

GRUNDFOS[®]

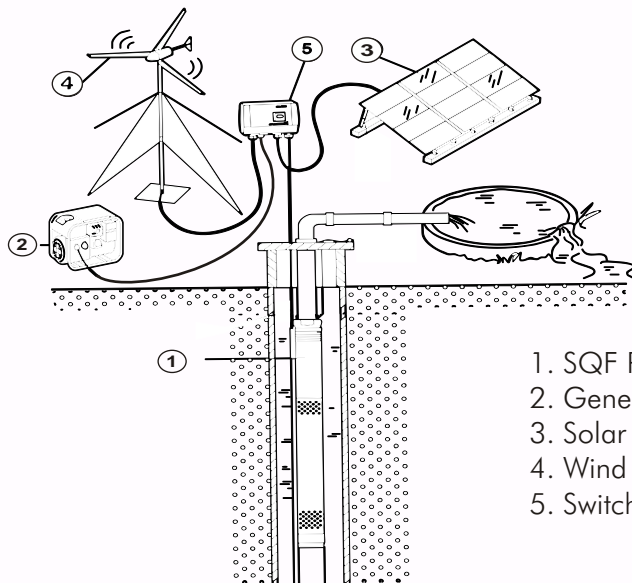
MADE IN DENMARK



DATA SHEET

Renewable Energy Water System

SQFlex



1. SQF Pump
2. Generator
3. Solar Array
4. Wind Turbine
5. Switch Unit

The Grundfos SQFlex pumping system is a revolutionary concept in water supply designed to work using the two most basic sources of renewable energy available - the sun and the wind. Its unique feature is the flexibility to be powered by photovoltaic solar modules, a wind driven generator or a combination of both, and the motors are also designed for battery supply and ac generator power for standby operation, the power source being selected by simple switching. At the heart of all SQFlex systems is the electronically controlled motor, which uses a sophisticated integral control module to accommodate variable voltage and frequency power inputs and also protects against abnormal operating conditions.

Another special feature is the alternative of submersible borehole type helical rotor or centrifugal pump ends to ensure maximum system efficiency throughout the performance range. With the option of seven different pump specifications the easy-to-use SQFlex computerised sizing system ensures selection of optimally efficient pump/power source combinations for all specified duty conditions. Solar systems are powered by a selectable number of four module arrays of the unique Grundfos GF43 photovoltaic modules and pump performance is dependant on the number of arrays installed.

With the ever-increasing requirement for economic and sustainable water supplies in remote areas renewable energy pumping systems are becoming the only logical solution. The combination of flexibility, performance, minimal operating costs, simplicity of installation and now acceptable investment cost that the SQFlex system offers is a major technological breakthrough making reliable and consistent water supply in remote areas a practical and economic reality.

