



SOLAR PUMPS

DC SURFACE



Shakti Solar Water Supply System

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SOLAR PUMPING SYSTEM

1. INTRODUCTION

Shakti solar powered pump is a powered by solar energy. A solar powered irrigation pump consists one or more solar panels (also known as solar modules or solar plates.) a pump (mostly a centrifugal pump), electronic controls or a controller device to operate the pump, the required hardware and in some cases other items like inverter, batteries etc. On a simpler note, solar powered pumps are like traditional electric pump with the only exception that it uses solar energy instead of fossil fuel or electricity. A solar powered pump can be cost-effective, environment-friendly and low-maintenance solution for meeting water requirements for irrigation, community water supply, livestock and other purposes.

A solar powered pump works like any other available and commonly used water pumps. The main difference is solar powered pumps run on solar energy and does not require any fuel (diesel, kerosene, gas, etc.) or external source of electricity (from an electricity company) to deliver water.

Solar Pump Monoblock System

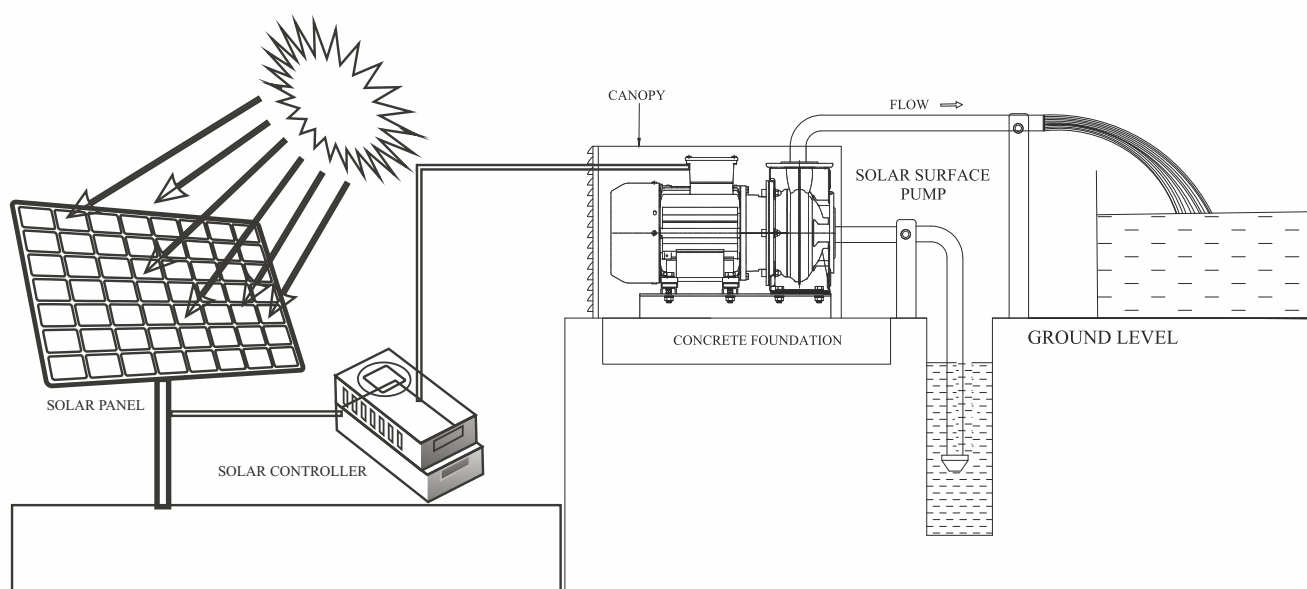


Fig. 1 Schematic illustration of Solar Powered Pumping System

Sunrays fall on the solar photovoltaic (PV) modules (a combination of multiple photovoltaic cells) and produce direct current (DC). If the pump requires alternating current (AC), the DC current produced by solar PV panels is converted to AC through an inverter before being fed to the motor of the pump.

Shakti Solar Surface Pump set consists of following parts:

1. **Solar Structure :** The solar structure is a set of solar modules which are to be connected in series and possibly strings of modules connected in parallel to get the required power to operate the pump.
2. **Controller :** The controller is an electric device that matches the power output from the solar Structure to the pump motor and regulates the Operation of the pump according to the input energy from solar array.
3. **Solar Surface Pump :** The solar surface pump comprises of the motor which drive the movement (Prime mover) of pump impeller which moves the water under pressure.

Shakti Solar Surface Pumps

A surface pump installed in the open by the side of a water sources, for example an open well, lake or canal. The pump remains out of the water, and generally the motor and the pumps can be seen separately. Surface pumps are usually easy to install and maintain. Surface pumps can also be feasible options in cases where the water table is within a depth of up to 7 meters and an open water source is available.

SOLAR PUMPING SYSTEM

SELECTION & SIZING

Minimum inlet pressure - NPSH

Calculation of the inlet pressure "H" is recommended when...

- The liquid temperature is high
- Water is drawn from depths
- The inlet conditions are poor
- The flow is significantly higher than the rated flow
- Water is drawn through long pipes

Calculation of maximum suction lift for water in open systems

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in metres head can be calculated as follows:

$$H = p_b \times 10.2 - \text{NPSH} - H_f - H_v - H_s$$

p_b = Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems, p_b indicates the system pressure in bar.

NPSH = Net Positive Suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering).

H_f = Friction loss in suction pipe in metres head. (At the highest flow the pump will be delivering.)

H_v = Vapour pressure in metres head. (To be read from the vapour pressure scale. " H_v " depends on the liquid temperature " T_m ").

H_s = Safety margin = minimum 0.5 metres head.

If the "H" calculated is positive, the pump can operate at a suction lift of maximum "H" metres head.

If the "H" calculated is negative, an inlet pressure of minimum "H" metres head is required.

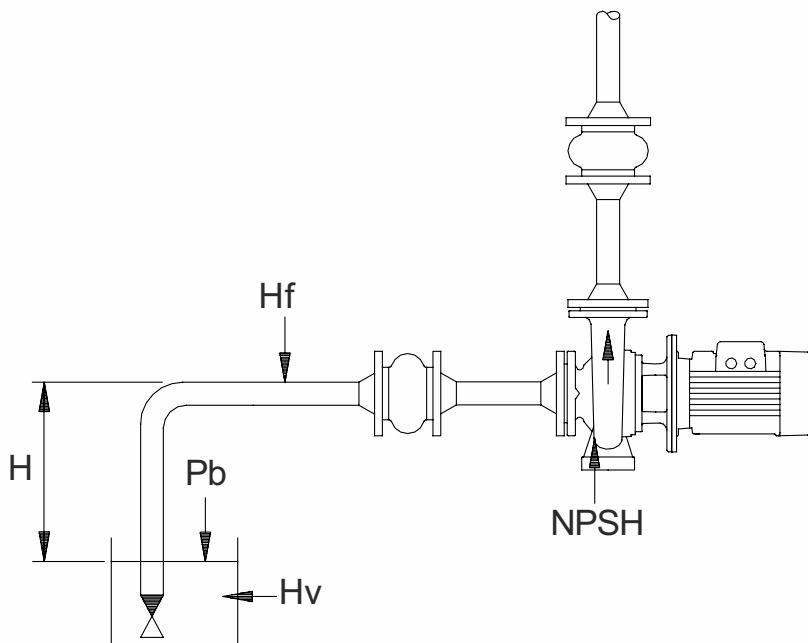


Fig.- 10 Schematic view of open system with Solar Surface Pump

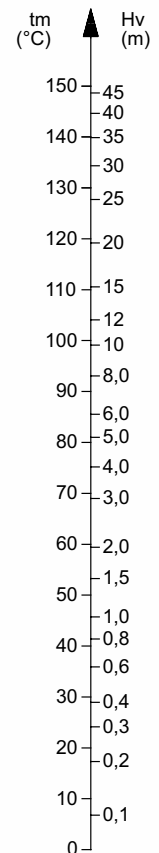


Fig.- 11 Relation between liquid temperature and vapour pressure

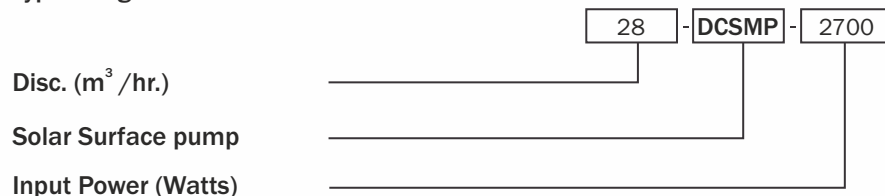
Note: In order to avoid cavitation never, select a pump whose duty points lies too far to the right on the NPSH curves. Always check the NPSH value of the pump at the highest. possible flow.

SOLAR PUMPING SYSTEM

IDENTIFICATION

DCSMP SERIES

Type designation



- * Note: 1. Input Power at Motor End.
2. Do not operate pump above its recommended duty head,

The high Efficient Motor is designed according to the permanent magnet principle with separate electronics unit. The Motor speed range is 1000-3600 RPM depending on pump load. The permanent magnet motor featuring a consistent higher efficiency within power range compared to a conventional asynchronous motor.

SOLAR PUMPING SYSTEM

SOLAR PUMP CONTROLLER SPECIFICATION

OVERVIEW

The controller starts the pumps slowly and adjust it speed according to pumping load and power available from solar array.

Power output from the solar array is optimally matched to the load by maximum power point tracker(MPPT) throughout all conditions.

The Shakti Solar controller is designed with the high standard of reliability expected of Shakti products. The controller attempts to controller the pump and motor to deliver water even under adverse conditions, reducing output as necessary to protect the system components from damage, and only shutting down in extreme cases.

CONTROLLER CODE	DESCRIPTION	VFD VOLTAGE RANGE (VDC)		VFD MAX OUTPUT CURRENT (AMP.)	MAX EFFICIENCY %	NET WEIGHT (KG)	SOLAR POWER RANGE
		MIN (V)	MAX (V)				
9000032269	SOLAR CONTROLLER 3P, 1000 Watt	25	110	15	95	1.3	500W-1000W
9600000126	SIMHA UNIVERSAL DRIVE+3P 15A 450VDC	30	450	15	93	5.5	900W - 3000W
9600000127	SIMHA UNIVERSAL DRIVE+3P 15A 850VDC	200	850	15	96	5.5	4800W - 6750W
9600000143	SIMHA UNIVERSAL DRIVE+3P 15A 850V-HV	200	850	15	96	5.5	9000W
9600000073	NANDI UNIVERSAL DRIVE 3P 25A 850 VDC	200	850	30	96	10.8	11250W - 13500W

DESCRIPTIONS AND FEATURES

The Shakti Solar controller controller continuously monitors system performance and incorporates a number of features for pump system protection. In the event of a fault, the Shakti Solar drives will indicate the type of fault through the displays.

The Shakti Solar drives system is optimized for pumping under adverse input power conditions unique to solar arrays.

- Internal diagnostics will tolerate a lower input voltage.
- Whenever possible, the controller attempts to regulate the pump load in a manner that optimizes for maximum power transfer from the solar array.

An easy to use interface is provided to enhance configurability and enable remote system monitoring.

