



**SOLAR WATER &
BOREHOLE PUMP CHARTS FOR :
LORENTZ PS15K (PS15000)**

Brought to you with the compliments of:

SOLAR MAN



Silver Lakes, Pretoria East, South Africa

| +27 (0)12 941 1582 | +27 (0)12 809 1525 |

| Info2@solarm.co.za | www.solarm.co.za |

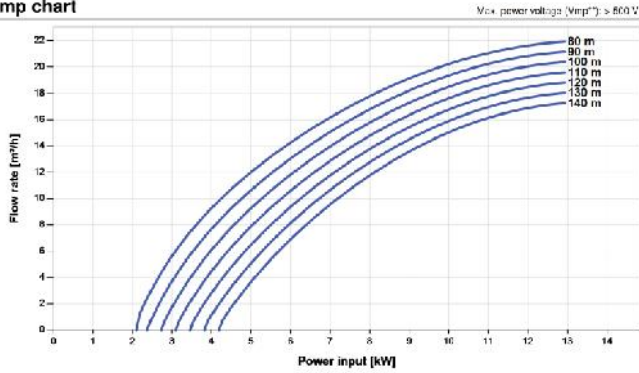
LORENTZ PS15K (PS15000)



PS15k C-SJ17-18

Solar submersible pump system for 6" wells

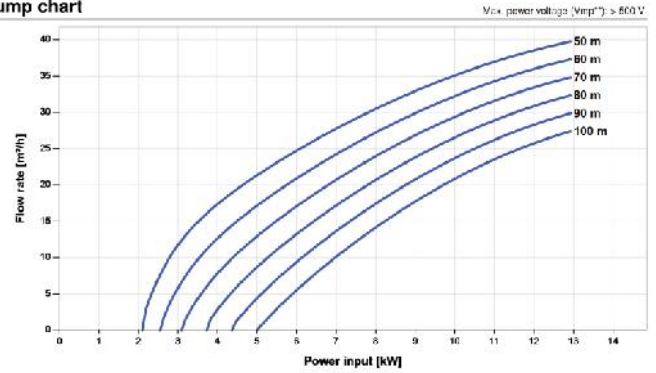
Pump chart



PS15k C-SJ30-12

Solar submersible pump system for 6" wells

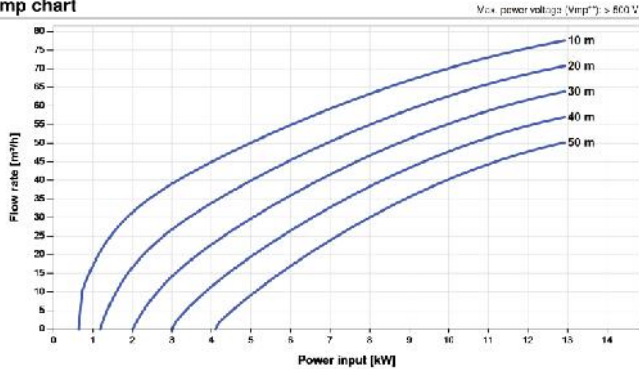
Pump chart



PS15k C-SJ42-6

Solar submersible pump system for 6" wells

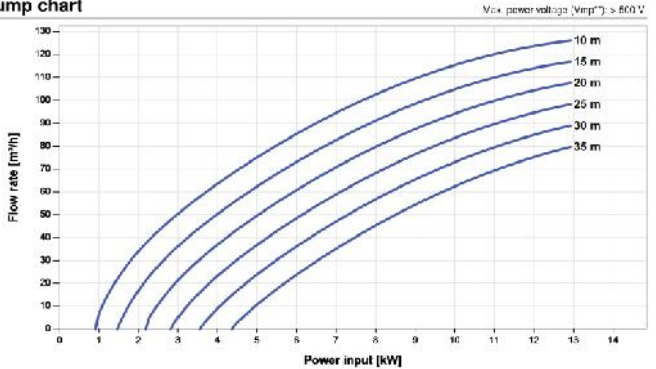
Pump chart



PS15k C-SJ75-3

Solar submersible pump system for 8" wells

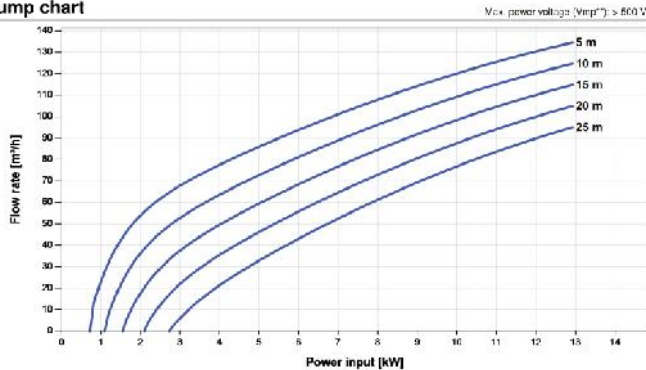
Pump chart



PS15k C-SJ95-2

Solar submersible pump system for 8" wells

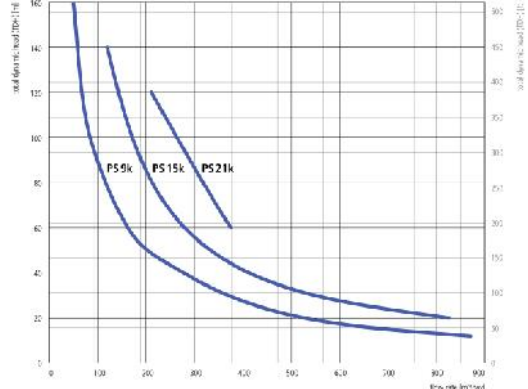
Pump chart



Daily Flow Rate

and other 6" and 8" well flow rates per day

PS15k C-SJ17-18, PS15k C-SJ30-12, PS15k C-SJ42-6, PS15k C-SJ75-3, PS15k C-SJ95-2



PS15k C-SJ17-18

