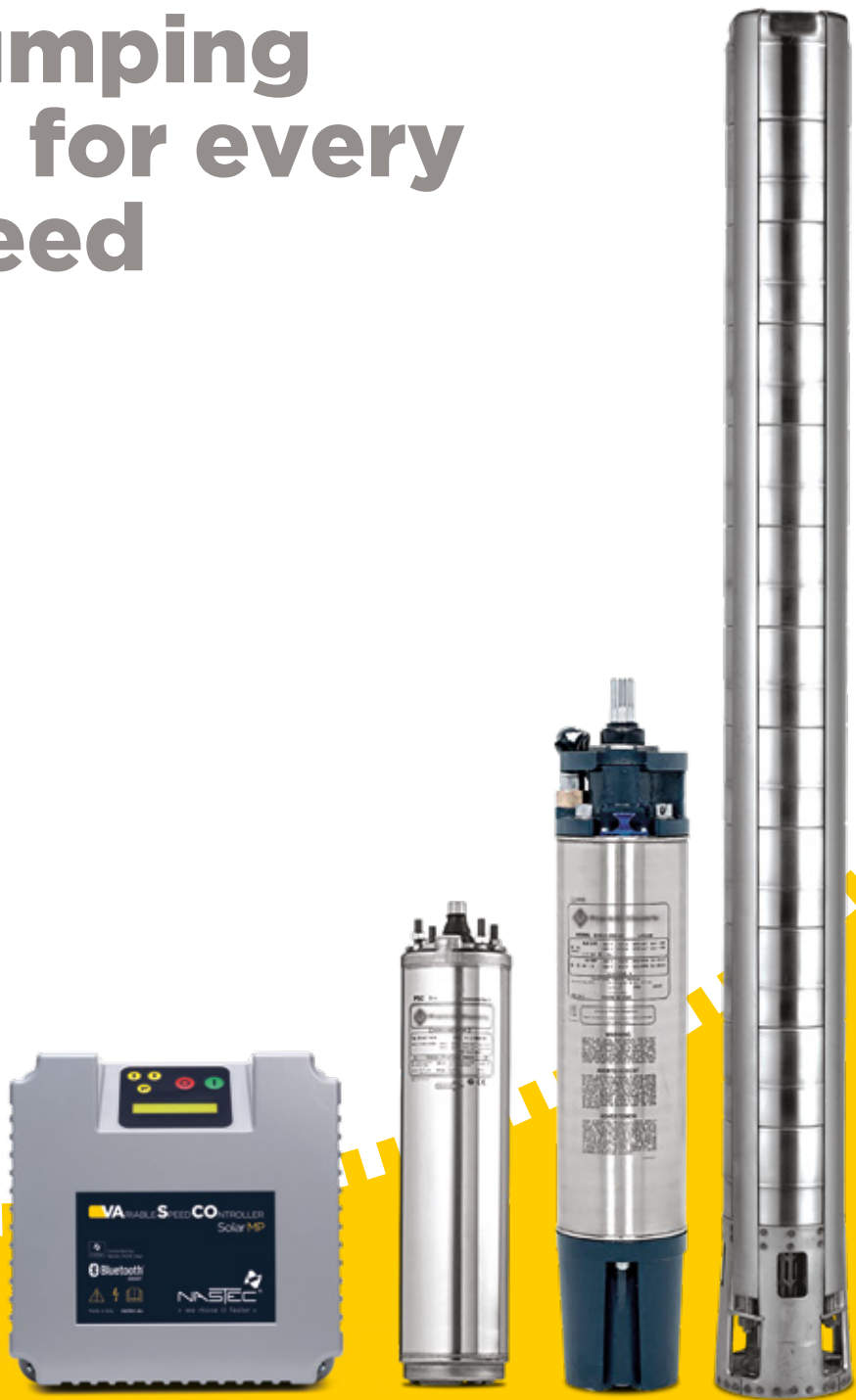


# **VSP** Solar pumps

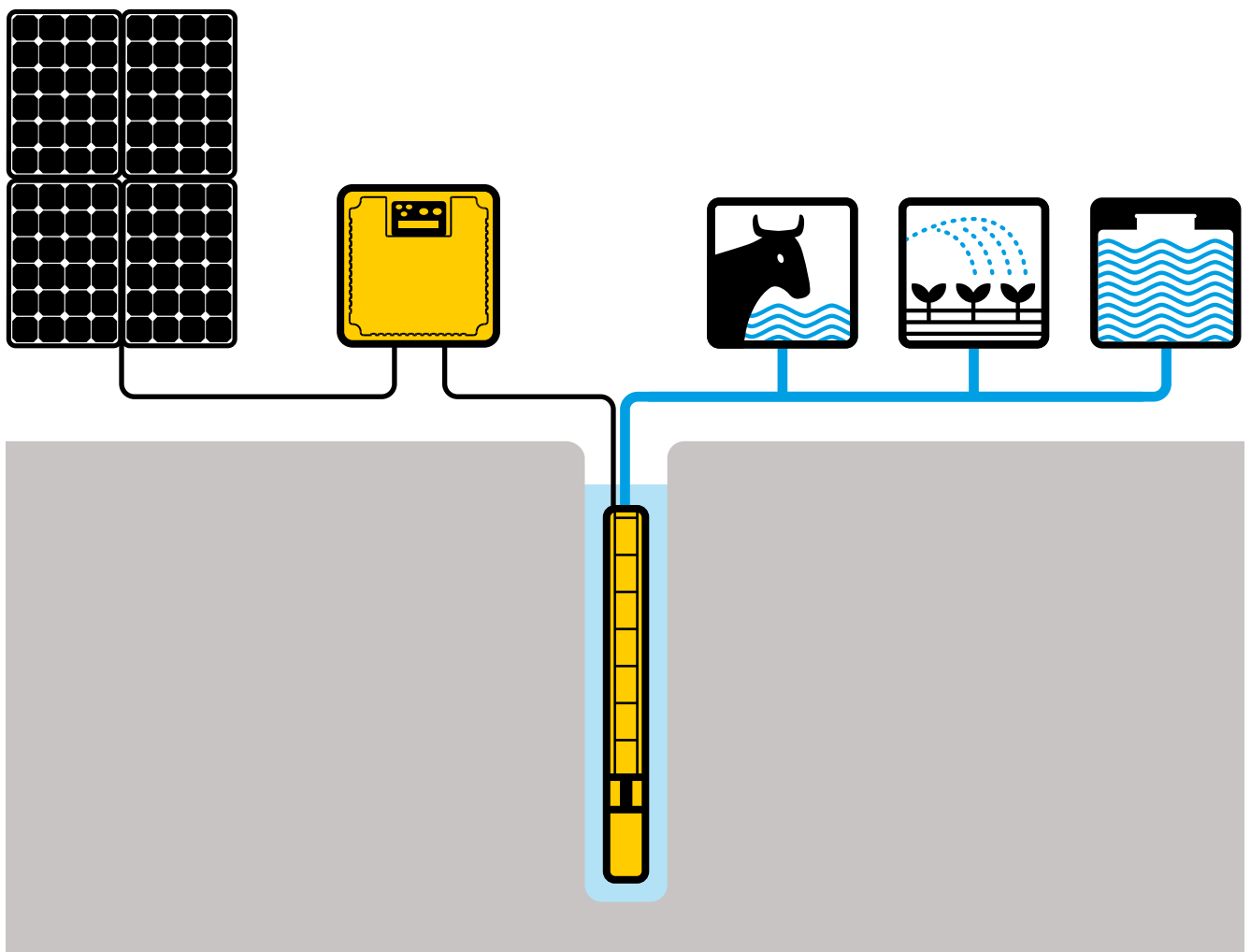
**Solar pumping  
systems for every  
water need**



**nastec.eu**

  
**NASTEC**<sup>®</sup>  
> we move it faster >

**VSP systems are created to meet the widest variety of pumping applications using solar energy.** The combination of VASCO Solar - VArIable Speed COntroller inverters with the complete range of stainless steel submersible pumps ranging from 4" to 10" offers a solution of superior quality, unique in its reliability, variety and performance.



Whatever the demand for water, there is always a VSP system that can satisfy it.

This inverter is able to convert DC voltage coming from solar panels into AC voltage for powering any pump driven by a three phase motor.

Pump speed is constantly adapted to available solar irradiation thus maximising the amount of pumped water and making possible operation even in conditions of low sunlight.

The device also offers complete pump protection against surges, overloads and dry running.

It is built entirely of aluminium to ensure maximum cooling and durability. Other metal parts are made using AISI 304 stainless steel and therefore resistant to corrosion.