- A three-digit seven-segment display provides a detailed indication of system status.
- A small keypad offers flexibility for selection of user options.
- A continuous data connection for remote telemetry is made available via an RS-485 port. (Optional)

PROTECTION FEATURES

- Dry run Protection ➤ Overload Protection ➤ Open Circuit Protection
- Short Circuit Protection ➤ Over Heat

SOLAR PUMPING SYSTEM

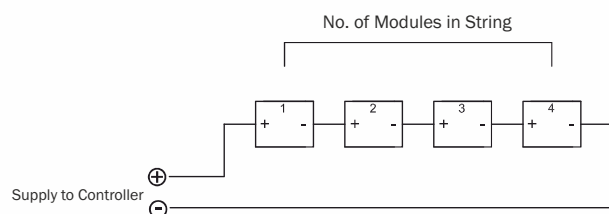
SOLAR POWER SELECTION & CONFIGURATION

S. No.	Motor Input Power (W)		Pv Module Wattage (W)	Total No. of Modules Required	Module Configuration		Structure Configuration	
	Min	Max			No. of Module In String	No. of Parallel String	2-PI. Qty	3-PI. Qty
1	500	535	535	1	1	1	1	0
2	900	1070	535	2	2	1	1	0
3	1000	1070	535	2	2	1	1	0
4	1200	1605	535	3	3	1	0	1
5	1800	2140	535	4	4	1	2	0
6	2700	3210	535	6	6	1	3	0
7	4800	4815	535	9	9	1	3	1
8	6750	6955	535	13	13	1	5	1
9	9000	9095	535	17	17	1	7	1
10	11250	11770	535	22	11	2	11	0
11	13500	13910	535	26	13	2	13	0

Example:

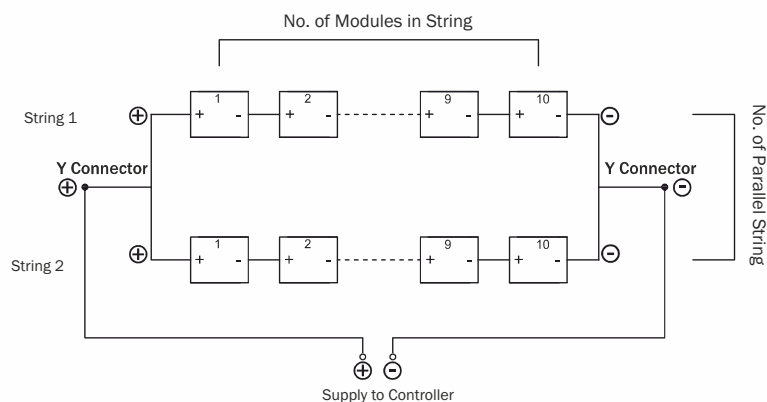
SERIES CONNECTION

Module Configuration For 1800 watt



PARALLEL CONNECTION

Module Configuration For 11250 watt

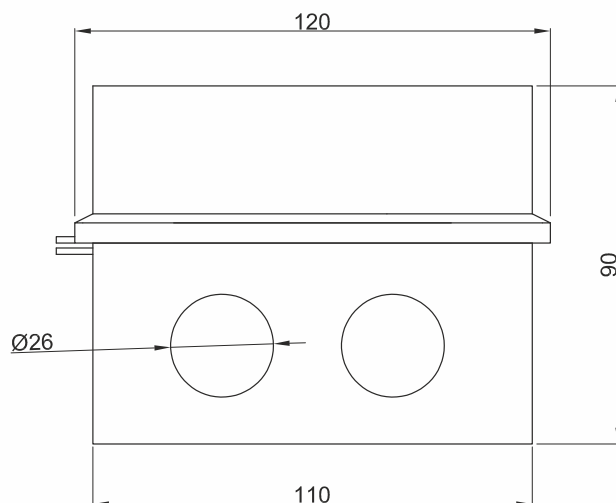
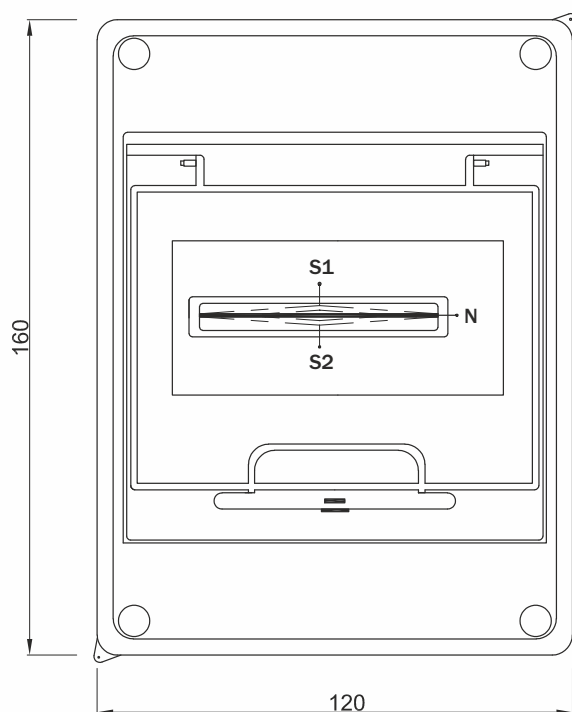


SOLAR PUMPING SYSTEM

CHANGE OVER SWITCH

A change-over switch is a dual input single output device, which is used to change the input power source to the controller. It is generally used with controllers/drives which have options to run from solar as well as from grid. There are three operative positions in change-over switch corresponding to S1, S2, (Up and Down) & N (Middle). In case of S1 and S2 positions the corresponding sources are connected to output whereas in N position none of the sources are connected to output. Conventionally the name of the sources is marked in S1 and S2 position for convenience of the user. These change-over switches are provided in a dust and rainproof boxes.

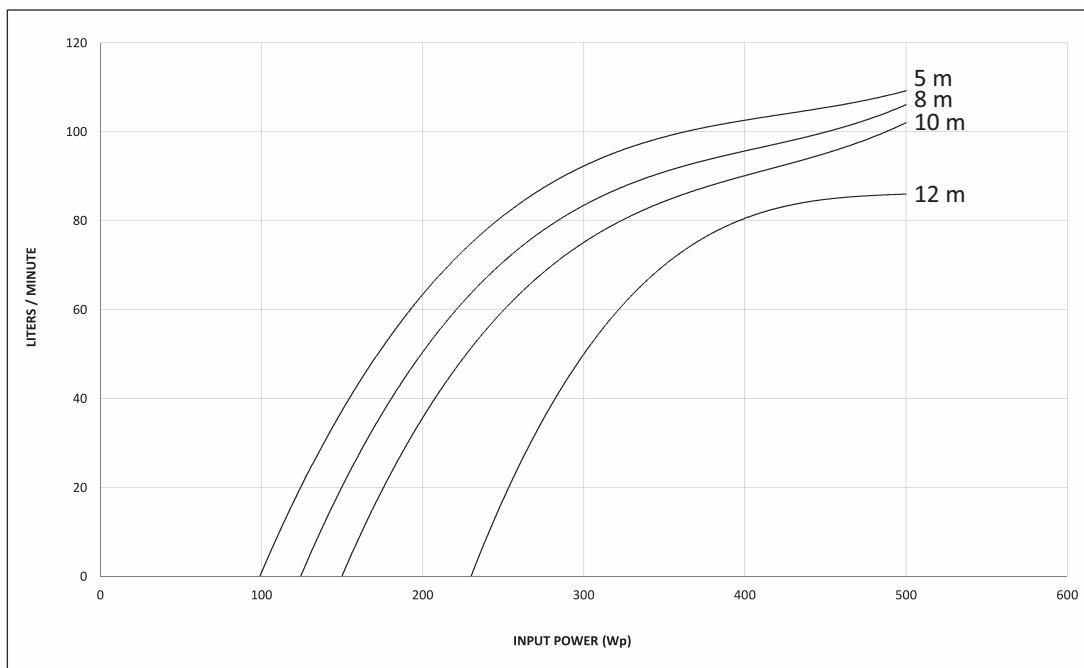
Note: It should be noted that while changing the power source through changeover the N position should be used until the display of the controller turns off. This intermediate use of N position avoids inrush currents through the changeover switch & improves its life.



SOLAR PUMPING SYSTEM

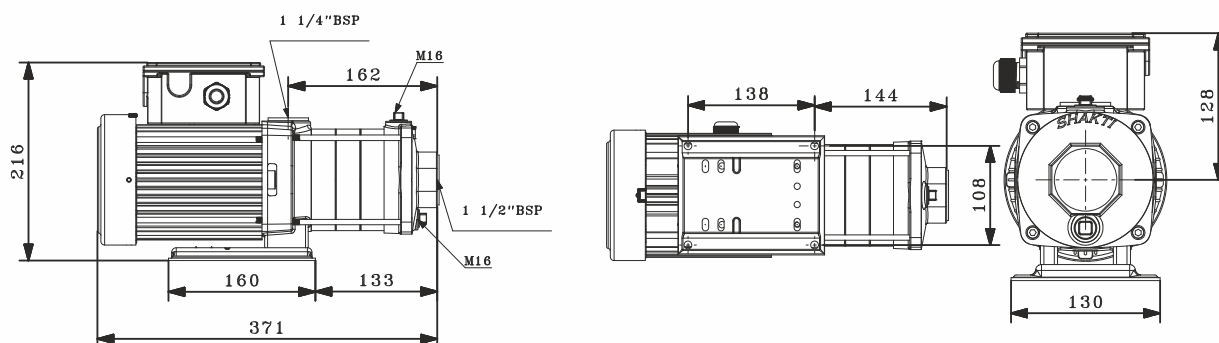
SOLAR 9 DCSMP 500

PUMPSET CODE : 9500002209
 DISCHARGE (LPD) : 49450
 DISCHARGE (LPW) : 98.9
 DUTY HEAD : 10 METER



	INPUT POWER (Wp)						
	500	350	300	230	150	125	100
HEAD (m)	FLOW IN LPM						
12	86	70	50	0			
10	102	85	74	52	0		
8	106	92	82	64	21	0	
5	109	101	90	74	40	20	0

