
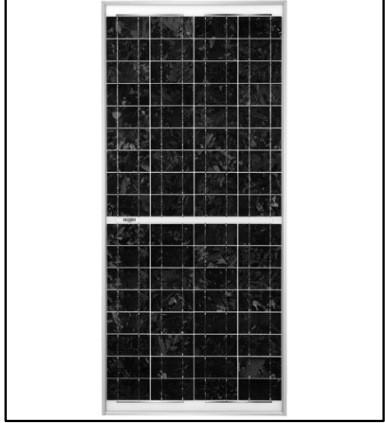
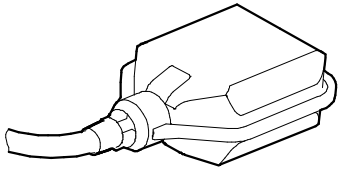



Position	Qty.	Description	Single Price
	1	<p data-bbox="329 153 451 182">11 SQF-2</p> <div data-bbox="329 184 711 611">  </div> <p data-bbox="716 583 1247 611">Note! Product picture may differ from actual product</p> <p data-bbox="329 638 1047 722">Product No.: 95027416 The 3" SQF pump with helical rotor is for high heads and low flows. The SQF pump fits only to the MSF 3 motor.</p> <p data-bbox="329 783 418 810">Liquid:</p> <p data-bbox="329 814 808 869">Liquid temp: 68 °F Density: 62.29 lb/ft³</p> <p data-bbox="329 898 451 926">Technical:</p> <p data-bbox="329 930 727 957">Approvals on pump nameplate: CE</p> <p data-bbox="329 987 451 1014">Materials:</p> <p data-bbox="329 1018 889 1129">Pump: Stainless steel DIN W.-Nr. 1.4301 AISI 304 Impeller: DIN W.-Nr. 1.4301</p> <p data-bbox="329 1159 467 1186">Installation:</p> <p data-bbox="329 1190 808 1245">Pump outlet: 1 1/4 NPT" Minimum borehole diameter: 2.99 in</p> <p data-bbox="329 1274 508 1302">Electrical data:</p> <p data-bbox="329 1306 808 1333">Mains frequency: 50 / 60 Hz</p> <p data-bbox="329 1392 418 1419">Others:</p> <p data-bbox="329 1423 768 1507">Net weight: 6.39 lb Gross weight: 10.6 lb Shipping volume: 0.85 ft³</p>	Price on request

Position	Qty.	Description	Single Price
	5	<p data-bbox="329 163 402 193">GF 80</p>  <p data-bbox="716 583 1247 613">Note! Product picture may differ from actual product</p> <p data-bbox="329 640 1312 781">Product No.: 96616391 The GF 80 solar module is of the monocrystalline type. The solar module is equipped with plugs for easy connection of several modules. The solar modules must be mounted on a support structure, tilted at an angle ensuring optimum utilization of the solar energy.</p> <p data-bbox="329 892 467 921">Installation:</p> <p data-bbox="329 926 824 955">Range of ambient temperature: -40 .. 185 °F</p> <p data-bbox="329 982 506 1012">Electrical data:</p> <p data-bbox="329 1016 808 1186">Maximum power point voltage: 33,3 V Open circuit voltage: 41,5 V Max power point current: 2.4 A Module shortcut current: 2.6 A Maximum power output: 80 W Solar module type: Crystalline</p> <p data-bbox="329 1243 418 1272">Others:</p> <p data-bbox="329 1276 831 1360">Brand: GRUNDFOS Net weight: 17 lb Shipping volume: 2.12 ft³</p>	Price on request