Solar submersible pump system for 6" wells

Application

- drinking water supply
- pond management
- irrigation
- livestock watering
- pressurizing

Characteristics

- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Technical data

Item #	1191
Total dynamic head	max. 140 m
Flow rate	max. 22 m ³ /h
Vmp**	> 500 V
Voc	max. 800 V



Components

Controller: PS15k

- controlling and monitoring
- control inputs for well probe, dry running protection, remote control etc.
- protected against reverse polarity, overload and high temperature
- integrated MPPT (Maximum Power Point Tracking)
- datalogger

Motor:

- highly efficient 3-phase AC motor
- no electronics in the motor
- submersion max. 300 m, IP68
- premium materials

Pump end: PE C-SJ17-18

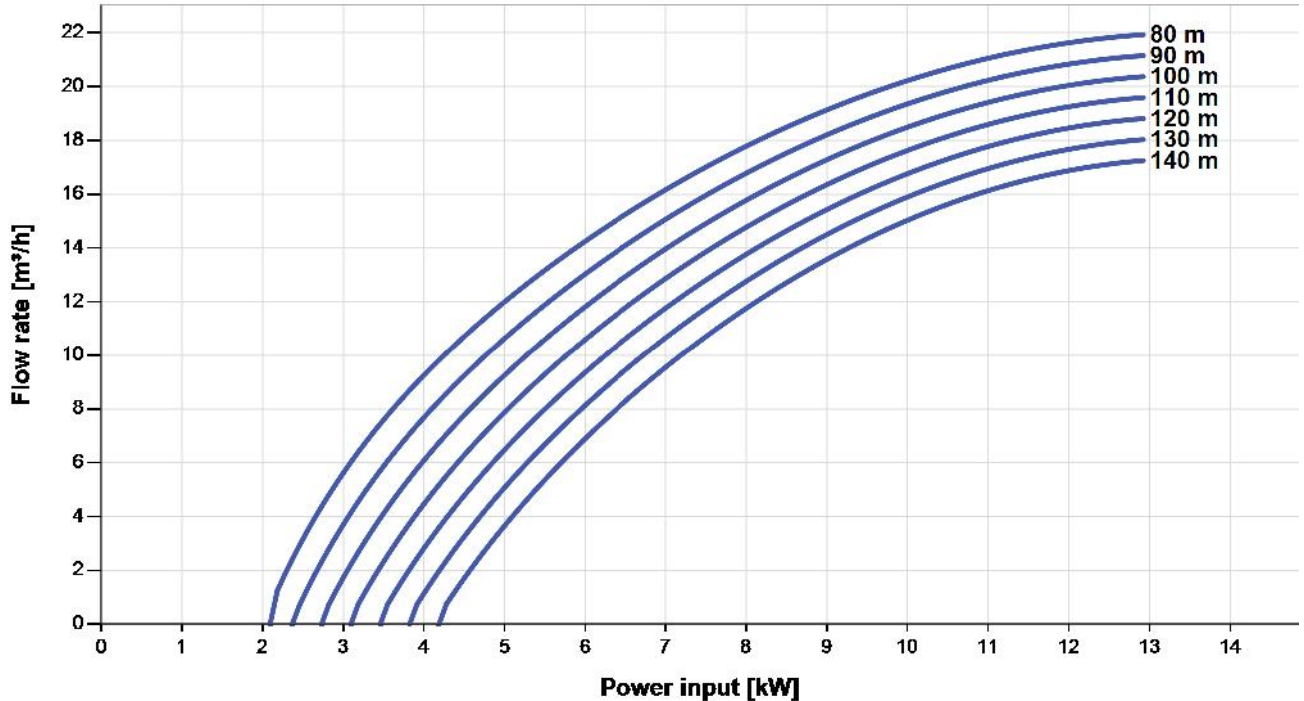
- high reliability and life expectancy
- non-return valve
- premium materials
- optional: dry running protection

PS15k C-SJ17-18

Solar submersible pump system for 6" wells

Pump chart

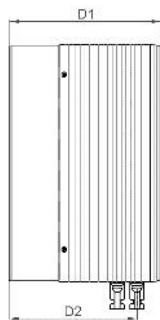
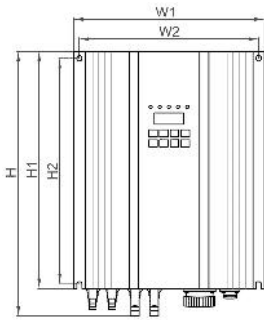
Max. power voltage (Vmp^{**}): > 500 V