DIMENSIONAL (in mm) -

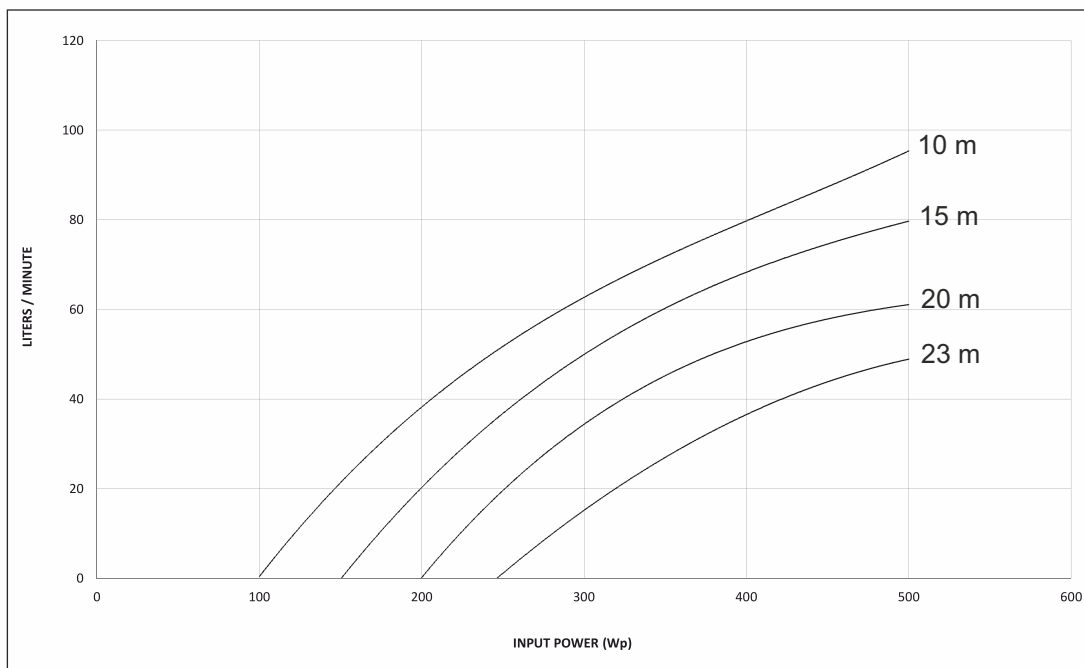


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
40 mm	40 mm

SOLAR PUMPING SYSTEM

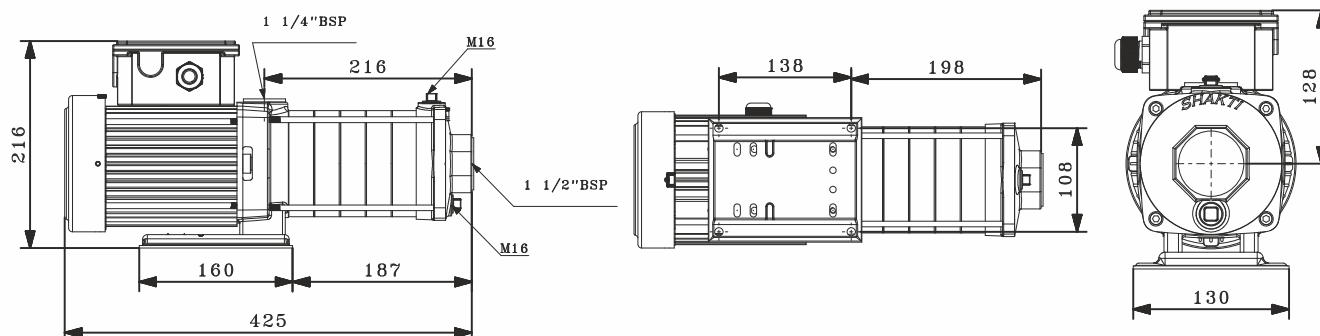
SOLAR 4 DCSMP 500

PUMPSET CODE : 9500002210
 DISCHARGE (LPD) : 23000
 DISCHARGE (LPW) : 46
 DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	500	450	300	250	200	150	100
HEAD (m)	FLOW IN LPM						
23	50	42	17	0			
20	61	58	34	20	0		
15	80	74	51	36	20	0	
10	95	88	62	52	38	22	0

DIMENSIONAL (in mm) -

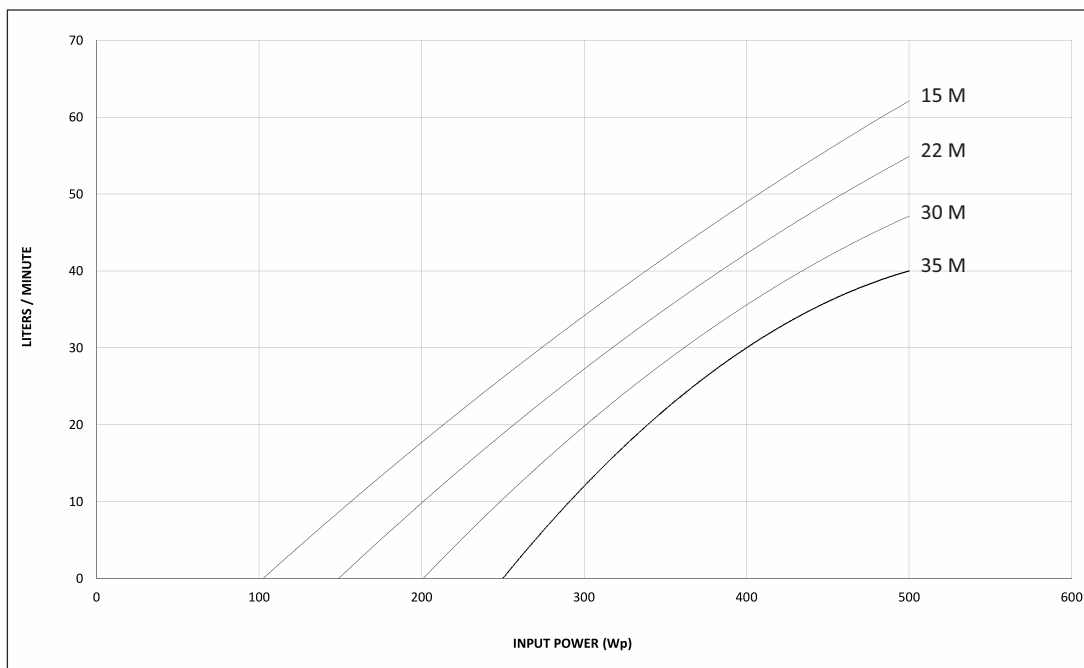


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
40 mm	40 mm

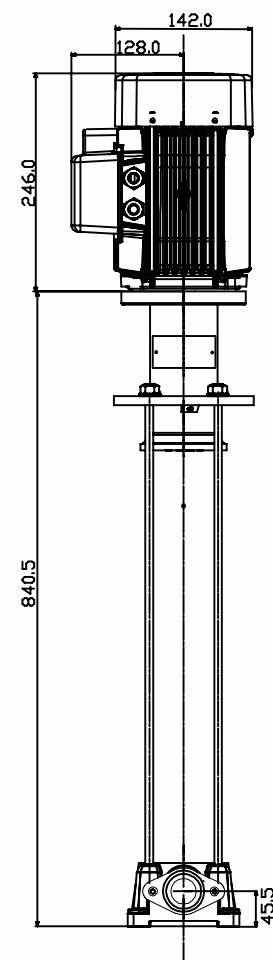
SOLAR PUMPING SYSTEM

SOLAR 2.5 DCSCRI 500

PUMPSET CODE : 9500002709
DISCHARGE (LPD) : 15500
DISCHARGE (LPW) : 31
DUTY HEAD : 30 METER

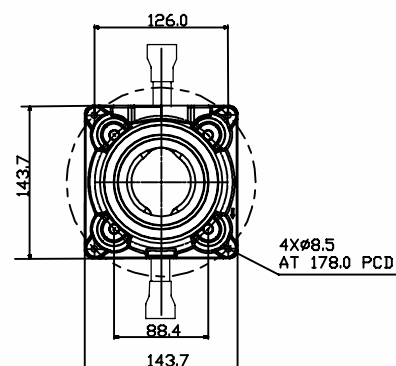


DIMENSIONAL (in mm) -



	INPUT POWER (Wp)						
	500	400	350	250	200	150	100
HEAD (m)	FLOW IN LPM						
35	40	30	22	0			
30	47	36	28	10	0		
22	55	42	35	19	10	0	
15	62	49	42	26	18	8	0

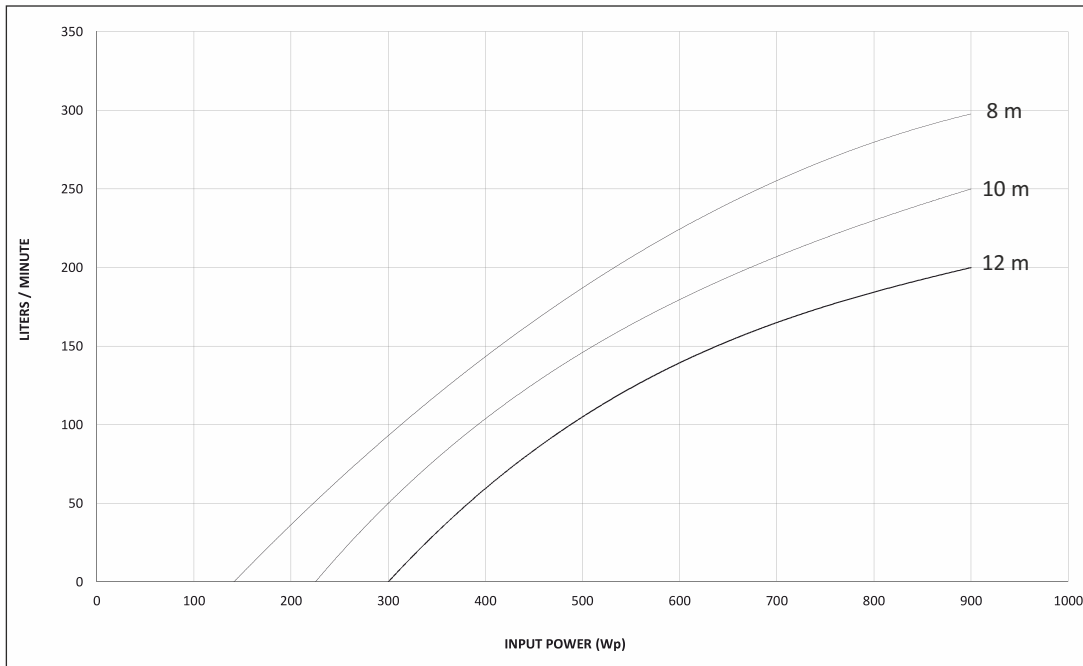
Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
40 mm	40 mm



SOLAR PUMPING SYSTEM

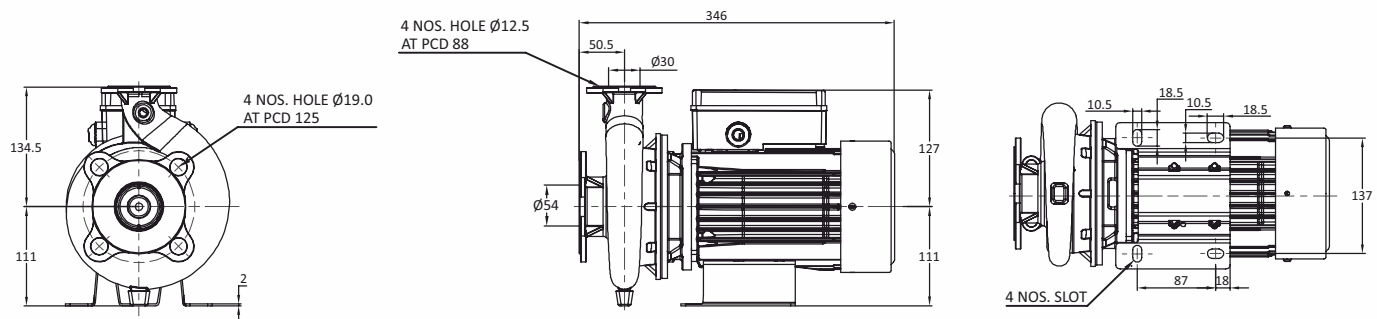
SOLAR 18 DCSMP 900

PUMPSET CODE : 9500002263
 DISCHARGE (LPD) : 109350
 DISCHARGE (LPW) : 121.5
 DUTY HEAD : 10 METER



	INPUT POWER (Wp)					
	900	700	500	300	225	150
HEAD (m)	FLOW IN LPM					
12	200	165	105	0		
10	250	207	146	50	0	
8	300	250	190	90	60	0