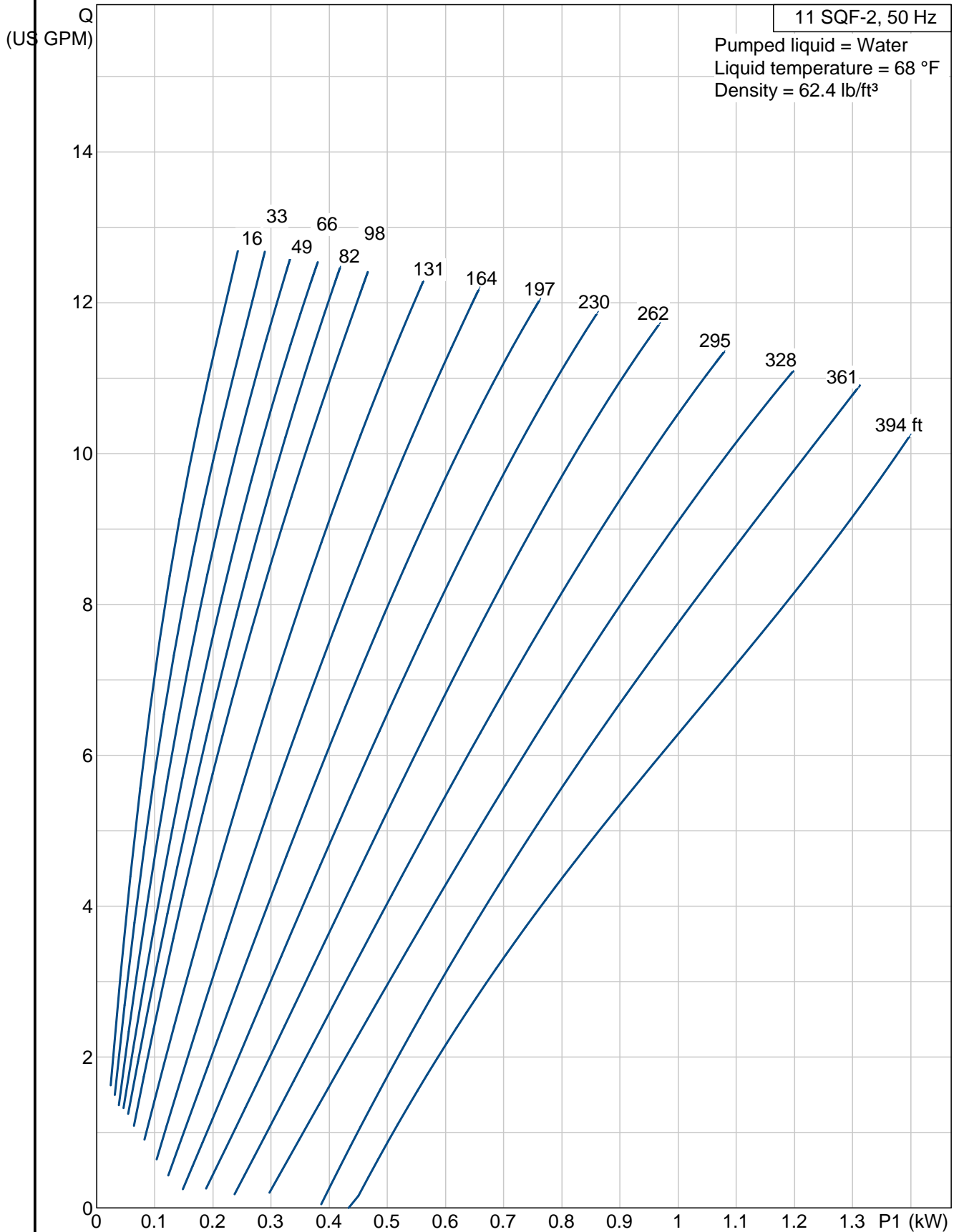
Position	Qty.	Description	Single Price
	1	<p data-bbox="329 153 748 184">Product name: Level switch (on/off)</p>  <p data-bbox="716 533 1247 564" style="text-align: center;">Note! Product picture may differ from actual product</p> <p data-bbox="329 590 581 621">Product No.: 00010748</p> <p data-bbox="329 621 581 653">Product No: 00010748</p> <p data-bbox="329 653 477 684">EAN number:</p> <p data-bbox="329 789 505 821">Electrical data:</p> <p data-bbox="329 821 743 852">Length of cable: 10 ft</p>	Price on request