Two independent external fans and an internal fan provide perfect cooling.

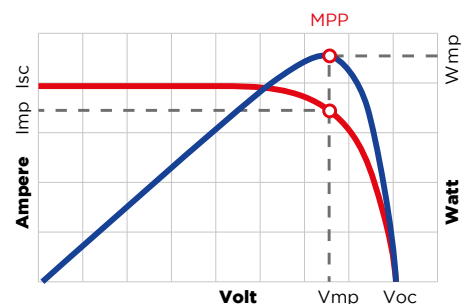


## MPPT: always the maximum power available

Based on the varying conditions of solar irradiation and temperature, MPPT (Maximum Power Point Tracking) maximises the electrical power drawn from the panels and therefore the amount of water pumped.

The greater the solar irradiation the faster the pump's rotation speed, and consequently water flow increases.

When solar irradiation decreases (due to clouds or the different times of day), the pump reduces frequency and therefore the flow, but it continues to provide water until the irradiation falls below a minimum level necessary to ensure operation.



## Monitoring parameters

VASCO Solar - VArIable Speed COntroller is equipped with a backlit alphanumeric display and is designed to monitor key electrical parameters like input voltage, power, current and motor power factor.

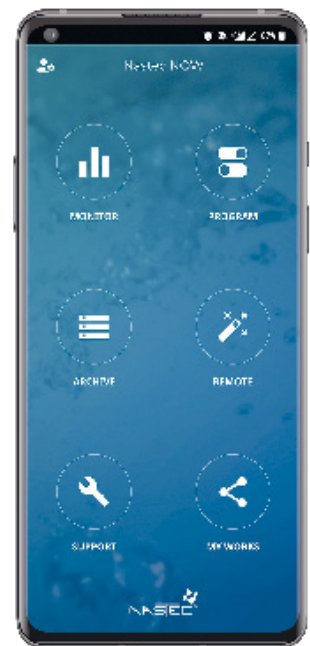
It is also possible to connect a pressure or flow sensor to monitor performance levels. The diagnosis menu logs inverter and motor hours, operating statistics, and the last eight alarms.

The programming menus are password-protected to prevent unwanted tampering.

## Unmatched user experience

Thanks to the Nastec NOW app it is possible to communicate with all Nastec SMART Bluetooth® devices in order to:

- Monitor multiple operating parameters simultaneously on the wide, high-definition colour screen of your smartphone or tablet.
- Create reports with the possibility of adding notes and images, and email or store them in the digital archive.
- Get energy consumption statistics and check the alarm log.
- Remotely control a Nastec device via Wi-Fi or GSM by tethering to a nearby smartphone.
- Develop programs, save them in the archive, copy them to other devices and share them among multiple users.



## Advanced connectivity

It is possible to connect:

- An alarm
- A motor run/stop signal
- A pressure sensor or a flow sensor for monitoring
- Up to four digital inputs for pump start and stop (float switch, level sensors, etc.)
- Modbus RTU

## Complete pump protection

The device is able to protect the pump against overload and dry running.

Dry running protection is performed by monitoring the motor's power factor and therefore probes are not required.

The device also protects itself against surges and overheating.

## Complete range of 4", 6", 8", 10" submersible pumps

- Fully AISI 304 stainless steel.  
AISI 316 available on request.
- Stainless steel impellers and diffusers for maximum efficiency and reliability.
- Maximum sand content: 50 g/m<sup>3</sup>.



## Three-phase 4", 6", 8" water filled submersible motors

- Encapsulated and resinated stator\* to grant maximum insulation and heat dissipation.
- Protection degree IP68.
- Insulation class F.
- Max water temperature: 30°C, minimum speed 0.08 m/s.
- Removable lead connector.
- Cable for drinking water applications, VDE/ACS/KTW compliant.
- No-wear, water-lubricated thrust bearing.
- AISI 316 version available on request.



\* as alternative, if required, rewindable motors with a PE2/PA winding insulation can be supplied.