DIMENSIONAL (in mm) -

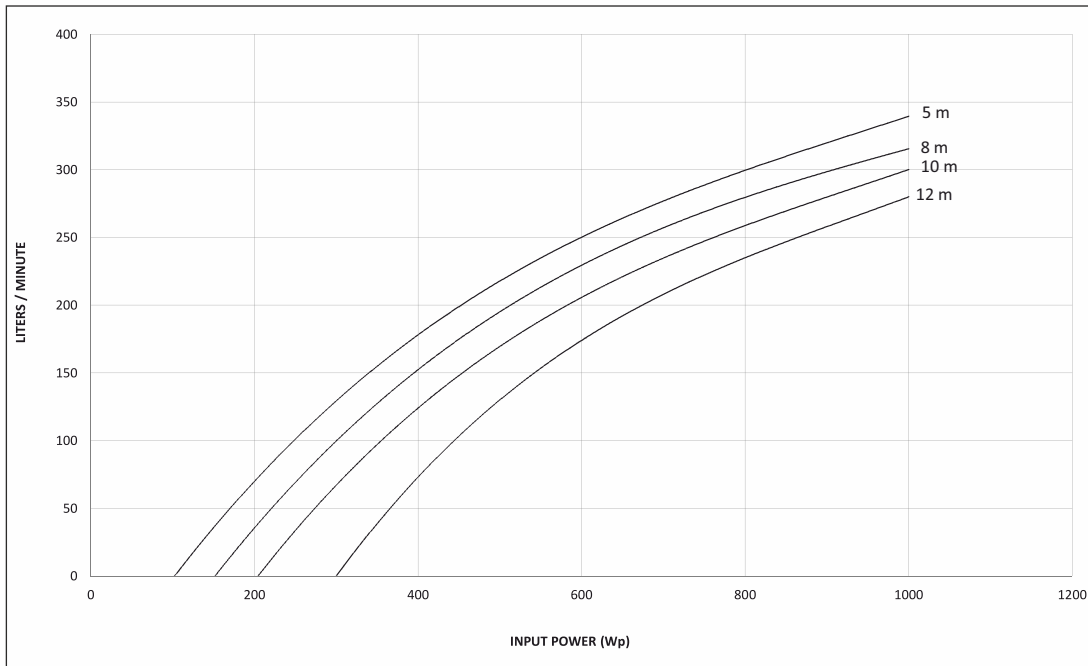


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
50 mm	50 mm

SOLAR PUMPING SYSTEM

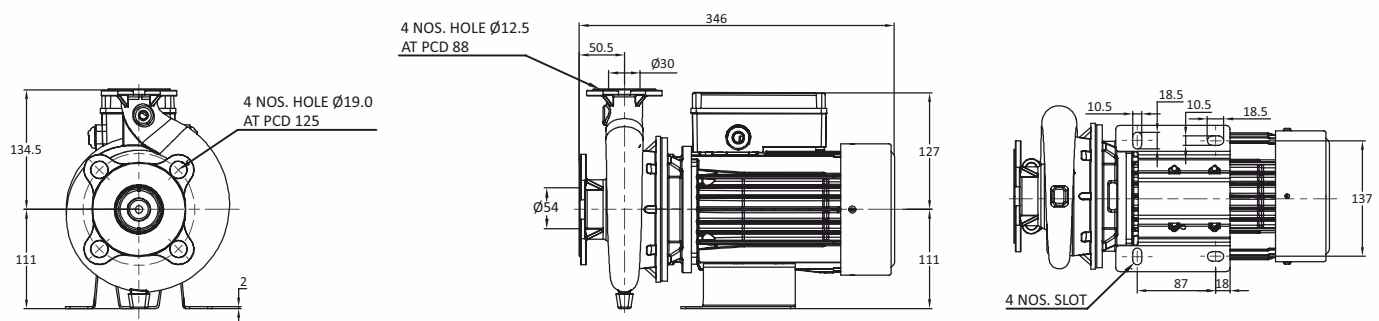
SOLAR 21 DCSMP 1000

PUMPSET CODE : 9500002488
DISCHARGE (LPD) : 124000
DISCHARGE (LPW) : 124
DUTY HEAD : 10 METER



HEAD (m)	INPUT POWER (Wp)						
	1000	800	500	300	200	150	100
FLOW IN LPM							
12	280	235	130	0			
10	301	256	175	60	0		
8	316	278	198	97	35	0	
5	340	298	220	129	68	35	0

DIMENSIONAL (in mm) -

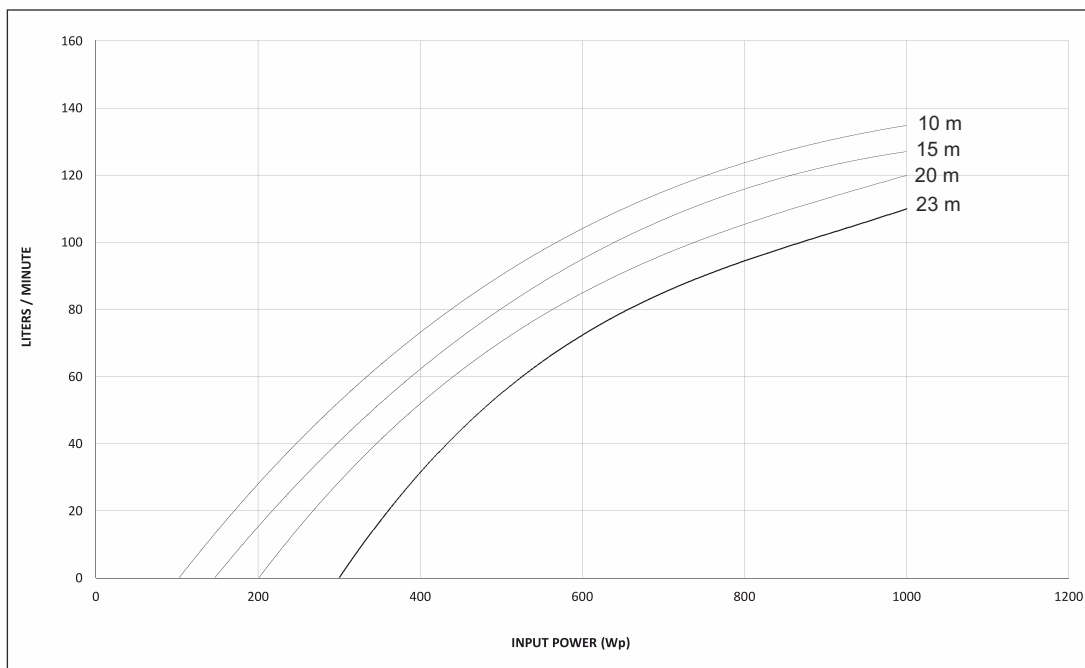


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
50 mm	50 mm

SOLAR PUMPING SYSTEM

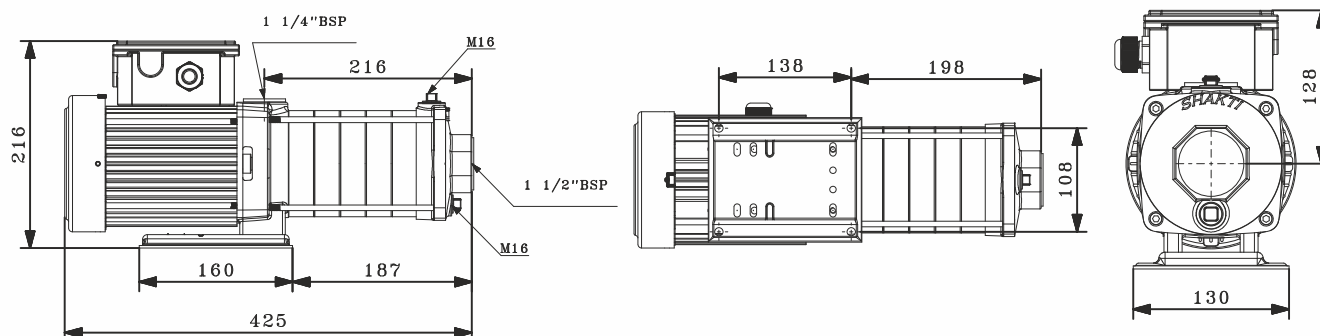
SOLAR 9 DCSMP 1000

PUMPSET CODE : 9500002491
 DISCHARGE (LPD) : 57000
 DISCHARGE (LPW) : 57
 DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	1000	700	500	300	200	150	100
HEAD (m)	FLOW IN LPM						
23	110	85	55	0			
20	120	96	71	28	0		
15	127	107	80	40	17	0	
10	135	114	92	52	27	14	0

