

SOLAROPIA

INNOVATIONS IN SOLAR PUMPING TECHNOLOGY

SOLAR CONTAINERIZED RO PLANTS

Solar Compact Brackish and Sea Water Desalination Plants



S-ROC

WORLD'S FIRST READY TO DEPLOY SOLAR RO PLANTS

MODELS UP TO 150,000 GPD (500 M³/DAY)

SOLAR RO COMPACT PLANTS (S-ROC)

SRO-C is a complete ready to deploy solar RO plant housed in insulated standard containers of 20', and 40' designated for villages, small towns and industrial RO applications. SRO-C plants are easy to install and operate and are offered in three classes to treat deep-well brackish water, surface brackish water and seawater desalination plants. Models are available from 5000 GPD (20 m³/day) up to 500,000 GPD (200 m³/day).



MAIN FEATURES

- Mounted in standard well-insulated container sizes: 20', 32' and 40'
- Operates off-grid in rural areas and in hybrid mode with AC in urban areas
- Easy to deploy and to operate; practically installs in one day
- Resist winds up to 100 miles/h (170 km/h)
- Heavy-Duty designed for harsh and high-temperature environments
- Built-in full plant protection both operational and electrical
- Easy to operate with TFT touch screen or set automatic mode to start/stop.
- Built-in remote operation and monitoring



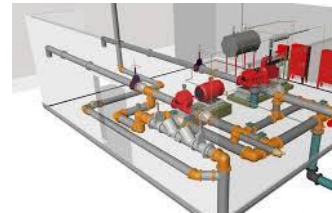
BUILT-IN PLANT PROTECTION

PUMP ELECTRICAL PROTECTION

- High voltage protection
- Power surge protection
- Phase loss protection
- GFIC protection
- Emergency halt protection
- Main turbulence protection

PUMP OPERATION PROTECTION

- Soft-start and Soft-shutdown
- Dry-run protection
- High pressure protection
- Pipe leakage protection
- Flow compensation
- Pipe fill protection



EASY TO OPERATE

- Auto start in solar mode (No need to turn pumps ON/OFF)
- Auto-switching between power modes (Solar-Hybrid mode)
- Boost –Decrease Flow Rate (Manual, Time Set, Remote via GPRS)
- Built in monitoring and distant data log transmission via GPRS (Flow-Rate, Daily Pumped Volume, Solar Power (kW), AC (kW))



PLANT CLASSES

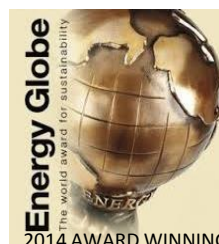
Plant Class	Water Source	TDS Range	Max Capacity (GPD, m ³ /d)	Class Specific
S-ROC-W	Deep-Wells	Up to 15,000	50,000 GPD 200 m ³ /d	Deep Well solar pumps up to 2,000' (700m) are included
S-ROC-S	Surface	Up to 5,000	100,000 GPD 500 m ³ /d	Micro/Ultrafiltration are added prior to RO stage. Oil-Water separator can be added per special order
S-ROC-D	Seawater	Up to 40,000	25,000 GPD 100 m ³ /d	Energy Efficient RO technology for seawater desalination Plants

PLANT ORDERING REFERENCE

S-ROC	C	P	TDS	H
Class: S, W, D		Productivity	TDS (PPM)	Well Head (For S-ROC-W class)

MORE THAN 800 PLANTS DEPLOYED SINCE 2011

S-ROC plants have been deployed in more than 800 towns and villages worldwide and awarded the prestigious Globe Energy Award in 2014 for their economic advantage – it reduces RO operating cost by 50% compared to grid or diesel generators.



SOLAR RO PLANTS FOR BRACKISH SOURCES

Class Ref: **S-ROC-BW**



S-ROC-W class offers Solar RO plants for brackish water with TDS up to 15000 ppm from deep-wells up to 2000' (700m). Applications covers rural towns and villages , oil fields , work camps, small factories, hospitals, and breweries. Please indicate

Class Ref: **S-ROC-BS**



S-ROC-S class offers Solar RO plants for brackish and polluted surface water up to 15,000 TDS and 1,500 TTS. S-ROC has two plants in one: MF/UF plant and RO plant. Applications: towns and villages along polluted rivers and lakes, small factories, hospitals and breweries.

SOLAR POWER REFERENCE FOR S-ROC-X CLASS

Volume Per Day Q		TDS (PPM)/ RO Pump Pressure (bar-psi)				
		TDS 1500	TDS 3000	TDS 5000	TDS 10000	TDS 15000
GPD	m3/d	7 bar 100psi	10bar 150psi	15 bar 200 psi	20bar 300 PSI	25bar 375 PSI
2,500	10	1.5 KW	3 kw	4.5 KW	6KW	7.5KW
7,500	25	3 KW	6kw	7.5 KW	12KW	15 KW
15,000	50	6 KW	9kw	12 KW	18KW	24KW
25,000	100	9 KW	12 kw	18 KW	24KW	36kw
50,000	200	12 KW	18 kw	24KW	36KW	48KW

MODELS REFERENCE

S-ROC-X-T-Q

X: Source (W=WELLS, S=Surface)

T: Source TDS

Q: Volume per day

SEA WATER SOLAR RO PLANTS

S-ROC-D CLASS



S-ROC-D class is designated for seawater desalination plants. It embeds Solar –VFDs for high pressure RO pumps up to 1000 PSI (TDS up to 45,000). Typical applications include coastal small towns and villages, resorts, ships and power plants.

