

Renewable-Energy Based Pumping Systems

Grundfos SQFlex

The Grundfos SQFlex system has the ability to operate off renewable power sources, eliminating its need for line power. The SQFlex system is equipped with the SQF submersible pump and the necessary components to operate in remote locations in a variety of applications. Power options include solar, as well as generator.

FEATURES

- High efficiency
- Wide voltage range
- Maximum Power Point Tracking (MPPT)
- Dry-running protection
- Over and under-voltage protection
- Overload protection
- Over-temperature protection

APPLICATIONS

Designed for continuous and intermittent operation, the SQFlex system is especially suitable for water applications in remote locations, such as:

- Pipelines and rail road sites
- Mine sites
- National Parks and Forest Service sites
- Oil field production sites
- Landfill sites

THE SQFLEX SYSTEM MEANS

- Simple installation
- Reliable water supply
- Virtually no maintenance
- Cost-efficient pumping – every day!

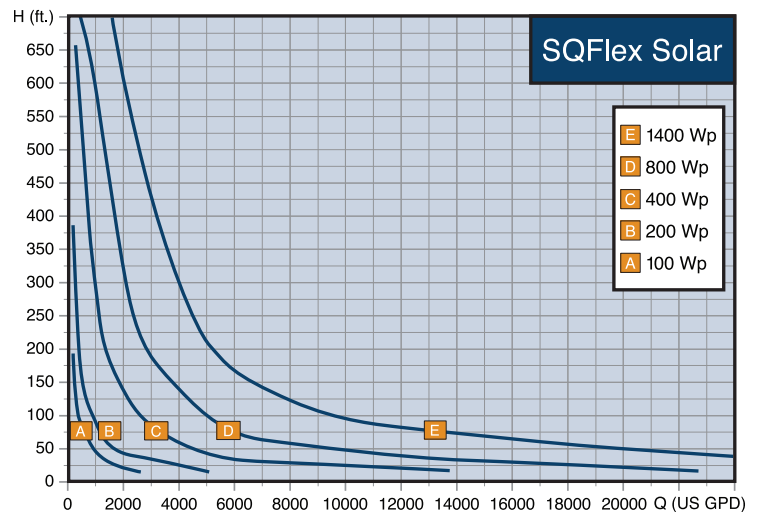
SQFLEX BACK-UP



SQFLEX SOLAR

Ideal for most pumping systems, SQFlex Solar provides a reliable supply of water whenever the sun shines. Extremely simple to operate with no moving parts and no maintenance - just clean the panels periodically.

SQFLEX SOLAR PERFORMANCE RANGE



CALL GEOTECH TODAY (800) 833-7958

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Grundfos SQFlex

GENERAL DATA

- **Solar Module** – Grundfos' GF 100 solar module has been developed especially for the SQFlex system. The solar module is equipped with plugs and sockets enabling easy and simple installation.
- **Generator** – In case the electricity supply from its primary source of energy is temporarily insufficient, the SQFlex system can be supplied by a generator.
- **Batteries** – The SQFlex system can be supplied by batteries with a voltage supply of 30-300V DC, maximum current 8.4 A.

Pumped Liquids

The SQF pumps are designed for pumping thin, clean, non-aggressive, non-explosive liquids, not containing solid or long fibered particles larger than sand grains.

Sand Content: 50 ppm

A higher sand content will reduce the pump life considerably due to wear.

pH: 5-9

Liquid Temperature: 32°F to 104°F (0°C to 40°C)

The pump can run at free convection (~ 0 fps) at a max. 104°F (40°C).

Pump

The SQF pump range comprises two pump technologies:

- 3" (7.6cm) **helical rotor pump** for high heads and small flows.
- 4" (10cm) **centrifugal pump** for low heads and large flows based on the Grundfos SPA pump.

All pump types are available in 304 stainless steel.

Motor

The motor has been developed specifically for the SQFlex system and is designed according to the permanent-magnet principle with built-in electronic unit and is available in only two sizes.

The motor speed range is 500-3600 rpm, depending on power input and load.

The motor is constructed in 304 stainless steel.

Voltage Supply

The motor can be supplied with either AC or DC voltage.

- 30-300V DC, PE
- 1 x 90 -240V -10%/+6%, 50/60 Hz, PE

IO 50 SQFlex Switch Box

The IO 50 is an on/off switch box designed for opening and closing the system power supply.

IO 101 SQFlex Switch Box

The IO 101 is an on/off switch box designed for opening and closing the system power supply and is used in solar-powered SQFlex systems with a back-up generator.