DIMENSIONAL (in mm) -

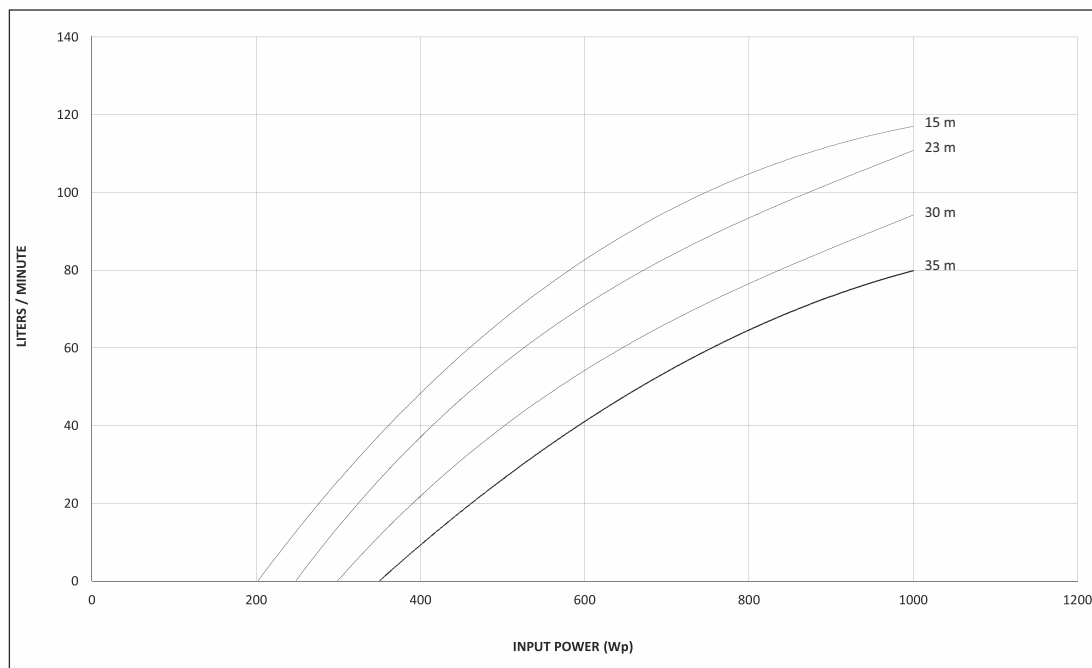


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
40 mm	40 mm

SOLAR PUMPING SYSTEM

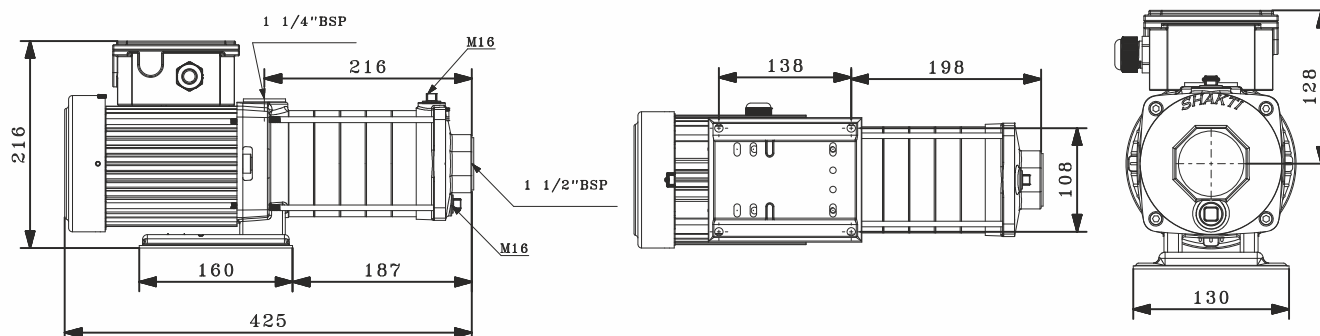
SOLAR 6 DCSMP 1000

PUMPSET CODE : 9500002490
DISCHARGE (LPD) : 26950
DISCHARGE (LPW) : 38.5
DUTY HEAD : 30 METER



HEAD (m)	INPUT POWER (Wp)						
	1000	900	700	350	300	250	200
FLOW IN LPM							
35	80	73	54	0			
30	94	86	66	12	0		
23	110	104	82	27	14	0	
15	117	112	95	38	26	12	0

DIMENSIONAL (in mm) -

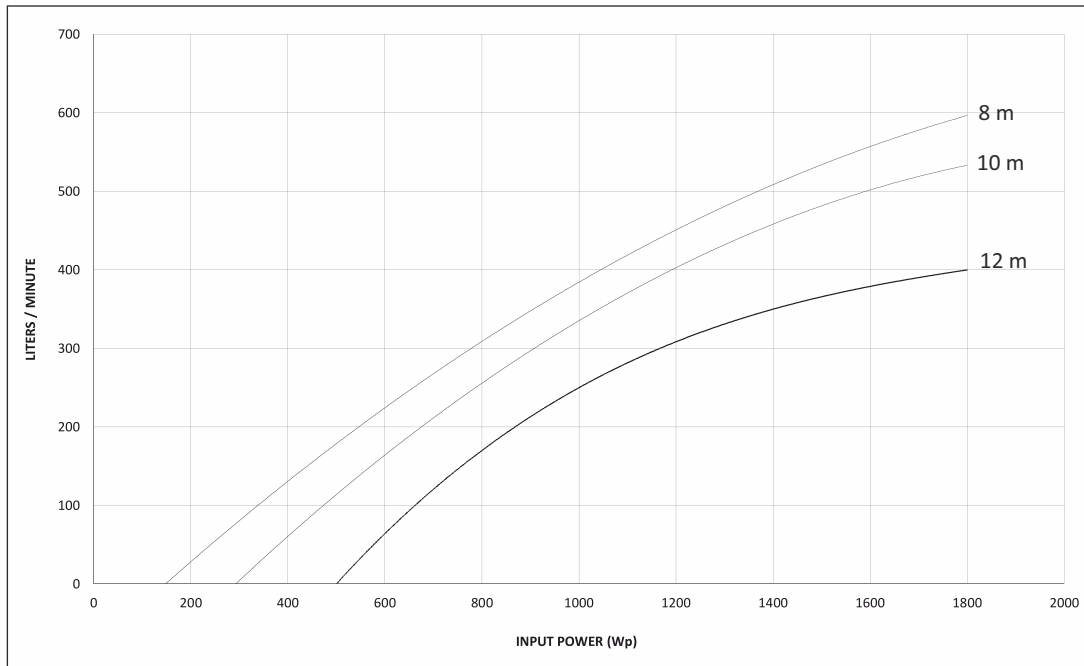


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
40 mm	40 mm

SOLAR PUMPING SYSTEM

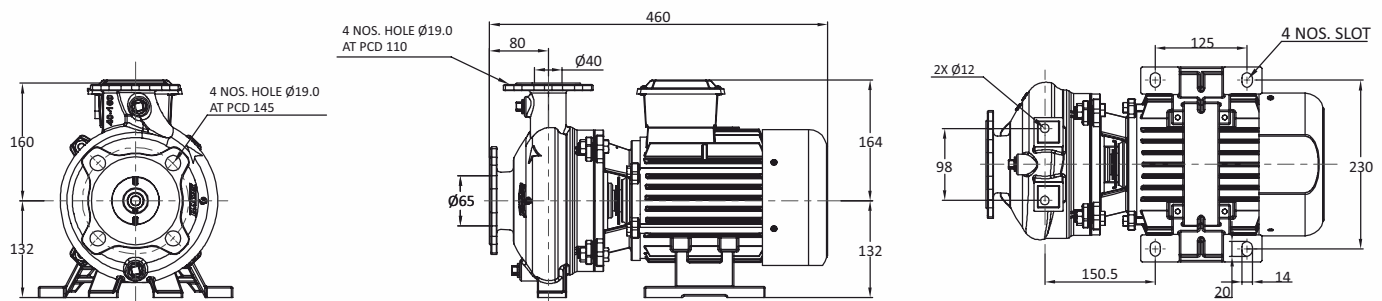
SOLAR 38 DCSMP 1800

PUMPSET CODE : 9500002166
DISCHARGE (LPD) : 219060
DISCHARGE (LPW) : 121.7
DUTY HEAD : 10 METER



	INPUT POWER (Wp)					
	1800	1400	1000	500	300	150
HEAD (m)	FLOW IN LPM					
12	400	350	250	0		
10	535	455	335	120	0	
8	600	500	390	180	80	0

DIMENSIONAL (in mm) -

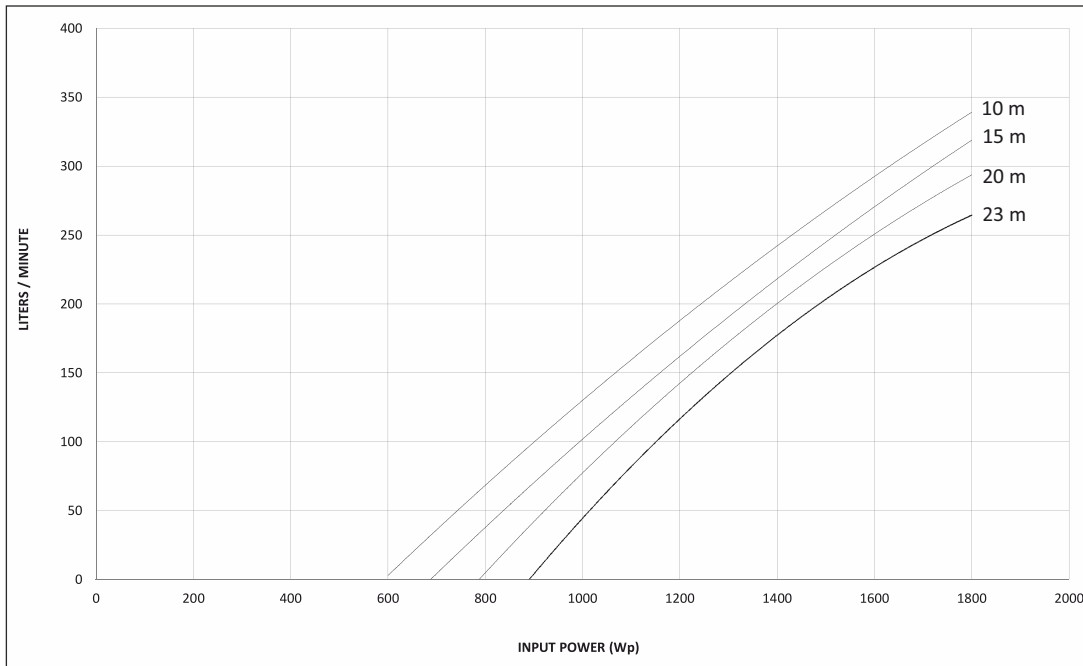


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
75 mm	65 mm

SOLAR PUMPING SYSTEM

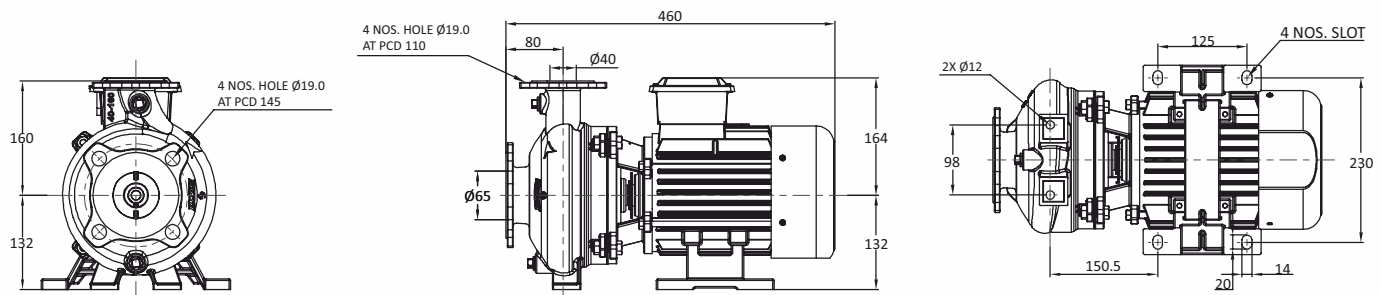
SOLAR 17 DCSMP 1800

PUMPSET CODE : 9500002350
DISCHARGE (LPD) : 102240
DISCHARGE (LPW) : 56.8
DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	1800	1400	1000	900	800	700	600
HEAD (m)	FLOW IN LPM						
23	265	175	50	0			
20	295	196	82	45	0		
15	320	215	101	75	40	0	
10	340	240	130	100	70	38	0