Helical Rotor
Pump



Pump End

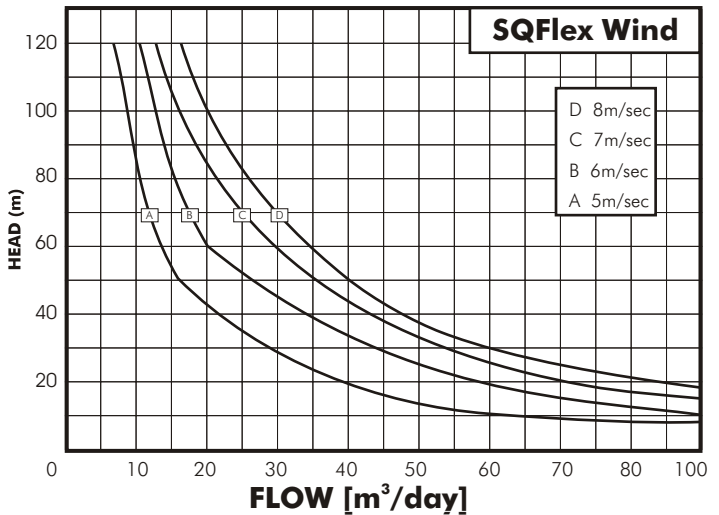
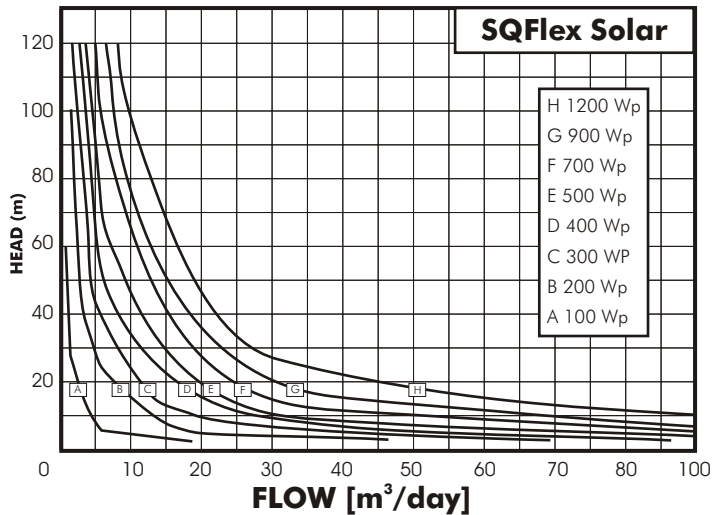
Centrifugal
Pump



Motor

Electronic
Control
Unit

PERFORMANCE CURVES



EQUIPMENT SPECIFICATION

Pump

A range of three models of helical rotor pumps for high heads and low flows (suitable for 3" boreholes) and four models of centrifugal pumps for low heads and high flows (suitable for 4" boreholes) are offered with stainless steel used extensively in construction for both pump designs.

Motor

One size of the unique 900W Grundfos MSF 3 high efficiency permanent magnet motor is specified with all pump types. The motor can be powered by either DC or AC voltage within the range of 30-300V DC and 1X90-240V, 50/60Hz AC. An integral control module protects against over and under voltage (except lightning), electrical overload and over temperature and effective dry running protection is provided by a sensor in the motor cable.

Control Units

A variety of switch boxes are available for the various installation options including IO100 for a manual solar system, IO101 for solar/generator systems and IO102 for a wind system. In addition a CU200 control unit is offered which provides for high-level switch control together with system monitoring and alarm indication.

Solar Modules

The Grundfos GF43 (43wp, 141V) amorphous silicon thin film photovoltaic solar modules are specially designed for optimal efficiency operation with SQ Flex systems though other proprietary modules can be used providing input voltage is in excess of 40V. Arrays are specified in sets of four parallel connected modules each providing 170wp power output, the number of arrays depending upon the duty requirement. Individual modules are dimensioned 1220mmx705mmx51mm and weigh 15kgs.

Wind Generator

Whisper H80 permanent magnet 120V AC type alternator powered by an advanced 3.1m diameter rotor blade (8m² swept area) to provide greater output at lower wind speeds. The unit develops peak power of 1,000W at 11m/sec (40km/hr) wind speed and will startup at 3m/sec (11km/hr) wind speed, total generation power being 6.3kWhr per day.

Accessories

A complete range of accessories including connecting cabling and fittings, drop cable, module support structures and wind generator towers are available to provide all necessary components for a complete site installation.

Pump Data

Pump Model	Dimensions (mm)			Weight (kgs)
	L	B	Rp	
SQF 0.6-2	1185	74	1¼"	9
SQF 1.2-2	1225	74	1¼"	10
SQF 2.5-2	1247	74	1¼"	10
SQF 5A-3	815	101	1½"	10
SQF 5A-6	875	101	1½"	10
SQF 8A-3	920	101	2"	11
SQF 14A-3	975	101	2"	12

AVAILABLE FROM

GR02D-07/07



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