Dimensions and weights

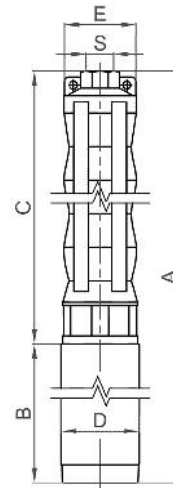
Controller

H = 350 mm
 H1 = 310 mm
 H2 = 295 mm
 W = 250 mm
 W1 = 235 mm
 D = 200 mm
 D1 = 200 mm
 D2 = 167 mm



Pump unit

A = 2.083 mm
 B = 711 mm
 C = 1.372 mm
 D = 138 mm
 E = 133 mm
 S = 2,5 in



	net weight	packaging	shipping volume	gross weight
Controller	9,0 kg	420x330x300 mm	0,042 m ³	11 kg
Pump unit	87 kg	-	-	-
Motor	58 kg	1.060x160x160 mm	0,027 m ³	59 kg
Pump end	29 kg	1.480x160x180 mm	0,043 m ³	30 kg

*Max. flow rate at min. recommended head

**Vmp: max. power voltage under Standard Test Conditions (STC): AM = 1.5, E = 1000 W/m², cell temperature 25 °C

PS15k C-SJ30-12

Solar submersible pump system for 6" wells

Application

- drinking water supply
- pond management
- irrigation
- livestock watering
- pressurizing

Characteristics

- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Technical data

Item #	1192
Total dynamic head	max. 100 m
Flow rate	max. 40 m ³ /h
Vmp**	> 500 V
Voc	max. 800 V



Components

Controller: PS15k

- controlling and monitoring
- control inputs for well probe, dry running protection, remote control etc.
- protected against reverse polarity, overload and high temperature
- integrated MPPT (Maximum Power Point Tracking)
- datalogger

Motor:

- highly efficient 3-phase AC motor
- no electronics in the motor
- submersion max. 300 m, IP68
- premium materials

Pump end: PE C-SJ30-12

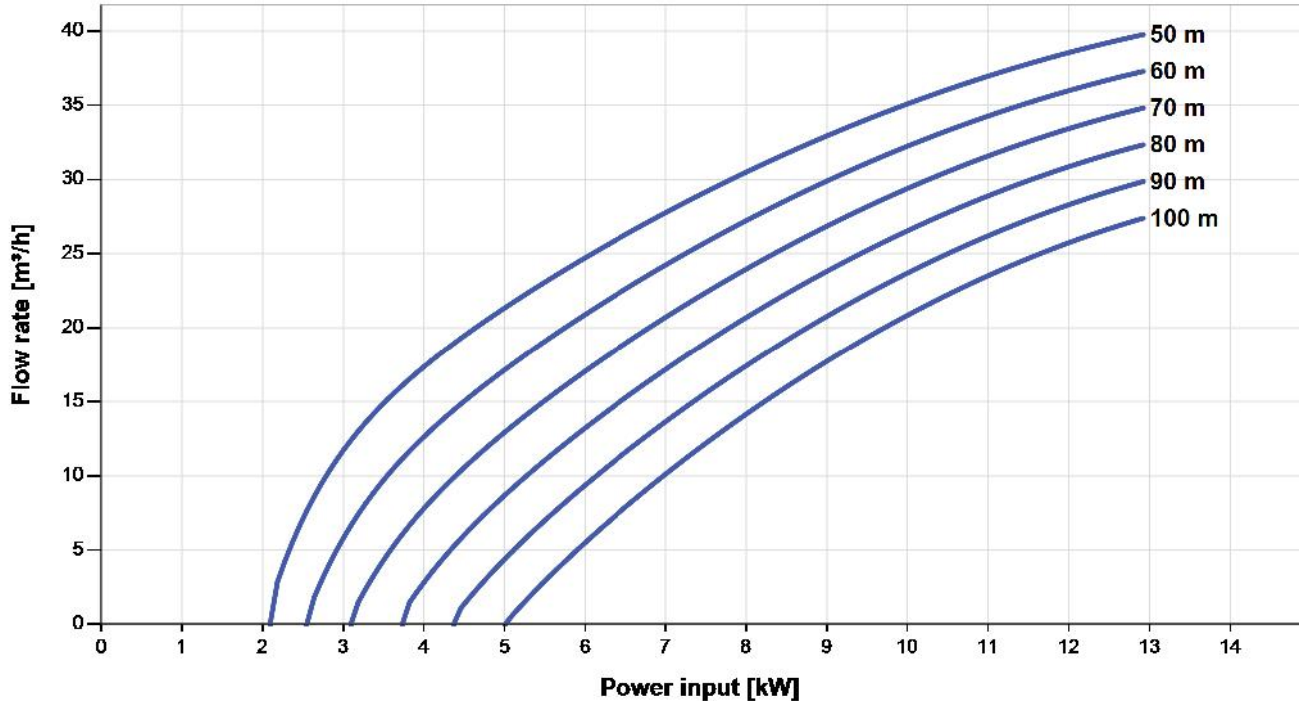
- high reliability and life expectancy
- non-return valve
- premium materials
- optional: dry running protection