DIMENSIONAL (in mm) -

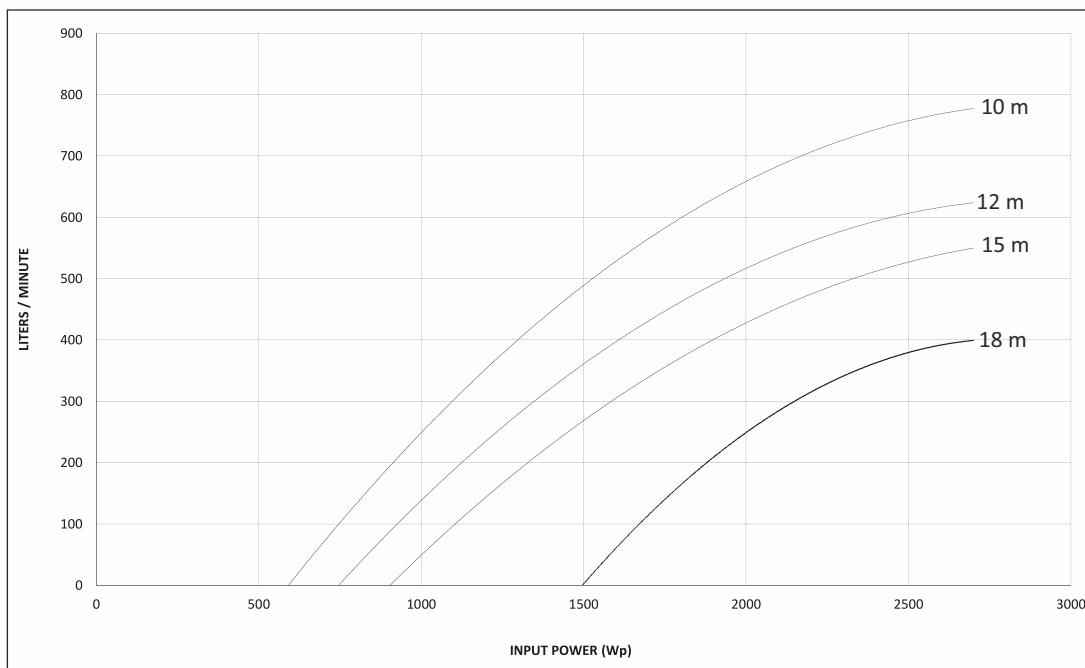


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
65 mm	65 mm

SOLAR PUMPING SYSTEM

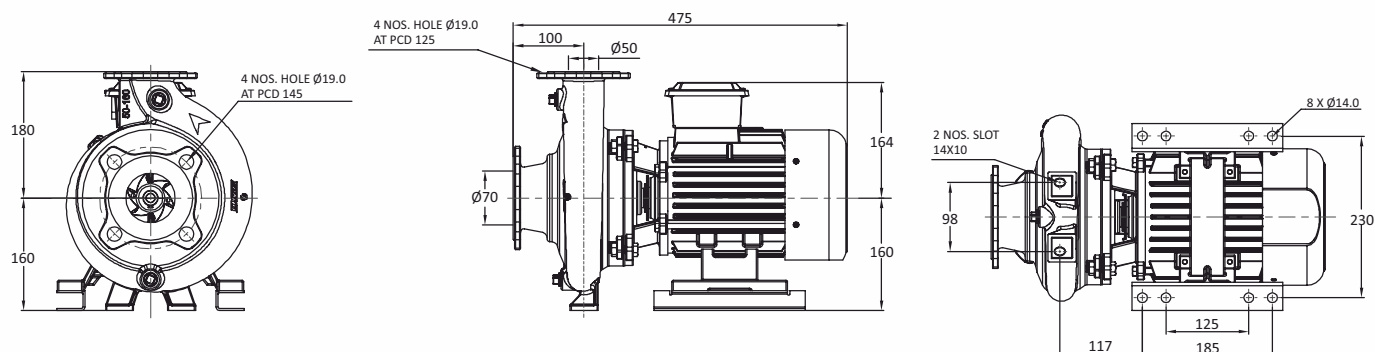
SOLAR 58 DCSMP 2700

PUMPSET CODE : 9500002131
 DISCHARGE (LPD) : 341550
 DISCHARGE (LPW) : 126.5
 DUTY HEAD : 10 METER



	INPUT POWER (Wp)						
	2700	2100	1800	1500	900	750	600
HEAD (m)	FLOW IN LPM						
18	400	280	170	0			
15	545	475	350	270	0		
12	625	530	480	350	90	0	
10	782	675	592	500	200	100	0

DIMENSIONAL (in mm) -

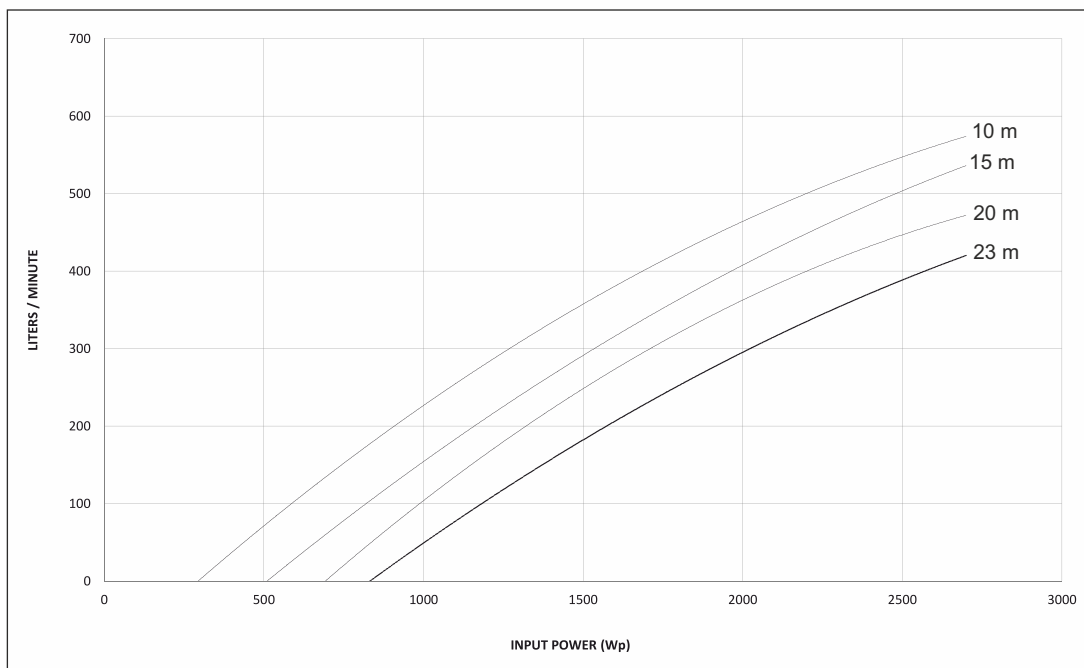


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
75 mm	75 mm

SOLAR PUMPING SYSTEM

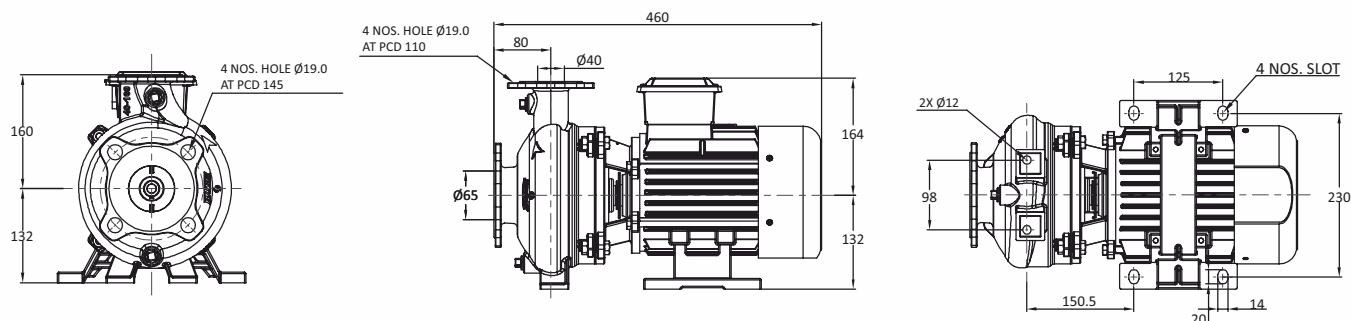
SOLAR 28 DCSMP 2700

PUMPSET CODE : 9500002048
DISCHARGE (LPD) : 171450
DISCHARGE (LPW) : 63.5
DUTY HEAD : 20 METER



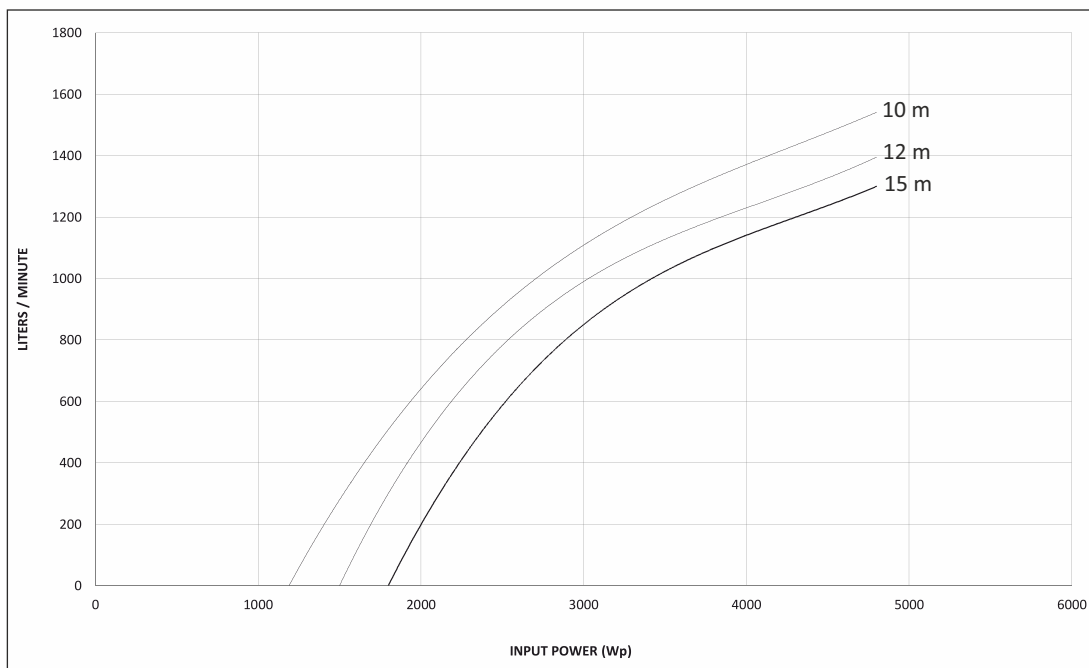
	INPUT POWER (Wp)						
	2700	2400	1500	830	700	500	300
HEAD (m)	FLOW IN LPM						
23	418	375	180	0			
20	475	428	250	50	0		
15	530	495	290	95	65	0	
10	570	540	350	180	140	70	0