Position	Qty.	Description	Single Price
	1	<p data-bbox="329 153 418 182">CU 200</p> <div data-bbox="329 184 711 611" style="border: 1px solid black; padding: 5px;">  </div> <p data-bbox="716 583 1247 611">Note! Product picture may differ from actual product</p> <p data-bbox="329 638 581 667">Product No.: 96625360</p> <p data-bbox="329 695 1287 772">The CU 200 control unit is a combined status, control and communication unit especially developed for the SQFlex system. Furthermore, the CU 200 enables connection of a level switch.</p> <p data-bbox="329 806 808 835">The CU 200 incorporates cable entries for ...</p> <ul data-bbox="329 842 613 947" style="list-style-type: none"> -power supply connection, -pump connection, -earth connection, -level switch connection. <p data-bbox="329 978 1304 1087">Communication between the CU 200 and the pump takes place via the pump power supply cable. This is called mains borne signalling (or Power Line Communication), and this principle means that no extra cables between the CU 200 and the pump are required. It is possible to start, stop and reset the pump by means of the on/off button.</p> <p data-bbox="329 1119 686 1148">The CU 200 control unit offers:</p> <ul data-bbox="329 1152 540 1205" style="list-style-type: none"> -System monitoring -Alarm indication. <p data-bbox="329 1236 1190 1266">The following indications allow the operation of the pump to be monitored:</p> <ul data-bbox="329 1270 719 1350" style="list-style-type: none"> -Water reservoir is full (level switch) -Pump is running -Input power. <p data-bbox="329 1381 906 1411">The CU 200 offers the following alarm indications:</p> <ul data-bbox="329 1415 630 1608" style="list-style-type: none"> -Dry running -Service needed in case of: <ul data-bbox="370 1472 613 1577" style="list-style-type: none"> - no contact to pump - overvoltage - overtemperature - overload. -Insufficient energy supply. <p data-bbox="329 1640 1109 1669">In addition, the CU 200 shows the symbols of the energy supply options.</p> <p data-bbox="329 1780 451 1810">Technical:</p> <p data-bbox="329 1814 727 1843">Approvals on nameplate: CE</p>	Price on request

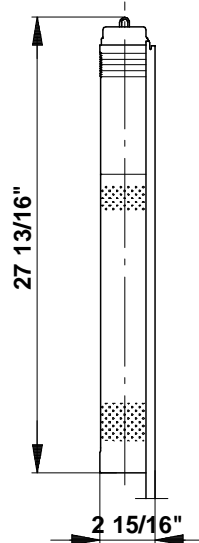
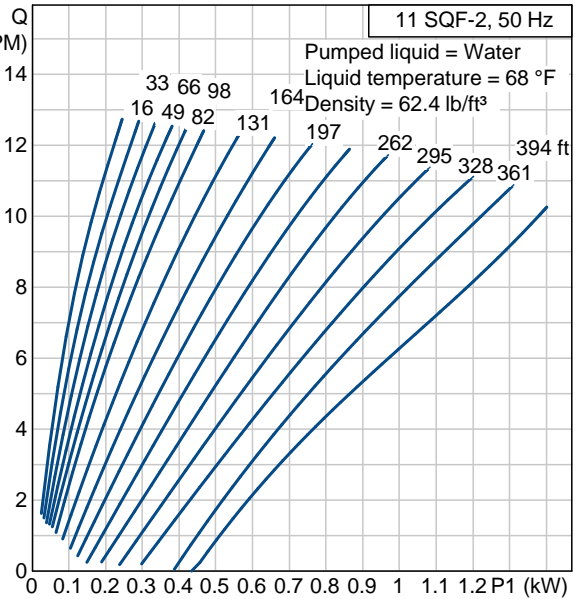
Position	Qty.	Description	Single Price
		<p>Installation: Range of ambient temperature: 86 .. 122 °F Relative humidity: 95 %</p> <p>Electrical data: Rated voltage ac: 1 x 90-240 V Rated voltage dc: 30-300 V Enclosure class (IEC 34-5): 55</p> <p>Others: Net weight: 4.41 lb</p>	