# Performance

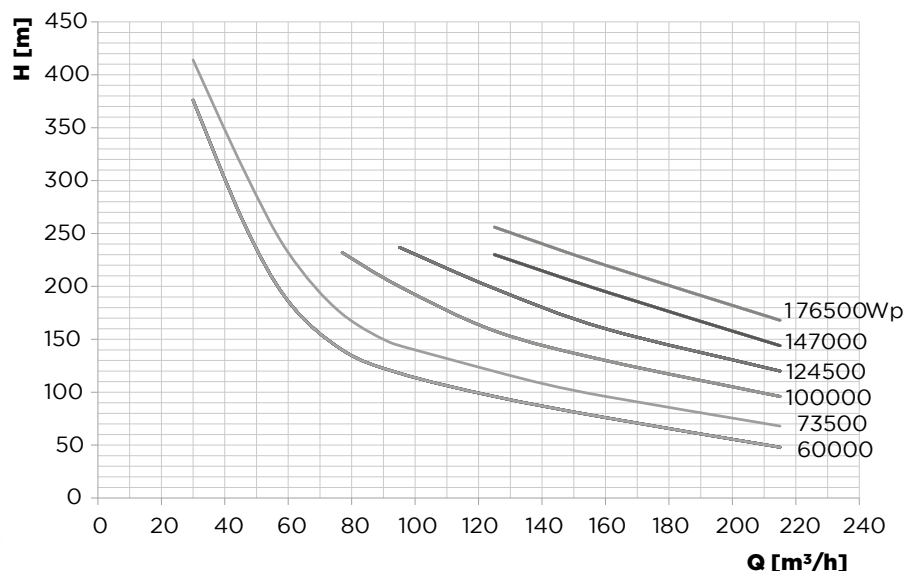
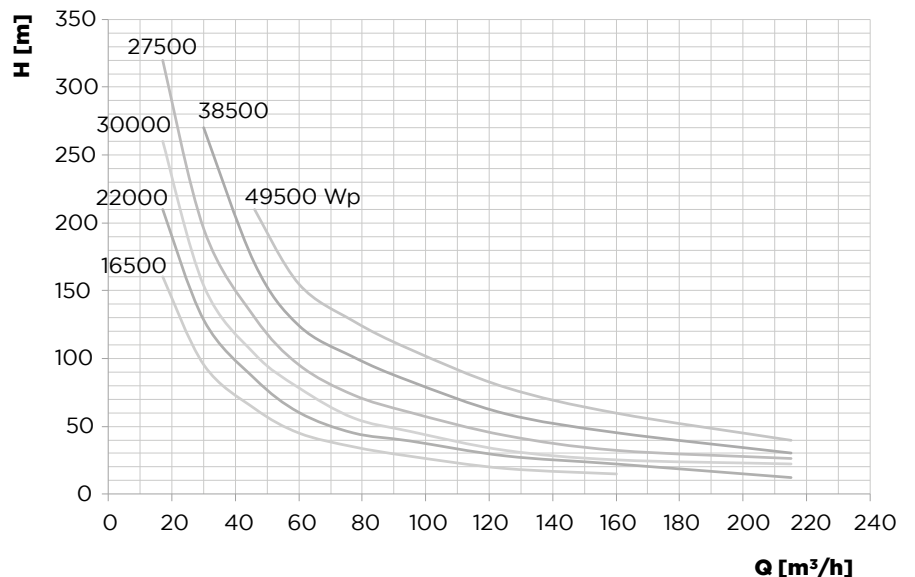
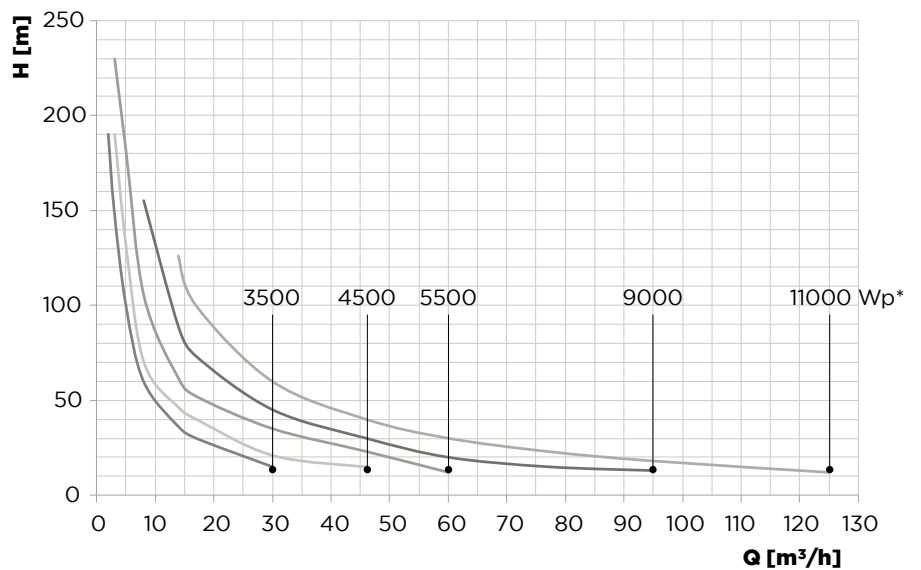
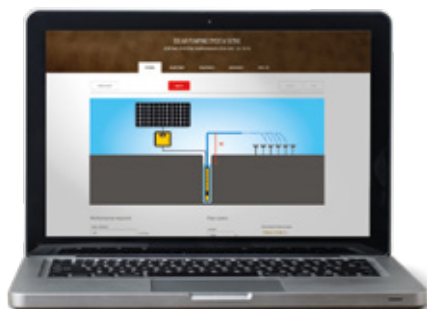
The range of VSP pumps is composed of 14 different hydraulic stages with a nominal flow from 2 to 215 m<sup>3</sup>/h. The number of stages varies according to the required head.