DIMENSIONAL (in mm) -



Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
75 mm	65 mm

PUMPSET CODE : 9500002132
DISCHARGE (LPD) : 631200
DISCHARGE (LPW) : 131.5
DUTY HEAD : 10 METER

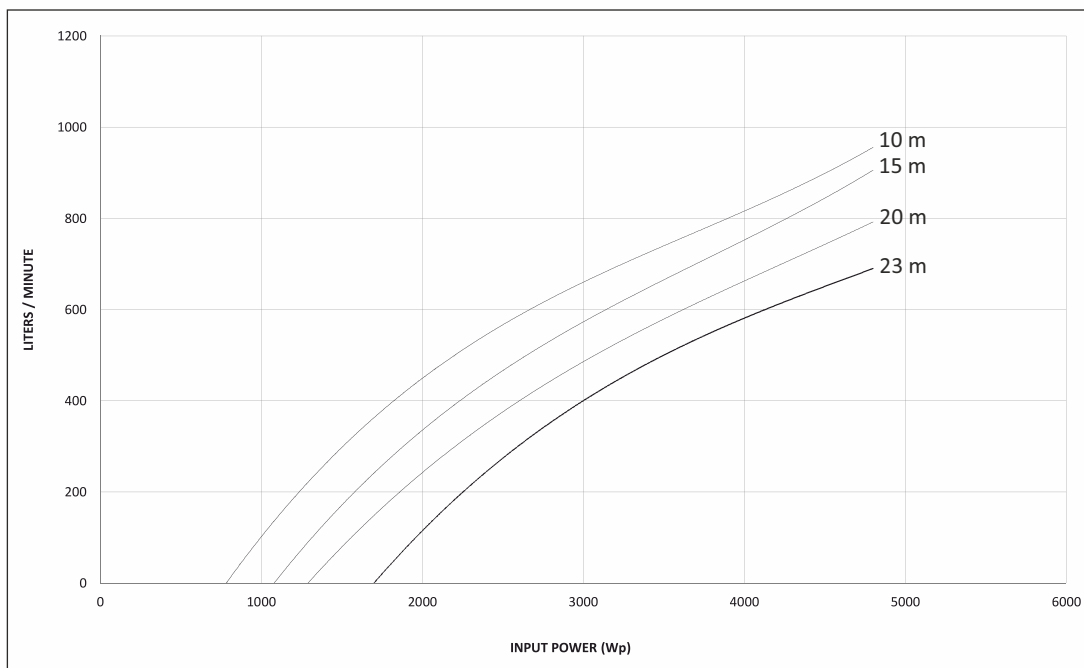


	INPUT POWER (Wp)					
	4800	3600	3000	1800	1500	1200
HEAD (m)	FLOW IN LPM					
15	1300	1050	850	0		
12	1395	1150	990	300	0	
10	1540	1288	1100	500	300	0

Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

PUMPSET CODE : 9500002133
DISCHARGE (LPD) : 299520
DISCHARGE (LPW) : 62.4
DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	4800	4200	3000	1700	1300	1100	800
HEAD (m)	FLOW IN LPM						
23	690	610	400	0			
20	790	700	480	155	0		
15	900	801	560	250	100	0	
10	950	860	650	360	235	150	0

Technical drawings of the 1000W 3-phase motor showing front, side, and rear views with dimensions.

Front View: Shows the motor's front face with a total width of 160 mm and a total height of 180 mm. The mounting flange has 4 NOS. HOLE Ø19.0 AT PCD 145.

Side View: Shows the motor's side profile with a total length of 526 mm and a total height of 186 mm. The mounting flange has a diameter of Ø70 and 4 NOS. HOLE Ø19.0 AT PCD 125. The motor body has a diameter of Ø50 and a mounting flange diameter of 100 mm.

Rear View: Shows the motor's rear face with a total width of 190 mm and a total height of 160 mm. The mounting flange has 8 X Ø14.0 holes and 2 NOS. SLOT 14X10. The motor body has a diameter of Ø50 and a mounting flange diameter of 100 mm. The distance between the mounting flange and the motor body is 161 mm. The distance between the mounting flange and the motor body is 140 mm. The distance between the mounting flange and the motor body is *210 mm.

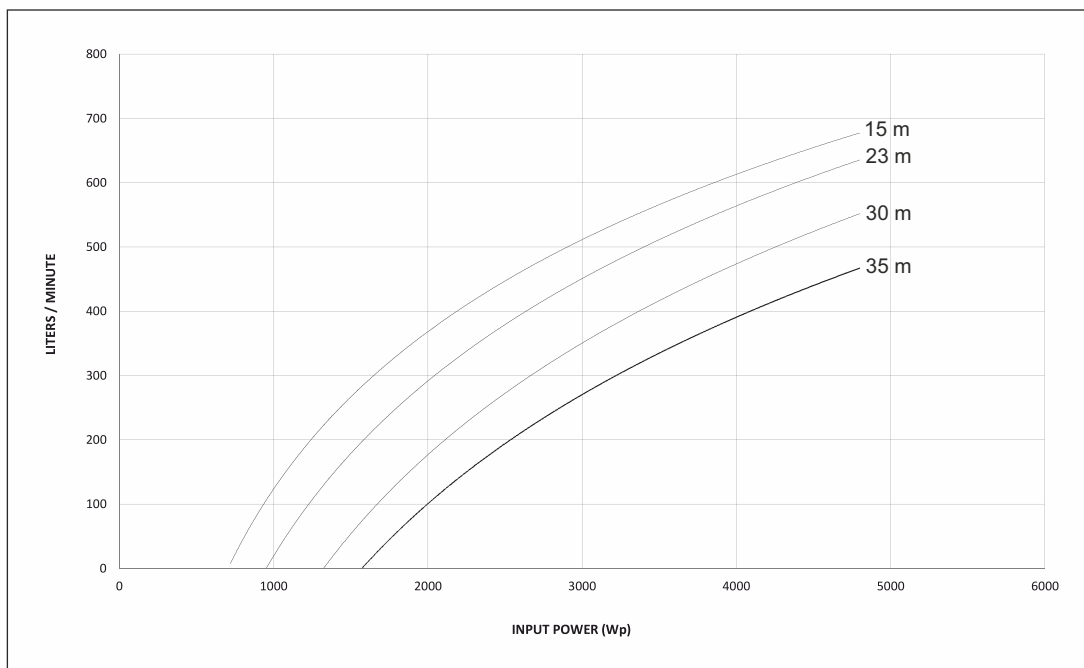
Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
75 mm	65 mm

SOLAR PUMPING SYSTEM

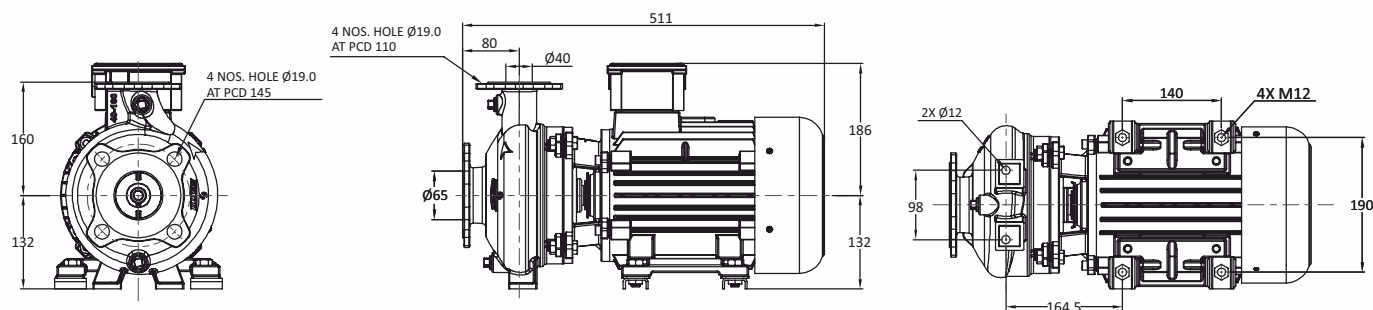
SOLAR 33 DCSMP 4800

PUMPSET CODE : 9500002049
 DISCHARGE (LPD) : 196800
 DISCHARGE (LPW) : 41
 DUTY HEAD : 30 METER



HEAD (m)	INPUT POWER (Wp)						
	4800	3600	2400	1500	1300	950	720
FLOW IN LPM							
35	490	330	150	0			
30	565	425	230	60	0		
23	640	530	340	180	130	0	
15	670	580	430	270	230	100	0

DIMENSIONAL (in mm) -

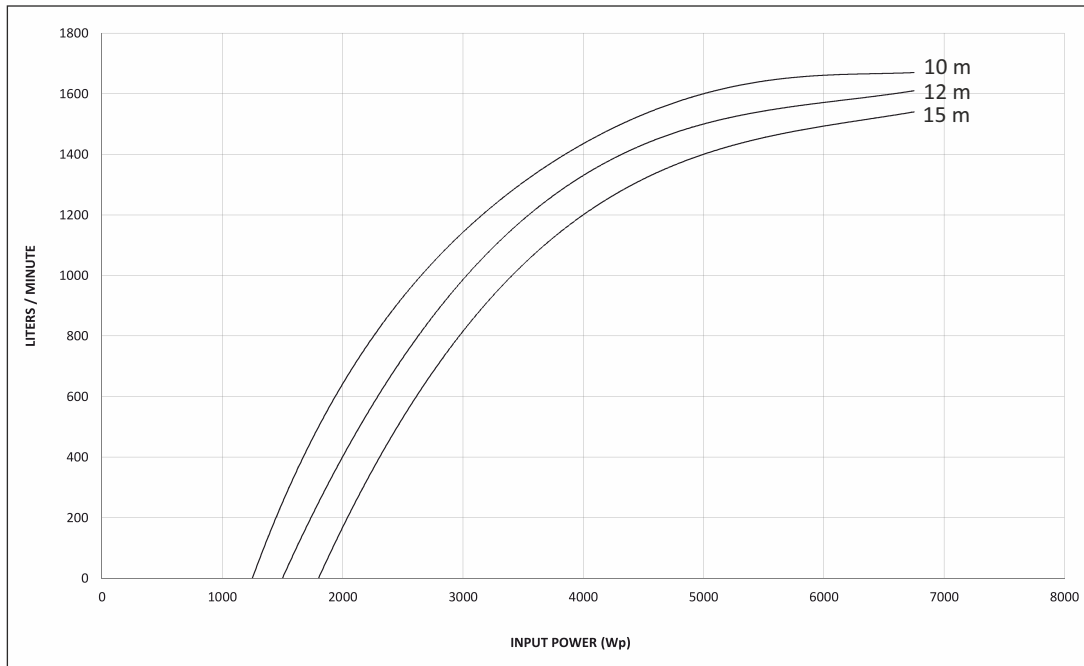


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
75 mm	65 mm

SOLAR PUMPING SYSTEM

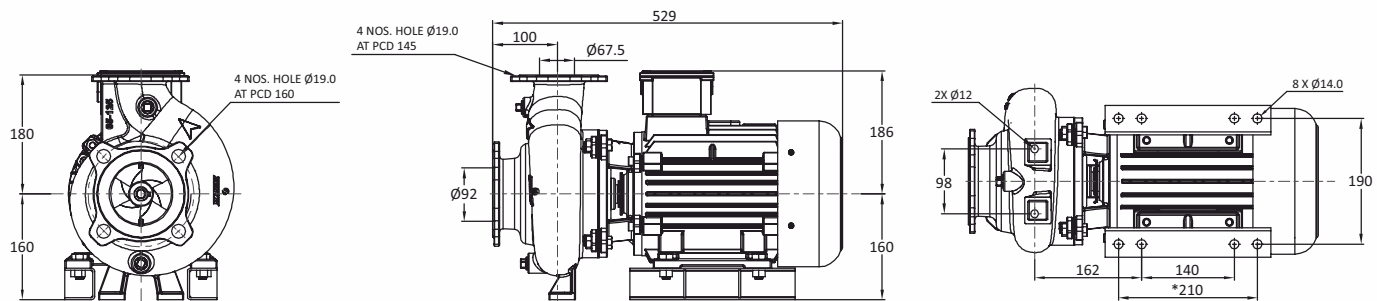
SOLAR 150 DCSMP 6750

PUMPSET CODE : 9500002134
DISCHARGE (LPD) : 857182.5
DISCHARGE (LPW) : 127
DUTY HEAD : 10 METER



	INPUT POWER (Wp)					
	6750	5000	4000	1800	1500	1250
HEAD (m)	FLOW IN LPM					
15	1540	1400	1200	0		
12	1610	1500	1330	250	0	
10	1670	1600	1435	500	250	0