Position	Qty.	Description	Single Price						
	1	<p data-bbox="329 153 406 182">IO 101</p> <div data-bbox="329 184 711 611">  </div> <p data-bbox="716 583 1247 611">Note! Product picture may differ from actual product</p> <p data-bbox="329 638 581 667">Product No.: 96475074</p> <p data-bbox="329 695 1299 863"> The IO 101 switch box is designed specifically for solar powered SQFlex systems. The IO 101 enables the connection of a generator supply back-up in case of insufficient solar radiation. The switching between solar power and generator must be made manually. In case the generator is stopped manually or runs out of fuel, the IO 101 will automatically switch to the solar energy supply. The IO 101 functions as a connection box joining all necessary cables. </p> <p data-bbox="329 978 467 1008">Installation:</p> <p data-bbox="329 1010 824 1039">Range of ambient temperature: -22 .. 122 °F</p> <p data-bbox="329 1066 505 1096">Electrical data:</p> <table data-bbox="329 1098 966 1182"> <tr> <td>Mains frequency:</td> <td>50 / 60 Hz</td> </tr> <tr> <td>Rated voltage:</td> <td>1 x 230 VAC - 15%/+10%</td> </tr> <tr> <td>Enclosure class (IEC 34-5):</td> <td>55</td> </tr> </table>	Mains frequency:	50 / 60 Hz	Rated voltage:	1 x 230 VAC - 15%/+10%	Enclosure class (IEC 34-5):	55	Price on request
Mains frequency:	50 / 60 Hz								
Rated voltage:	1 x 230 VAC - 15%/+10%								
Enclosure class (IEC 34-5):	55								