PS15k C-SJ30-12

Solar submersible pump system for 6" wells

Pump chart

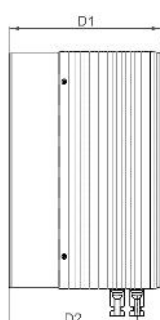
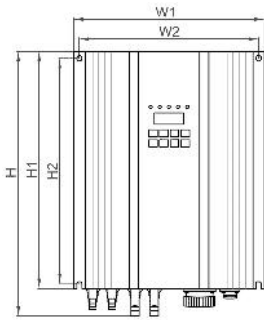
Max. power voltage (Vmp^{**}): > 500 V



Dimensions and weights

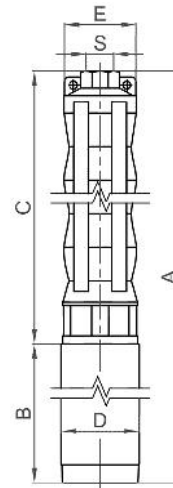
Controller

H = 350 mm
 H1 = 310 mm
 H2 = 295 mm
 W = 250 mm
 W1 = 235 mm
 D = 200 mm
 D1 = 200 mm
 D2 = 167 mm



Pump unit

A = 2.145 m
 B = 711 mm
 C = 1.434 m
 D = 138 mm
 E = 133 mm
 S = 3 in



	net weight	packaging	shipping volume	gross weight
Controller	9,0 kg	420x330x300 mm	0,042 m³	11 kg
Pump unit	85 kg	-	-	-
Motor	58 kg	1.060x160x160 mm	0,027 m³	59 kg
Pump end	27 kg	1.480x160x180 mm	0,043 m³	28 kg

*Max. flow rate at min. recommended head

**Vmp: max. power voltage under Standard Test Conditions (STC): AM = 1.5, E = 1000 W/m², cell temperature 25 °C

PS15k C-SJ42-6

Solar submersible pump system for 6" wells

Application

- drinking water supply
- pond management
- irrigation
- livestock watering
- pressurizing

Characteristics

- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Technical data

Item #	1196
Total dynamic head	max. 50 m
Flow rate	max. 78 m ³ /h
Vmp**	> 500 V
Voc	max. 800 V



Components

Controller: PS15k

- controlling and monitoring
- control inputs for well probe, dry running protection, remote control etc.
- protected against reverse polarity, overload and high temperature
- integrated MPPT (Maximum Power Point Tracking)
- datalogger

Motor:

- highly efficient 3-phase AC motor
- no electronics in the motor
- submersion max. 300 m, IP68
- premium materials

Pump end: PE C-SJ42-6

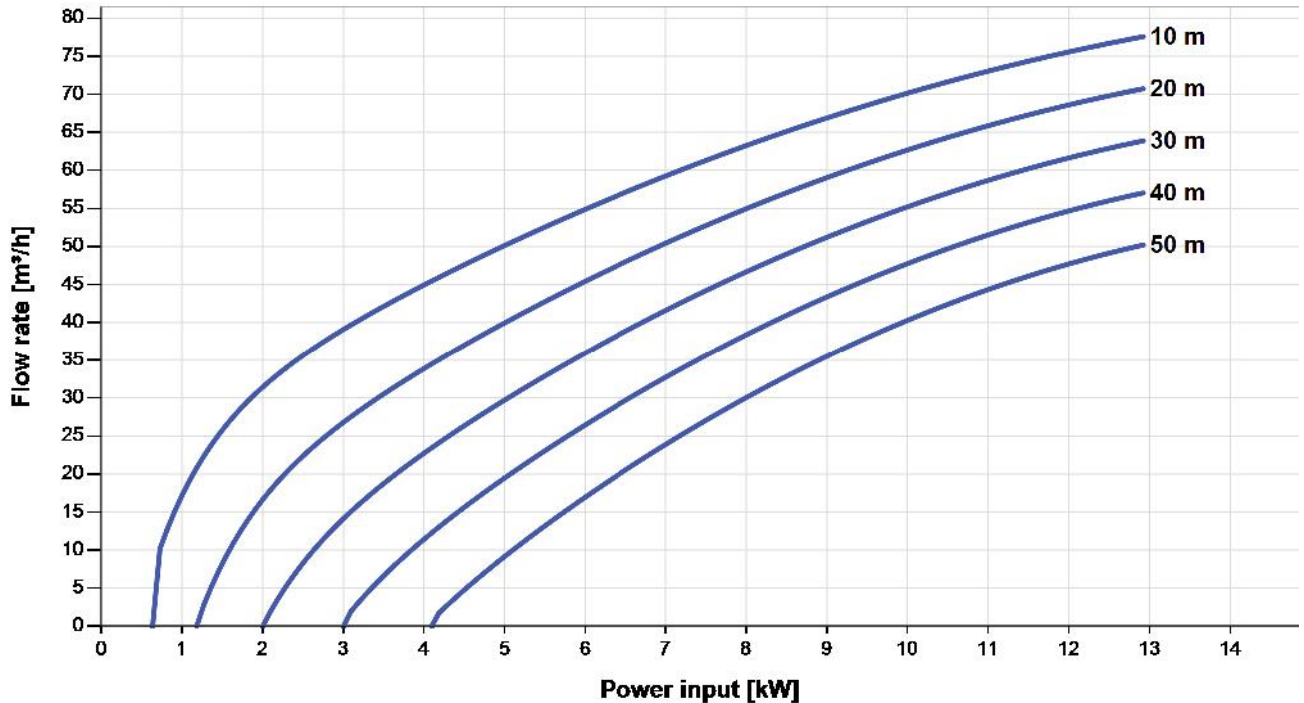
- high reliability and life expectancy
- non-return valve
- premium materials
- optional: dry running protection