In this way it is possible to satisfy the most varied water requests. The table shows the maximum performance attainable by each type of hydraulics with the maximum number of stages.

The selection of the most suitable pump for the application, with the correct number of stages, can be done using Nastec Solar Calculator available at:

**solar.nastec.eu**

Model	Max stages	Q m <sup>3</sup> /h	H m
VSP 2	75	2	300
VSP 3	52	3	230
VSP 5	44	5	180
VSP 8	37	8	150
VSP 14	25	14	120
VSP 17	40	17	480
VSP 30	54	30	410
VSP 46	35	46	300
VSP 60	30	60	230
VSP 77	20	77	255
VSP 95	20	95	250
VSP 125	12	125	250
VSP 160	10	160	200
VSP 215	7	215	175



# VASCO Solar - VArIable Speed COntroller technical specifications

Modello	Vin DC VDC	Vin AC * VAC	Vin, P1 nom** VDC	Max Vout VAC	Max I out A	Typical motor P2*** VAC	kW	Size
VS212	160 - 650	3x190-520	> 320	3 x 250	12	3 x 230	2,2	2
VS409	320 - 850	3x190-520	> 560	3 x 460	9	3 x 400	3	2
VS412	320 - 850	3x190-520	> 560	3 x 460	12	3 x 400	4	2
VS415	320 - 850	3x190-520	> 560	3 x 460	15	3 x 400	5,5	2
VS418	320 - 850	3x190-520	> 560	3 x 460	18	3 x 400	7,5	2
VS425	320 - 850	3x190-520	> 560	3 x 460	25	3 x 400	11	2
VS430	320 - 850	3x190-520	> 560	3 x 460	30	3 x 400	15	2
VS438	320 - 850	3x190-520	> 560	3 x 460	38	3 x 400	18,5	3
VS448	320 - 850	3x190-520	> 560	3 x 460	48	3 x 400	22	3
VS465	320 - 850	3x190-520	> 560	3 x 460	65	3 x 400	30	3
VS485	320 - 850	3x190-520	> 560	3 x 460	85	3 x 400	37	3
VS4100	320 - 850	3x190-520	> 560	3 x 460	100	3 x 400	45	3
VS4118	320 - 850	3x190-520	> 560	3 x 460	118	3 x 400	55	3
VS4158	320 - 850	3x190-520	> 560	3 x 460	158	3 x 400	75	4
VS4198	320 - 850	3x190-520	> 560	3 x 460	198	3 x 400	93	4
VS4228	320 - 850	3x190-520	> 560	3 x 460	228	3 x 400	110	4
VS4268	320 - 850	3x190-520	> 560	3 x 460	268	3 x 400	132	4