95027416 11 SQF-2 60 Hz

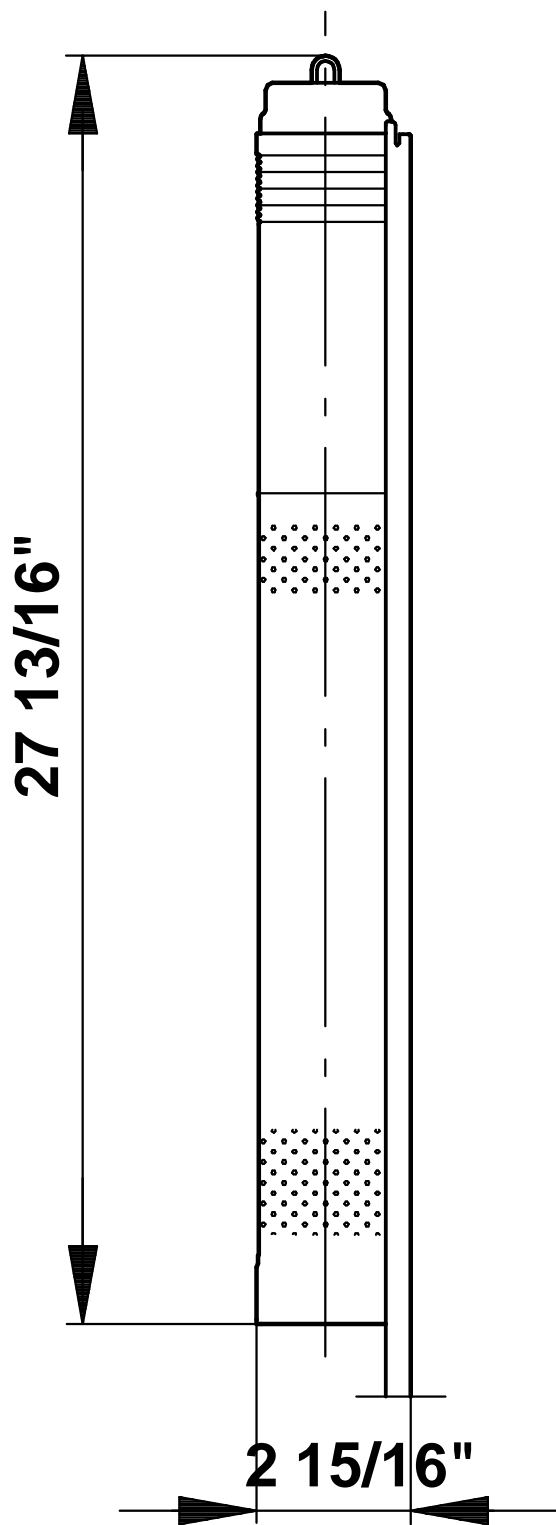


Description	Value
Product name:	11 SQF-2
Product No:	95027416
EAN number:	5700834791567
Technical:	
Approvals on pump nameplate:	CE
Stages:	2
Valve:	Y
Materials:	
Pump:	Stainless steel DIN W.-Nr. 1.4301 AISI 304
Impeller:	DIN W.-Nr. 1.4301
Rotor:	Stainless steel DIN W.-Nr. 1.4301 AISI 304
Stator:	Stainless steel / EPDM DIN W.-Nr. 1.4301 AISI 304
Installation:	
Pump outlet:	1 1/4 NPT"
Minimum borehole diameter:	2.99 in
Liquid:	
Liquid temp:	68 °F
Density:	62.29 lb/ft³
Electrical data:	
Mains frequency:	50 / 60 Hz
Others:	
Net weight:	6.39 lb
Gross weight:	10.6 lb
Shipping volume:	0.85 ft³
Sales region:	North America
Product name:	GF 80
Product No:	96616391
EAN number:	5700834807084
Installation:	
Range of ambient temperature	-40 .. 185 °F
Electrical data:	
Maximum power point voltage:	33,3 V
Open circuit voltage:	41,5 V
Max power point current	2.4 A
Module shortcut current	2.6 A
Maximum power output	80 W
Solar module type:	Crystalline
Others:	
Brand:	GRUNDFOS
Net weight:	17 lb
Shipping volume:	2.12 ft³
Product name:	Level switch (on/off)
Product No:	00010748
Electrical data:	
Length of cable:	10 ft
Product name:	CU 200
Product No:	96625360
EAN number:	5700835135131



Description	Value
Technical:	
Approvals on nameplate:	CE
Installation:	
Range of ambient temperature	86 .. 122 °F
Relative humidity:	95 %
Electrical data:	
Consumption:	0.0067 HP
Rated voltage ac:	1 x 90-240 V
Rated voltage dc:	30-300 V
Enclosure class (IEC 34-5):	55
Back-up fuse:	10 A
Maximum load:	100 mA
Others:	
Net weight:	4.41 lb
Product name:	IO 101
Product No:	96475074
EAN number:	5700395151787
Installation:	
Range of ambient temperature	-22 .. 122 °F
Electrical data:	
Mains frequency:	50 / 60 Hz
Rated voltage:	1 x 230 VAC - 15%/+10%
Enclosure class (IEC 34-5):	55
Maximum load:	225 VDC, 265 VAC, 7 A

95027416 11 SQF-2 60 Hz



Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

95027416 11 SQF-2 60 Hz

Input - summary

Water volume (max): 1585 US GPD
 Peak month: February
 Head: 45.7 ft
 Sun tracking: No (fixed)
 Solar data location: Brazzaville (4,3S, 15,2E)
 Data source: U Lowell : COR4A, type P

Products

Pump: 11 SQF-2, 1 x 95027416
 Solar module: GF 80, 5 x 96616391
 Switch box / control unit: CU 200, 1 x 96625360, IO 101, 1 x 96475074
 Level switch: Level switch (on/off), 1 x 00010748

Sizing results - summary

Typical performance at solar radiation 800 W/m²

Flow: 5.3 US GPM
 Friction loss: 0.7 ft
 Total head: 151.0 ft
 Total cable loss: 0.6 %

Water production, Peak flow and Price

Total water production per year: 589600 gal
 Avg. water production per day: 1615 US GPD
 Average water production per watt per day: 15.28 l/Wp/day
 Peak flow: 6.7 US GPM

Cables and pipes:

Pump cable (pump - solar array)
 Length: 82 ft
 Size: 14 AWG
 Pipe Length: 82 ft
 Pipe diameter: any SCH

Solar module configuration:

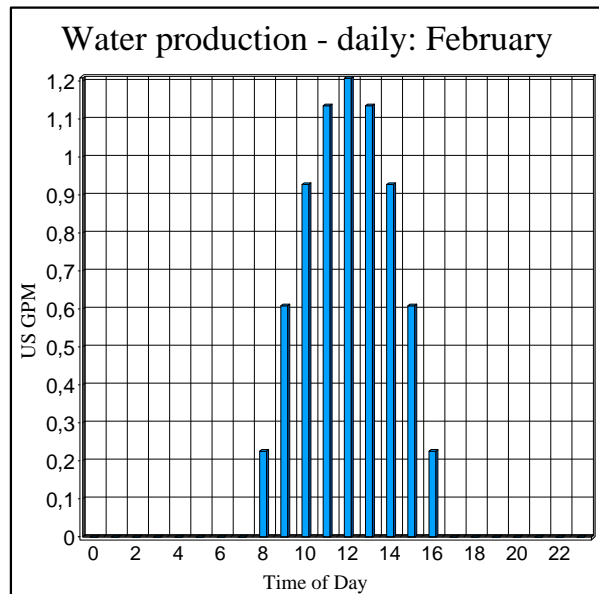
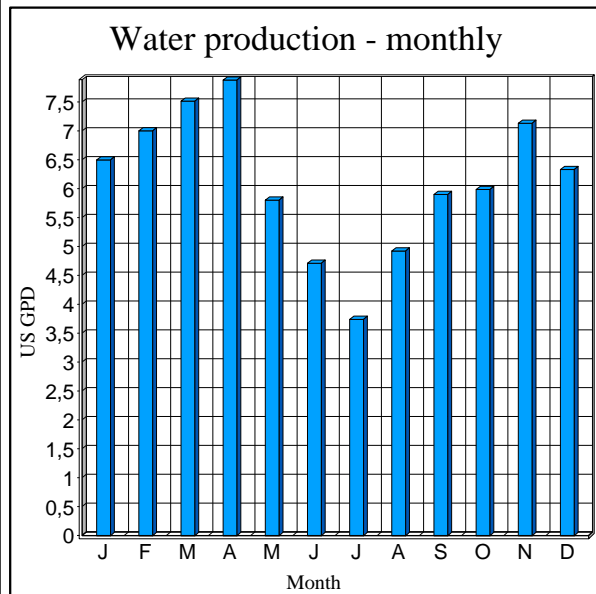
Number of solar modules in series: 5, in parallel: 1
 Solar array rated power: 0.4 kWp
 Solar array rated volts: 166.5 V
 Sun tracking: No (fixed)

System performance - monthly average

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Water production [US GPD]	7	7	8	8	6	5	4	5	6	6	7	6
Energy production [kWh/day]	1.8	1.9	2.0	2.0	1.6	1.5	1.3	1.5	1.6	1.7	1.9	1.7
Radiation horizontal [kWh/m ² day]	5.0	5.1	5.3	5.4	4.3	3.9	3.4	4.1	4.5	4.6	5.2	4.9
Radiation tilt [kWh/m ² day]	5.3	5.5	5.8	6.0	4.8	4.3	3.8	4.5	4.9	5.0	5.6	5.2
Tilt angle [deg.]	4	4	4	4	4	4	4	4	4	4	4	4
Avg. Temp. [°F]	77	77	77	77	77	77	77	77	77	77	77	77
Temp. Variation [K]	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

AC power (backup) - water production

Recommended minimum output: 2.01 HP
 AC 115 V: Produces: 12.2 US GPM
 AC 230 V: Produces: 12.3 US GPM



95027416 11 SQF-2 60 Hz

Input

Head: 45.7 ft

Pump cable (pump - solar array)
Length: 82 ft
Size: 14 AWG

Sun tracking: No (fixed)

Basic Orientation: 180 deg.
Reflection (surface): 0.20% (Grass dry)

Solar module type: GF 80
Number of solar modules: (in series: GF 80)

Pump type pre-selected:
Pump outlet: NPT

Level switch option: No
Switch box / control unit: CU 200 + IO 101 (230V)

95027416 11 SQF-2 60 Hz

Installation figures

Location

Solar data

Location: Brazzaville (4,3S, 15,2E)
Data source: U Lowell : COR4A, type P

Pump

Pump type: 11 SQF-2

Well and pipes

Head (Height between (lowered) water level in well and water level in tank/reservoir): 45.7 ft
Required borehole capacity (peak flow): 6.7 US GPM
Pipe diameter: 1 1/4" SCH 40
Pipe length total: 82 ft

Cables

Pump cable (pump - solar array)
Length: 82 ft
Size: 14 AWG
Cable loss max: 2 %

Solar modules

Solar module: GF 80, 80 W, Crystalline
Number of solar modules in series: 5, in parallel: 1
Solar array rated power: 0.4 kWp
Solar array rated volts: 166.5 V
Sun tracking: No (fixed)

Accessories

Level switch: Level switch (on/off)
Switch box / control unit: CU 200, IO 101

AC power (backup) - water production

Recommended minimum output: 2.01 HP
AC 115 V: Produces: 12.2 US GPM
AC 230 V: Produces: 12.3 US GPM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tilt angle [deg.]	4	4	4	4	4	4	4	4	4	4	4	4