PS15k C-SJ42-6

Solar submersible pump system for 6" wells

Pump chart

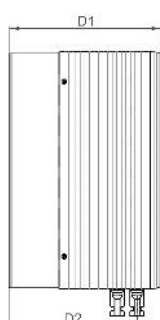
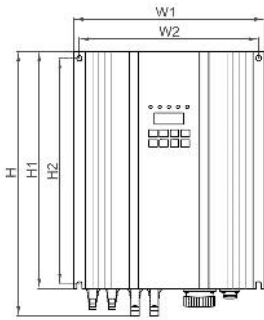
Max. power voltage (Vmp^{**}): > 500 V



Dimensions and weights

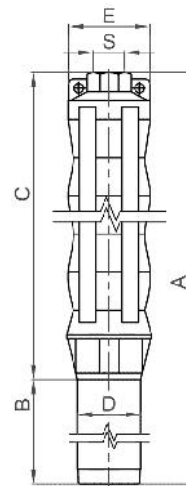
Controller

H = 350 mm
 H1 = 310 mm
 H2 = 295 mm
 W = 250 mm
 W1 = 235 mm
 D = 200 mm
 D1 = 200 mm
 D2 = 167 mm



Pump unit

A = 1.670 mm
 B = 711 mm
 C = 959 mm
 D = 138 mm
 E = 147 mm
 S = 3 in



	net weight	packaging	shipping volume	gross weight
Controller	9,0 kg	420x330x300 mm	0,042 m³	11 kg
Pump unit	80 kg	-	-	-
Motor	58 kg	1.060x160x160 mm	0,027 m³	59 kg
Pump end	22 kg	1.480x160x180 mm	0,043 m³	23 kg

*Max. flow rate at min. recommended head

**Vmp: max. power voltage under Standard Test Conditions (STC): AM = 1.5, E = 1000 W/m², cell temperature 25 °C

PS15k C-SJ75-3

Solar submersible pump system for 8" wells

Application

- drinking water supply
- pond management
- irrigation
- livestock watering
- pressurizing

Characteristics

- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Technical data

Item #	1202
Total dynamic head	max. 35 m
Flow rate	max. 126 m ³ /h
Vmp**	> 500 V
Voc	max. 800 V



Components

Controller: PS15k

- controlling and monitoring
- control inputs for well probe, dry running protection, remote control etc.
- protected against reverse polarity, overload and high temperature
- integrated MPPT (Maximum Power Point Tracking)
- datalogger

Motor:

- highly efficient 3-phase AC motor
- no electronics in the motor
- submersion max. 300 m, IP68
- premium materials

Pump end: PE C-SJ75-3

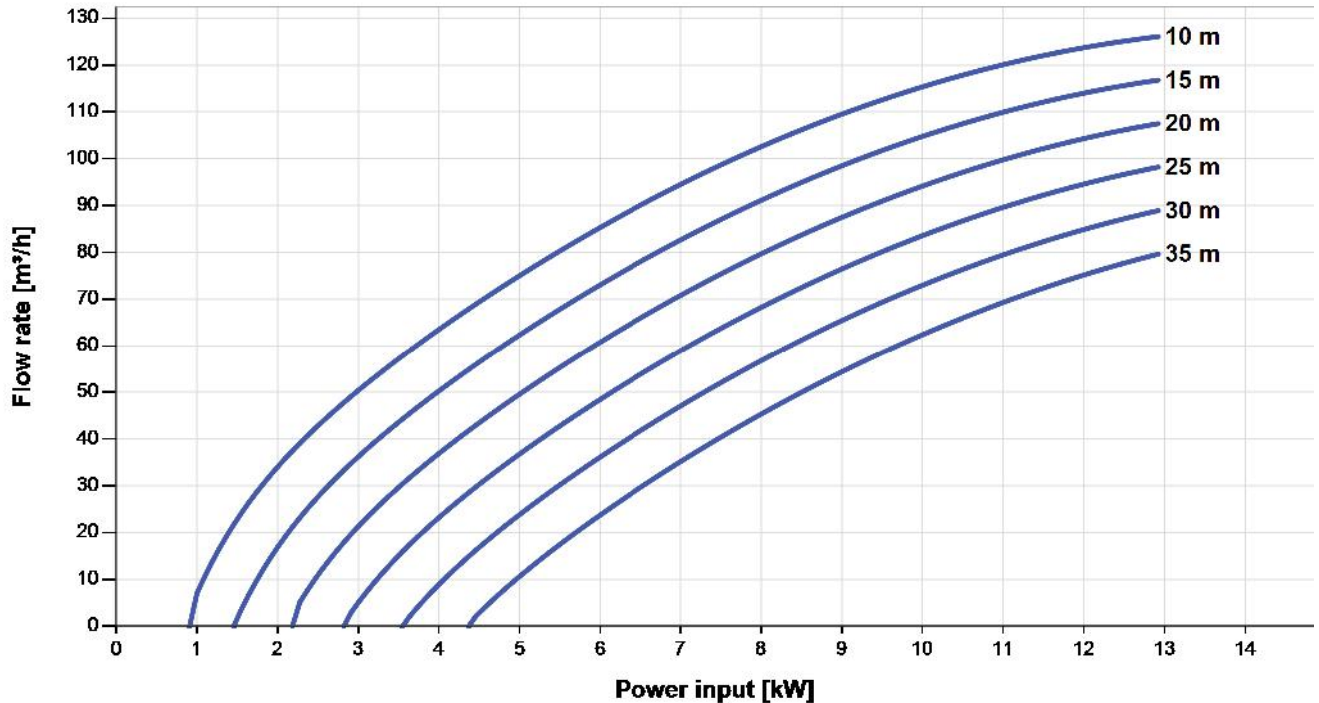
- high reliability and life expectancy
- non-return valve
- premium materials
- optional: dry running protection

