

# 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 wind, solar, and 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

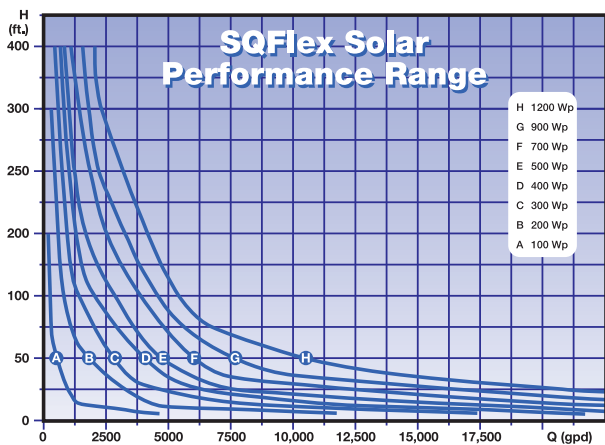
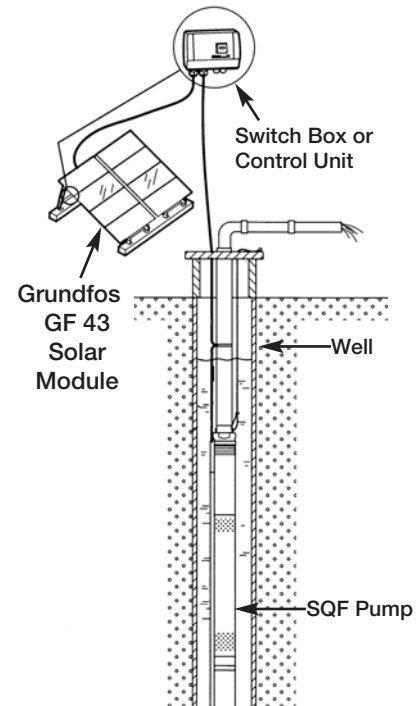
### APPLICATIONS

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
- Agriculture

### POWER OPTIONS

- Solar
- Wind
- Generator



**CALL GEOTECH TODAY (800) 833-7958**

**Geotech Environmental Equipment, Inc.**

2650 East 40th Avenue • Denver, Colorado 80205

(303) 320-4764 • (800) 833-7958 • FAX (303) 322-7242

email: sales@geotechenv.com website: www.geotechenv.com

# Renewable-Energy Based Pumping Systems



## Grundfos SQFlex

### GENERAL DATA

- **Solar Module** – Grundfos' GF 43 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, minimum current 7A.

### 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 SQFlex motor range comprises only one motor size, the MSF 3 with maximum power input (P1) of 900 W. The MSF 3 is a 3" (7.6cm) motor. The speed range for the motor is 500-3000 rpm depending on the power input and the load. The motor has been developed especially for the SQFlex system.

The motor is available in 304 stainless steel.

The motor is designed according to the permanent-magnet principle with built-in electrode unit.

### 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 100 Switch Box

The IO 100 switch box is an on/off switch for closing and opening the system voltage supply.

The IO 100 switch box is used together with SQFlex systems supplied solely by solar panels.

### IO 101 Switch Box

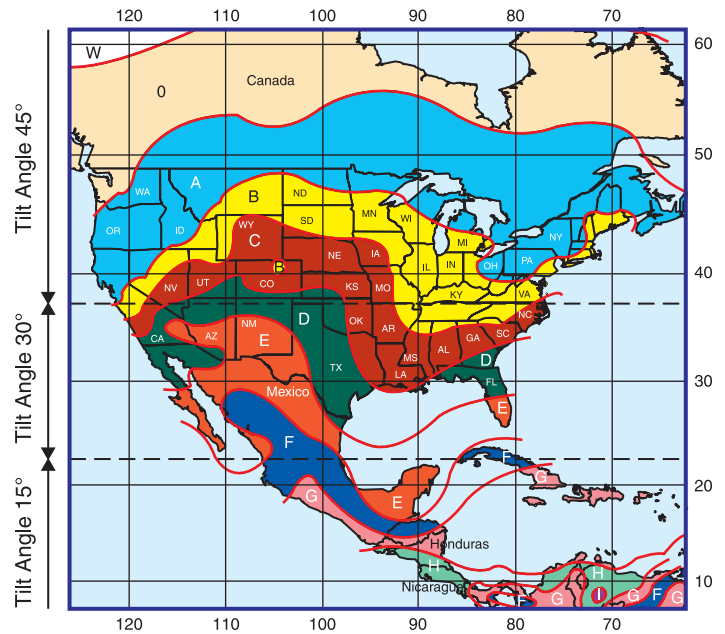
The IO 101 switch box is an on/off switch for closing and opening the system voltage supply.

The IO 101 switch box is used together with SQFlex systems supplied by solar panels and with a generator supply backup.

### CU 200 Control Unit

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

### NORTH AMERICAN SOLAR ZONES



### Sizing Table

Zone	Solar Radiation	Total Head (feet)														No. of Solar Modules GF 43	Power (Wp)
		20	40	60	90	120	160	180	220	260	300	340	360	390			
Zone D – Tilt Angle 30°	7.3 kWh/m² Per Day	Required Flow (gpd)														4	172
		4920	2980	2400	1450	890	711	674	587	502	415	333	288	227			
		25 SQF-3	11 SQF-2			6 SQF-2		3 SQF-2									
		11800	5290	4770	3560	2550	1720	1580	1300	1080	996	901	840	756			
		40 SQF-3	11 SQF-2	11 SQF-2			6 SQF-2 (C)		3 SQF-2								
		18200	8850	5920	4960	4060	3020	2610	2030	1780	1500	1260	1130	1060			
		75 SQF-3	25 SQF-3	11 SQF-2			6 SQF-2						3 SQF-2				
		23500	11800	8460	5590	4910	4100	3660	2800	2180	1940	1770	1680	1520			
		75 SQF-3	25 SQF-6	11 SQF-2			6 SQF-2										
		27900	16000	10800	6810	5360	4670	4340	3590	2850	2210	2020	1030	1820			
75 SQF-3	25 SQF-6	11 SQF-2			6 SQF-2												



Geotech is a Grundfos Environmental Master Distributor.