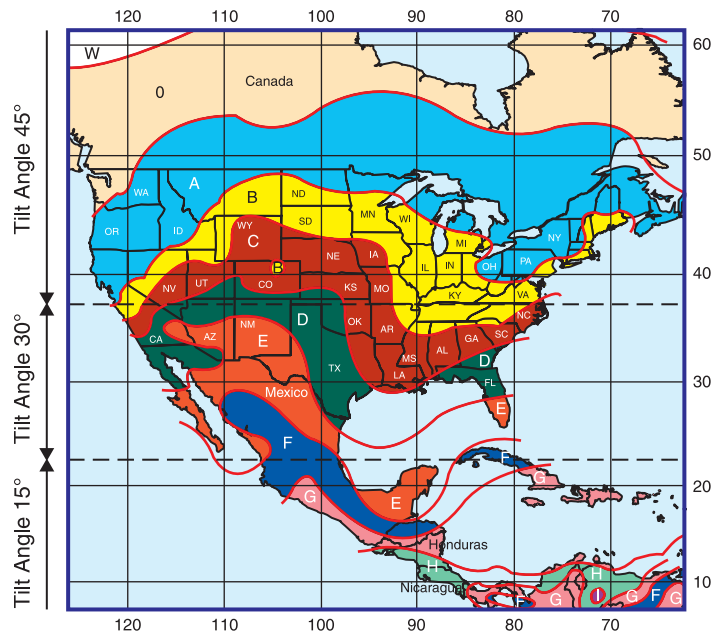
CU 200 SQFlex Control Unit

The CU 200 is a combined status and control unit for the SQFlex pump system. Moreover, the CU 200 enables connection of a level switch placed in a water reservoir or tank.

NORTH AMERICAN SOLAR ZONES

Solar modules located in the northern hemisphere should face south.

Solar modules located in the southern hemisphere should face north. Use a compass to position the modules as precisely as possible.



CABLE SIZING CHART

Panels	Power (Wp)	Voltage (Vmp)	Amps (Imp)	14 AWG	12 AWG	10 AWG	Panels In Series*	Parallel Sets**
1	100	70	1.4	290	461	733	1 (0)	0
2	200	140	1.4	580	922	1466	2 (1)	0
3	300	210	1.4	871	1383	2199	3 (2)	0
4	400	280	1.4	1161	1844	2932	4 (3)	0
6	600	210	2.9	435	692	1099	3 (4)	2 (1)
6	600	140	4.3	193	307	489	2 (3)	3 (2)
8	800	280	2.9	580	922	1466	4 (6)	2 (1)
8	800	140	5.7	145	231	366	2 (4)	4 (3)
9	900	210	4.3	290	461	733	3 (6)	3 (2)
10	1000	140	7.1	116	184	293	2 (5)	5 (4)
12	1200	280	4.3	387	615	977	4 (9)	3 (2)
15	1500	210	7.1	174	277	440	3 (10)	5 (4)
16	1600	280	5.7	290	461	733	4 (12)	4 (3)
18	1800	210	8.6	145	231	366	3 (12)	6 (5)
20	2000	140	14.3	58	92	147	2 (10)	10 (9)

Notes:
 Maximum cable length in ft.; uses a maximum 3% voltage drop.
 Based on the Grundfos GF100 panel.
 Maximum cable length between CU200 and SQFlex = 650 ft. (198 m).

* Number of series wire kits required.
 ** Number of parallel wire kits required.



Grundfos SQFlex

SQFLEX PUMP FEATURES



Helical Rotor Pump (3")

Designed to pump high levels very efficiently, these models allow pumping levels as deep as 820 ft. The 3 in. diameter allows the pump to go in installations where others can't.

Centrifugal Pump (4")

Based on Grundfos' 40 years of experience in submersible pumps, these models are capable of providing high flows, up to 80 gal/min., at moderate heads

Materials

All Stainless steel for long pump life.

Dry-Running Protection

This unique feature shuts down the pump if it detects water shortage. Every SQFlex pump comes standard with this sensor pre-installed, protecting the well from being over-pumped and the pump from damage.

Motor

Only one motor size covers the entire pump range. Designed for peak efficiency and complete reliability, the motor features integrated electronics, eliminating the need for complicated external controls.

Motor Protection

Built in protections against over-temperature, over-load, and over and under-voltage for reliability, as well as two-way communication with a control box to alert you in case there's a problem.

Any Voltage

The motor can operate under any voltage from 30 - 300 VDC and 90 - 240 VAC without additional controls, making sizing and installation easy, even as a retrofit to existing installations. AC power capabilities mean every SQFlex pump has the ability to use an AC generator for backup power.



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