PS15k C-SJ75-3

Solar submersible pump system for 8" wells

Pump chart

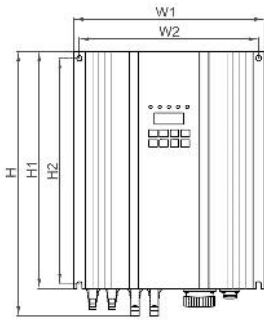
Max. power voltage (Vmp^{**}): > 500 V



Dimensions and weights

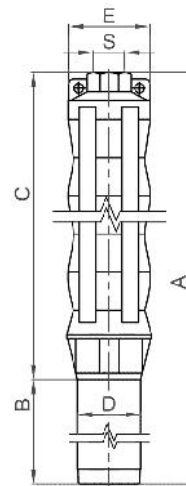
Controller

H = 350 mm
 H1 = 310 mm
 H2 = 295 mm
 W = 250 mm
 W1 = 235 mm
 D = 200 mm
 D1 = 200 mm
 D2 = 167 mm



Pump unit

A = 1.451 mm
 B = 711 mm
 C = 740 mm
 D = 138 mm
 E = 197 mm
 S = 5 in



	net weight	packaging	shipping volume	gross weight
Controller	9,0 kg	420x330x300 mm	0,042 m ³	11 kg
Pump unit	90 kg	-	-	-
Motor	58 kg	1.060x160x160 mm	0,027 m ³	59 kg
Pump end	32 kg	1.000x250x240 mm	0,060 m ³	34 kg

*Max. flow rate at min. recommended head

**Vmp: max. power voltage under Standard Test Conditions (STC): AM = 1.5, E = 1000 W/m², cell temperature 25 °C

PS15k C-SJ95-2

Solar submersible pump system for 8" wells

Application

- drinking water supply
- pond management
- irrigation
- livestock watering
- pressurizing

Characteristics

- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Technical data

Item #	1198
Total dynamic head	max. 25 m
Flow rate	max. 135 m ³ /h
Vmp**	> 500 V
Voc	max. 800 V



Components

Controller: PS15k

- controlling and monitoring
- control inputs for well probe, dry running protection, remote control etc.
- protected against reverse polarity, overload and high temperature
- integrated MPPT (Maximum Power Point Tracking)
- datalogger

Motor:

- highly efficient 3-phase AC motor
- no electronics in the motor
- submersion max. 300 m, IP68
- premium materials

Pump end: PE C-SJ95-2

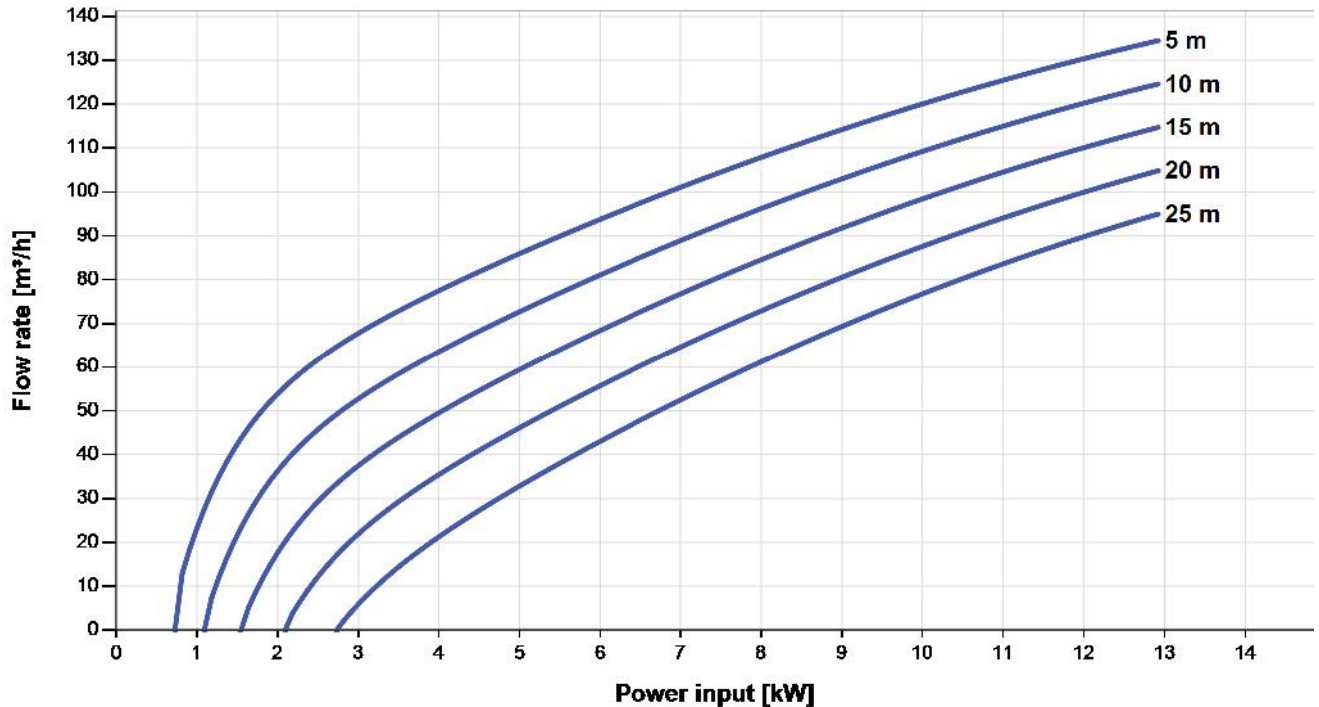
- high reliability and life expectancy
- non-return valve
- premium materials
- optional: dry running protection