Solar array - basic orientation (azimuth): 180 deg.
(0° = south, 90° = west, 180° = north, 270° = east)
Reflection (surface): 0.20% (Grass dry)

95027416 11 SQF-2 60 Hz

Input - summary

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 Peak month: February
 Head: 45.7 ft
 Sun tracking: No (fixed)
 Solar data location: Brazzaville (4,3S, 15,2E)
 Data source: U Lowell : COR4A, type P

Products

Pump: 11 SQF-2, 1 x 95027416
 Solar module: GF 80, 5 x 96616391
 Switch box / control unit: CU 200, 1 x 96625360, IO 101, 1 x 96475074
 Level switch: Level switch (on/off), 1 x 00010748

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 Length: 82 ft
 Size: 14 AWG
 Pipe Length: 82 ft
 Pipe diameter: any SCH

Solar module configuration:

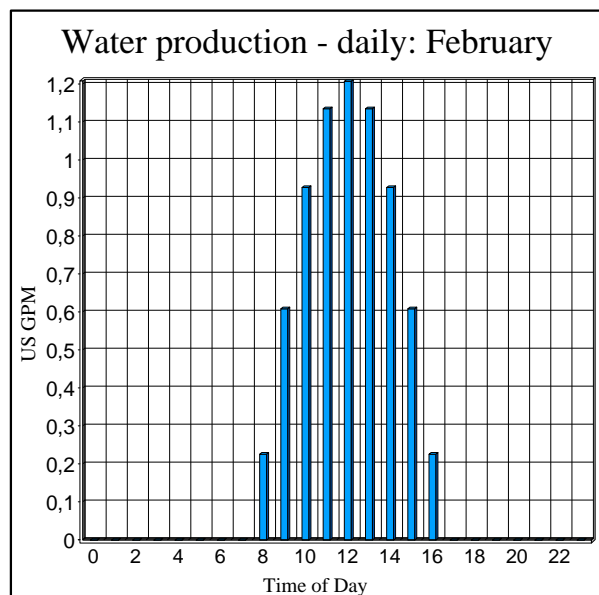
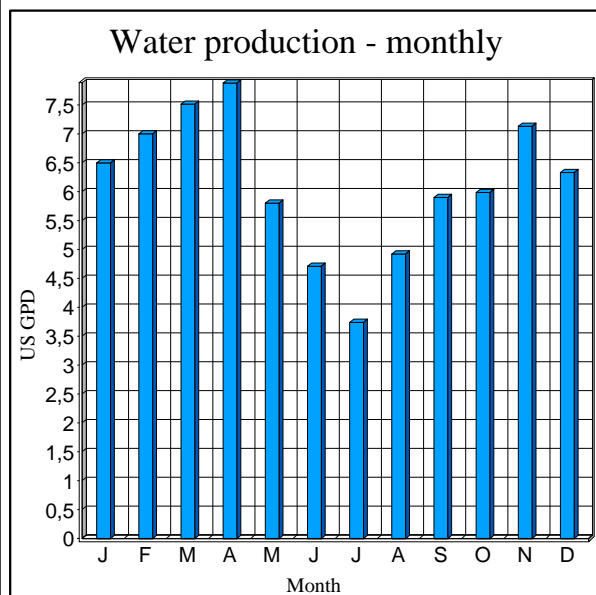
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 Solar array rated volts: 166.5 V
 Sun tracking: No (fixed)