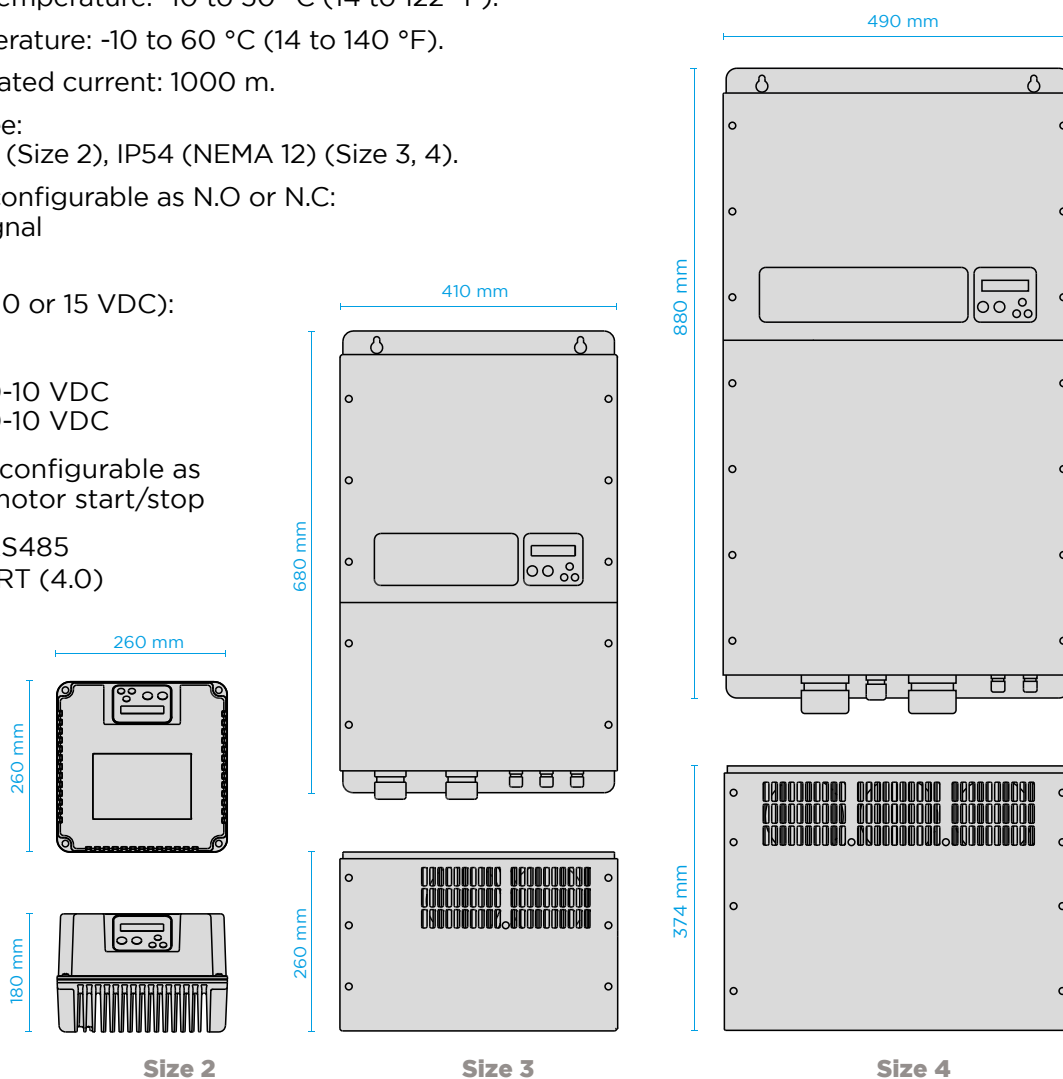
\* AC power available only for MP (MultiPower) models.

\*\* Input voltage necessary to obtain 100% of rated motor power.

\*\*\* Typical motor power. It is recommended to refer to the rated motor current when selecting the VASCO Solar - VArIable Speed COntroller model.

## Electrical characteristics

- Rated ambient temperature: -10 to 50 °C (14 to 122 °F).
- Operating temperature: -10 to 60 °C (14 to 140 °F).
- Max altitude at rated current: 1000 m.
- Protection degree:  
IP66 (NEMA 4X) (Size 2), IP54 (NEMA 12) (Size 3, 4).
- Digital outputs configurable as N.O or N.C:
  1. Motor run signal
  2. Alarm signal
- Analog inputs, (10 or 15 VDC):
  1. 4-20 mA
  2. 4-20 mA
  3. 4-20 mA or 0-10 VDC
  4. 4-20 mA or 0-10 VDC
- 4 digital inputs, configurable as N.O or N.C, for motor start/stop
- MODBUS RTU RS485  
Bluetooth® SMART (4.0)



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