System is easy to set up, adapts pump performance to changing conditions and is perfect for water supply and irrigation applications.

BENEFITS

- Permanent magnet motor for the highest possible energy efficiency
- High grade and robust materials increase the time between service and reduce maintenance
- Proven reliability and extended pump lifetime

TECHNICAL DATA

- Maximum Flow: 280 m³/hr
- Maximum head: 600 m
- Max. motor size: 45 kW



CR Multi- stage centrifugal pumps

Modularity for a complete range of pump solutions; from four material variants, thirteen flow sizes (up to almost 50 bar of pressure), a variety of shaft seals, rubber materials, and supply voltages. Pump parts can be optimised and designed for specific requirements.

BENEFITS

- Available with Grundfos Blueflux IE3 motor efficiency, reducing energy costs
- Multi-flange fits a variety of standard connections for a more flexible solution
- Uniquely designed cartridge shaft seal increases reliability, reducing downtime



NB/NBG/NK/NKG Single-stage end- suction standard pumps

Multi-purpose end-suction pumps for reliable and cost-efficient applications such as water supply. Non-self-priming, single-stage, centrifugal volute pumps with axial suction port, radial discharge port and horizontal shaft comply fully with either EN733 or ISO2858.

BENEFITS

- Optimised hydraulics in housing and impeller for unimpeded liquid flow
- O-ring seal between pump housing and cover means no risk of leakage
- Housing, impeller and wear ring in different materials for improved corrosion resistance, no sticking elements



PRODUCT RANGE



CRFlex solar surface pump

High efficiency and reliability from multistage CR pump hydraulics and with the MGFlex motor designed specifically for solar applications. Built-in frequency converter with MPPT software and motor protection.

BENEFITS

- Built frequency converter with MPPT software and motor protection
- Compatible to both AC and DC, with 3 x analog input and 2 x digital input
- Uniquely designed cartridge shaft seal offers excellent reliability

TECHNICAL DATA

- Motor size: 0.88 kW or 1.73 kW (P1)



Renewable Solar Inverter (RSI)

Designed to power Grundfos pumps, the intelligent off-grid Renewable Solar Inverter (RSI) greatly expands possibilities for solar energy water supply systems with substantially reduced lifecycle costs.

BENEFITS

- IP66 enclosure class means the RSI is weather-proof and allows outdoor installation
- Advanced MPPT software which continuously optimises the system with respect to temperature as well as the solar panel conditions
- Quick setup Wizard with pre-defined parameters suits the Grundfos submersible MS motor

TECHNICAL DATA

- Power size: 2.2kW to 250kW
- Voltage supply: DC or 3-phase AC
- Enclosure class: IP54 and IP66
- Analog and digital input



Power Adapt

Used in conjunction with a RSI unit, this enables a Grundfos pump to safely mix solar (DC) power with a secondary (AC) source like the grid or a generator.

BENEFITS

- Allows for a partial solar system when there is not enough space or budget for a full panel installation
- Provides a seamless, 24/7 system with constant power
- Enables solar to be used as a backup in areas with poor grid stability

TECHNICAL DATA

- Voltage 3 X 380 - 415 V
- Enclosure class: IP54
- Three models that fit with a corresponding RSI:
 - 16A (510x540x260mm)
 - 31A (640x640x310mm)
 - 72A (650x640x310mm)



Remote Monitoring

Monitor data anywhere through Cloud connection - Cloud based data monitoring designed for solar pumping system

BENEFITS

- GSM/GPRS connectivity, 3G & 4G compatible for fast data communication
- Geo tagging for location mapping
- Improve reliability, reduce downtime, and lower operational costs
- Easy to install and commission



Grundfos is a global leader in advanced pump solutions and a trendsetter in water technology. We contribute to global sustainability by pioneering technologies that improve quality of life for people and care for the planet. With an annual production of more than 16 million pump units and more than 80 companies in 55 countries, we offer a full range of modular, energy-efficient and intelligent products and services for applications within buildings, industries and water.

Grundfos Solar Water Solutions consist of a broad range of proven products that build robust and reliable solar water supply systems with long product life, low maintenance and manageable service requirements. A highly optimised Grundfos solar water solution offers low risk for your investment with low operating costs and no energy costs.

For more information, please visit grundfos.com

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GRUNDFOS

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