PS15k C-SJ95-2

Solar submersible pump system for 8" wells

Pump chart

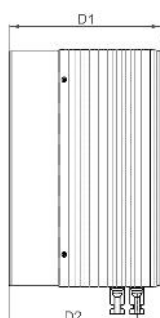
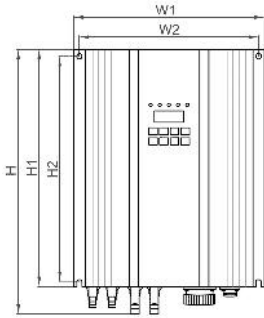
Max. power voltage (Vmp^{**}): > 500 V



Dimensions and weights

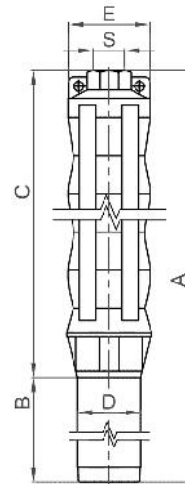
Controller

H = 350 mm
 H1 = 310 mm
 H2 = 295 mm
 W = 250 mm
 W1 = 235 mm
 D = 200 mm
 D1 = 200 mm
 D2 = 167 mm



Pump unit

A = 1.325 m
 B = 711 mm
 C = 614 mm
 D = 138 mm
 E = 197 mm
 S = 5 in



	net weight	packaging	shipping volume	gross weight
Controller	9,0 kg	420x330x300 mm	0,042 m ³	11 kg
Pump unit	84 kg	-	-	-
Motor	58 kg	1.060x160x160 mm	0,027 m ³	59 kg
Pump end	26 kg	670x250x240 mm	0,040 m ³	27 kg

*Max. flow rate at min. recommended head

**Vmp: max. power voltage under Standard Test Conditions (STC): AM = 1.5, E = 1000 W/m², cell temperature 25 °C

PS 9k/15k/21k

Solar-powered Submersible Pump System

Characteristics

- flow rate up to 130 m³/h
- max. total dynamic head (TDH): 160 m
- fast, failure-free installation
- excellent serviceability
- high reliability and life expectancy
- short Return of Investment (ROI) cycle
- lower Total Cost of Ownership (TCO)

Application

- drinking water supply
- livestock watering
- pond management
- irrigation
- etc.

Components

Motor

- 3-phase AC motor
- corrosion-resistant construction
- shaft and flange according to NEMA standard, stainless steel
- hermetically-sealed windings
- water lubrication
- pressure equalizing diaphragm
- max. submerged depth: 700 m/2,300 ft
- max. water temperature: 30 °C/86 °F
- PH value: 6–9
- IP 68

Pump End (PE)

- centrifugal multistage direct-coupled pump end
- non-return valve
- material: stainless steel (AISI 304), rubber
- dry running protection (optional)
- max. sand content: 50 g/m³, a higher content will wear the pump and reduce its life span considerably
- max. salt content: 300–500 ppm at max. 30 °C/85 °F, higher salt contents require lower water temperatures
- pH value: 6–9
- high life expectancy

Performance

pump system		PS 9k	PS 15k	PS 21k
max. total dynamic head (TDH)	[m ft]	160 520	140 460	120 400
max. flow rate	[m ³ /h 1,000 US gal./h]	130 34.3	130 34.3	43 11.4
max. power voltage (Vmp)*	[VDC]	> 500	> 500	> 500
open circuit voltage (Voc)	[VDC]	max. 750	max. 750	max. 750

*) PV modules at standard test condition: AM = 1.5, E = 1,000W/m², cell temperature: 25 °C

Controller PSkAC

- controlling of the pump system and monitoring of the operating states
- mounted at surface (no electronic parts submerged)
- two control inputs for well probe (dry running protection), float or pressure switches, remote control etc.
- automatic reset 20 minutes after well probe turns pump off
- data logger for historical dates: running time, starting/shut down time of day, max. power/voltage of day, accumulated energy of day etc.
- display of current running data such as: input/output current/power/voltage, pump speed, temperature
- speed control selectable, max. and min. speed
- integrated MPPT (Maximum Power Point Tracking)
- input: Voc max. 750VDC, Vmp min. 500VDC
- output: 400VAC, 3-phase, 30–60 Hz
- max. efficiency 97 %
- advanced IGBTs
- enclosure: IP 41 (sealed, weatherproof)
- ambient temperature: –10 to +45 °C