System performance - monthly average

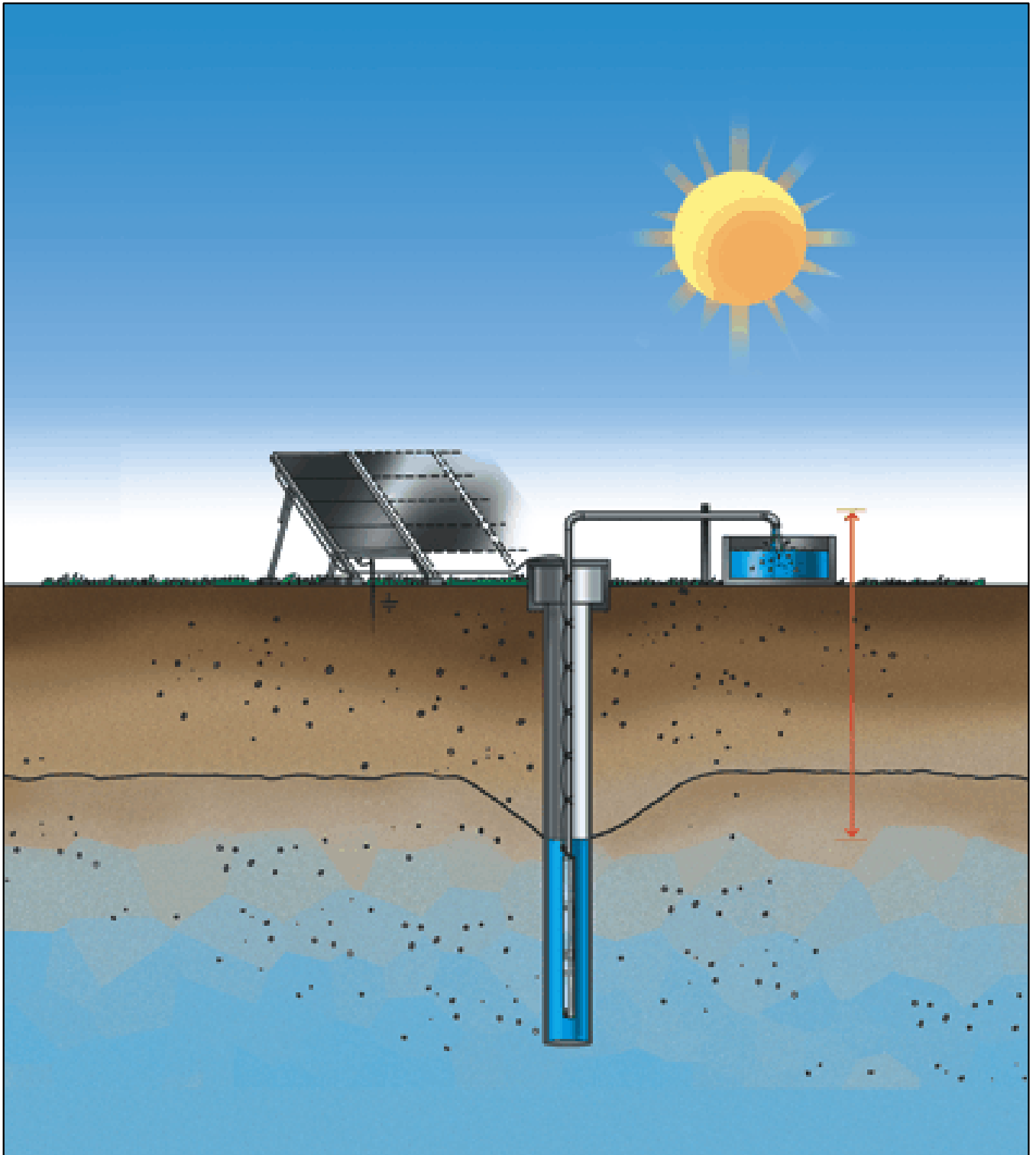
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Water production [US GPD]	7	7	8	8	6	5	4	5	6	6	7	6
Energy production [kWh/day]	1.8	1.9	2.0	2.0	1.6	1.5	1.3	1.5	1.6	1.7	1.9	1.7
Radiation horizontal [kWh/m ² day]	5.0	5.1	5.3	5.4	4.3	3.9	3.4	4.1	4.5	4.6	5.2	4.9
Radiation tilt [kWh/m ² day]	5.3	5.5	5.8	6.0	4.8	4.3	3.8	4.5	4.9	5.0	5.6	5.2
Tilt angle [deg.]	4	4	4	4	4	4	4	4	4	4	4	4
Avg. Temp. [°F]	77	77	77	77	77	77	77	77	77	77	77	77
Temp. Variation [K]	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

AC power (backup) - water production

Recommended minimum output: 2.01 HP
 AC 115 V: Produces: 12.2 US GPM
 AC 230 V: Produces: 12.3 US GPM



Installation illustration



Order Data:

11 SQF-2

Amount 1

Product No 95027416

GF 80

Amount 5

Product No 96616391

Level switch (on/off)

Amount 1

Product No 00010748

CU 200

Amount 1

Product No 96625360

IO 101

Amount 1

Product No 96475074

Total: Price on request