MODELS REFERENCE : S-ROC-D-T-Q

SOLAR POWER REFERENCE FOR S-ROC-D CLASS

Volume Per Day Q		TDS (PPM)/ R) Pump Pressure (bar-psi)		
		TD 25000	TDS 35000	TDS 45000
GPD	m3/d	30 bar 450 PSI	50 bar 750 PSI	65 bar 1000 PSI
2,500	10	9 KW	12 KW	18 KW
7,500	25	18 KW	24 KW	30 KW
15,000	50	24 KW	36 KW	48 KW
25,000	100	36 KW	48 KW	72 KW

NOTE Solar feed pumps can be added to ROC plants. Please consult our SPI-C –S series datasheet to select proper solar pumps to feed ROC–D plants.

**RELIABLE- EFFICIENT –DURABLE-ECONOMIC SMALL RO PLANTS
OPERATE FOR 15 YEARS WITHOUT POWER COST**

Specifications Features	Description				
Total Plant Pumping Power (HP) Total PV Power in KW	5 HP 6KW PV	10 HP 12KW PV	15 HP 18KW	Up to 25 HP Up to 36 KW PV	Up to 50 HP up to 60 KW PV
Container Size / No of Containers	20'/1	20'/1	40'/1	40'/2	40'/3
Operating Power Modes	1.Solar Mode (S): Solar DC Input Only 2.Hybrid Mode(H): Solar and AC input (AC Complementary to Solar-No switching needed)				
3-Pahse-AC Voltage to RO Pumps					
Pump Voltage	Class 2 (200 V 3-Phase-AC Class)		Class 4 (400V 3-Phase- AC Class)		
Input AC Voltage (Hybrid Mode)	3-Phase-AC 200-240 V @ 50/60 Hz		3-Phase-AC 380-480 V @ 50/60 Hz		
Solar VFD Voltage Range	208V-240V 3-Phase-AC 50/60 Hz ~ Frequency		380-480V 3-Phase-AC 50/60 Hz ~ Frequency		
DC Input Voltage					
Input Voltage (DC) in Serial PV Array	335 VDC-400 VDC max		600-800 VDC max		
MPPT Operating Voltage (DC)	290 VDC--400 V DC max		550--800 VDC max		
Data Monitoring /Data Logging & Transmission					
HMI Types	Local: TFT Touch screen 4" (8" Option) for system parameters setting and Monitoring Local: LCP 3" menu driven with key pad for pump parameters setting /Pump data Monitoring Remote: Built-In Modbus/Profibus (RTU, TCP) Option: add GPRS GSM/CDMA				
Local Monitoring	Power mode (S, H) RPM, Operating Frequency, Pump Operating Power (KW) Flow Rate, Daily Pumping Volume (in Solar Mode), Solar Operating Hours , Daily Solar mode Power(KW), Total Solar Power since Installation.				
Data Logging / Data Transmission	Data logging for 12 Months with 5 minutes intervals. Remote: 5 seconds Intervals				
Local & Remote Operation					
Plant Operation and Control	Local on TFT Screen: Start/Stop, INC/DEC Flow rate, Change mode (Solar/Hybrid), Auto Operation (start when solar is available), Time set operation External & Remote operation (Modbus, Profinet, GPRS. PLC Built in Functions with A/D Interface - Start/Stop sensors such as Level Tank, Pressure & Temp. Sensors - Change RPM by external command - Export System status (On/Off) , Power Mode status (S/H) -Export data: Performance Data above				
Built-In Automatic Pump Protection					
Pump Electrical Protection	Overvoltage, Power surge, Overload, Mains turbulence, phase lose, short-circuit				
Pump Operation Protection	Dry run, High Pressure, Pipes leakage detection, emergency stop, end of curve operation				
Environmental Protection					
PV mounted structure	Wind Resistant up to 100 miles/h (170km/h)				
Solar -VFD	NEMA 3 R, Indoor/outdoor installation/UV Resistant Enclosure Ambient Temperature: (15-130F, -10-55C°), Humidity : 5%-95%				
System Electrical Protection	Lightening protection, GFI, Ground protection, Kill-Switch disconnect				
Additional Sources (options)					
External DC Power option	24VDC output to operate external devices (such as RO PLC)				
External AC Power Option	0.5KW-up to 2KW 3pahse-AC for operator and plant use				
Service Life /Warranty /Origin	10 years /3 years / USA				