Safety Features

- protection against
- over current
 - under voltage
 - over speed
 - over temperature
 - reverse polarity
 - low water

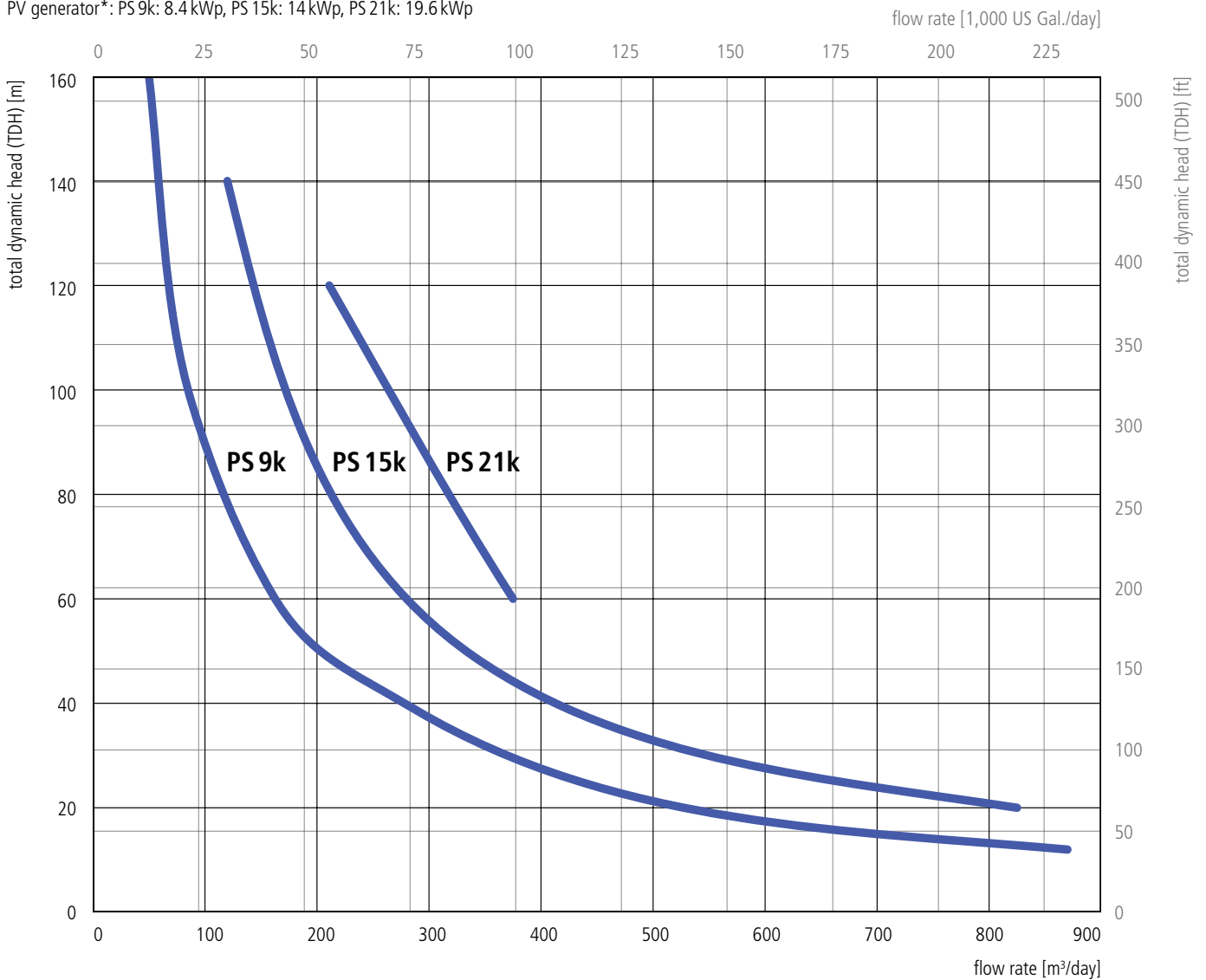
Picture may differ from actual product



Daily Flow Rate

irradiation: 6 kWh/m²/day, 8 peak flow hours per day

PV generator*: PS 9k: 8.4 kWp, PS 15k: 14 kWp, PS 21k: 19.6 kWp



*) 16 PV modules of 175Wp, Vmp 35VDC, in series, i.e. per string: 2.8kWp, Vmp 560VDC, each string installed on a single-axis tracking system
 3, 5 respectively 7 strings parallel for PS9k, PS15k and PS21k
 technical data of PV modules at standard test conditions: AM = 1.5, E = 1,000W/m², cell temperature: 25 °C
 20% for degradation (ageing, dust, temperature influences etc.), cable losses, tolerances included

Pump Layout Service

For each PSk pump system a choice of different pump ends is available to guarantee best performance for specific flow rates and lift. The above diagrams represents the consolidated optimum of all the available pump ends for the whole performance range.

LORENTZ provides the service of a individual pump system layout for its customers.