DIMENSIONAL (in mm) -



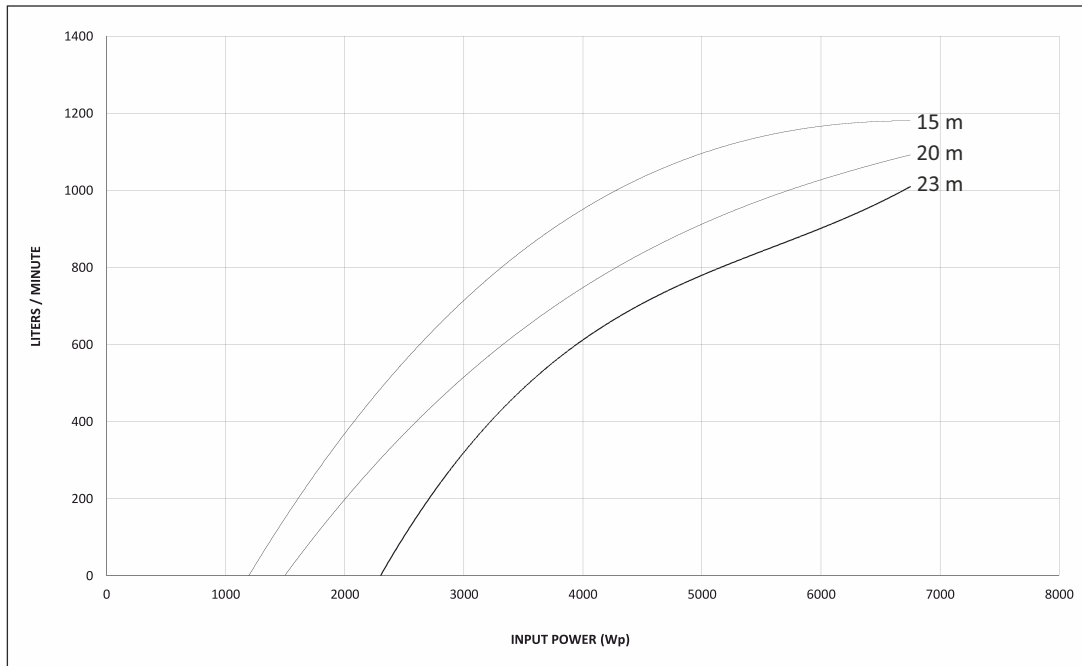
Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

SOLAR PUMPING SYSTEM

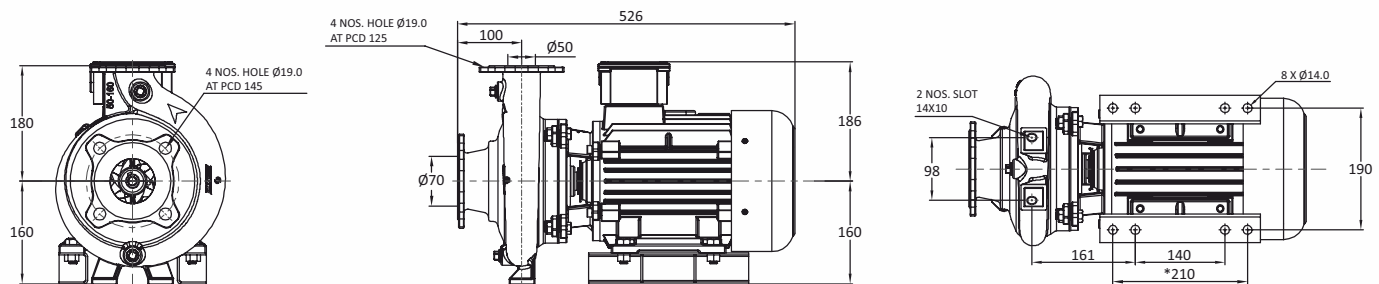
SOLAR 67 DCSMP 6750

PUMPSET CODE : 9500002135
DISCHARGE (LPD) : 454950
DISCHARGE (LPW) : 67.5
DUTY HEAD : 20 METER



	INPUT POWER (Wp)					
	6750	5000	3000	2300	1500	1200
HEAD (m)	FLOW IN LPM					
23	1010	780	320	0		
20	1092	914	510	310	0	
15	1180	1100	700	500	150	0

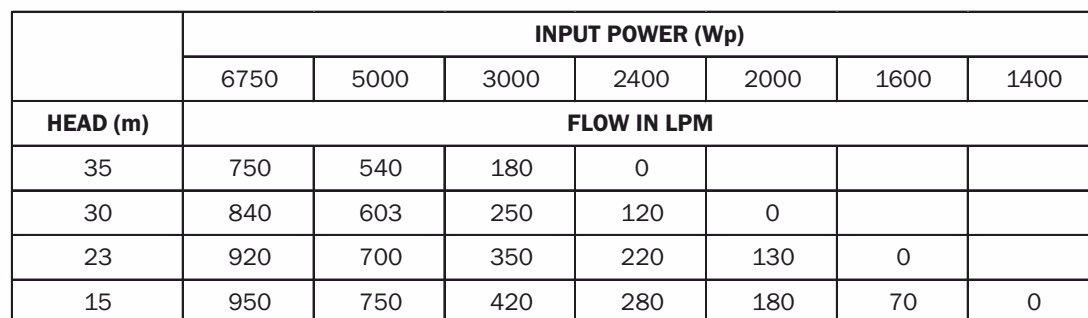
DIMENSIONAL (in mm) -



Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	75 mm

PUMPSET CODE : 9500002050
DISCHARGE (LPD) : 293625
DISCHARGE (LPW) : 43.5
DUTY HEAD : 30 METER



Technical drawings of the 1000 Series Motor showing front, side, and rear views with dimensions.

Front View Dimensions:

- Overall width: 526
- Overall height: 186
- Mounting flange diameter: $\phi 70$
- 4 NOS. HOLE $\phi 19.0$ AT PCD 125
- 4 NOS. HOLE $\phi 19.0$ AT PCD 145
- 180 (height to top of mounting flange)
- 160 (height to base of mounting flange)

Side View Dimensions:

- Overall width: 526
- Overall height: 186
- Mounting flange diameter: $\phi 70$
- 4 NOS. HOLE $\phi 19.0$ AT PCD 125
- 100 (width of mounting flange)
- $\phi 50$ (hole diameter in mounting flange)
- 160 (height to base of mounting flange)

Rear View Dimensions:

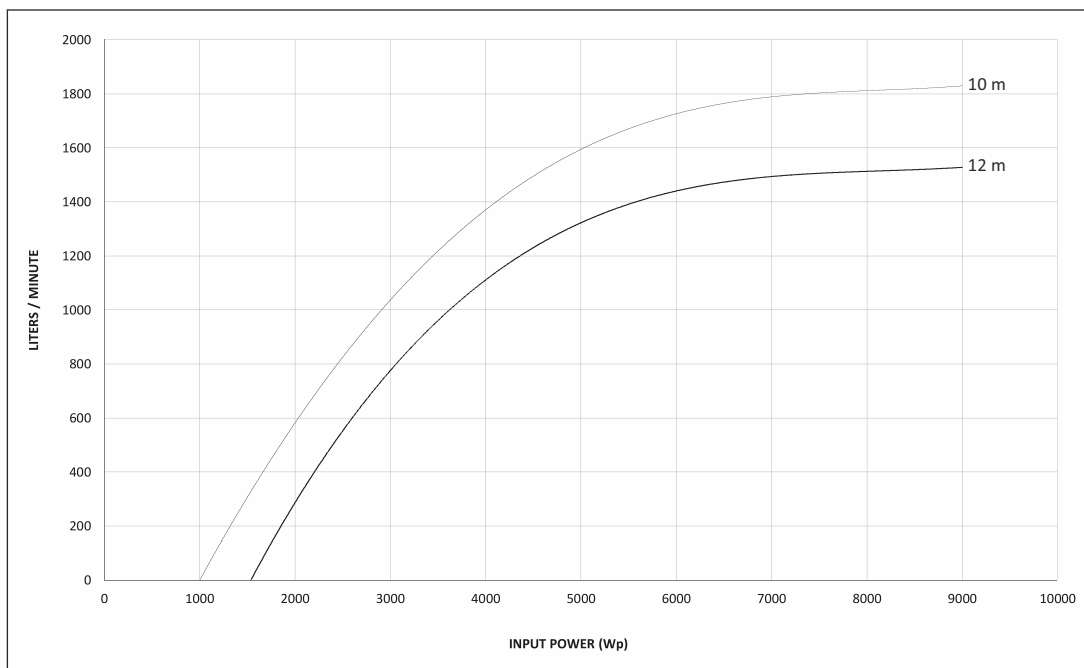
- Overall width: 526
- Overall height: 190
- Mounting flange diameter: $\phi 70$
- 4 NOS. HOLE $\phi 19.0$ AT PCD 125
- 4 NOS. HOLE $\phi 19.0$ AT PCD 145
- 180 (height to top of mounting flange)
- 160 (height to base of mounting flange)
- 100 (width of mounting flange)
- $\phi 50$ (hole diameter in mounting flange)
- 161 (width of motor body)
- 140 (width of motor body)
- *210 (width of motor body)
- 98 (height to top of mounting flange)
- 160 (height to base of mounting flange)
- 2 NOS. SLOT 14X10
- 8 X $\phi 14.0$

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	75 mm

SOLAR PUMPING SYSTEM

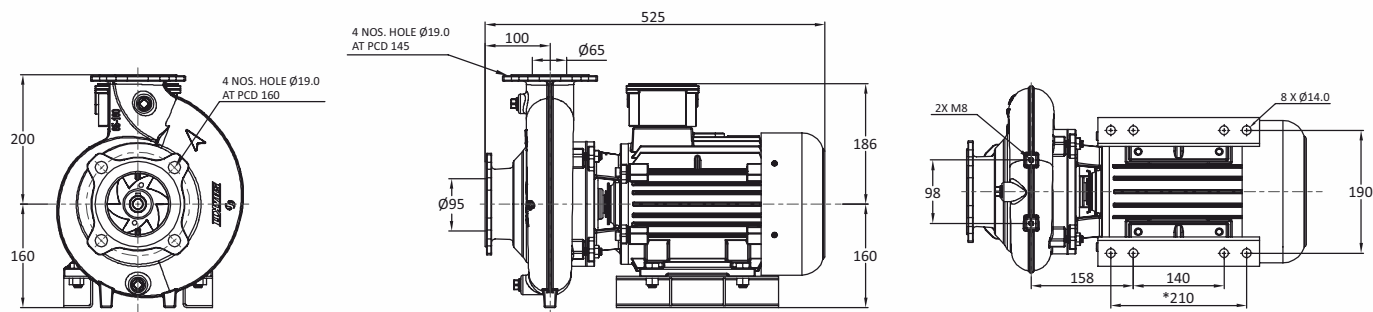
SOLAR 179 DCSMP 9000

PUMPSET CODE : 9500002136
DISCHARGE (LPD) : 1053000
DISCHARGE (LPW) : 117
DUTY HEAD : 10 METER



	INPUT POWER (Wp)						
	9000	6300	4500	2700	2000	1500	1000
HEAD (m)	FLOW IN LPM						
12	1530	1450	1250	650	250	0	
10	1830	1750	1500	900	600	300	0

DIMENSIONAL (in mm) -



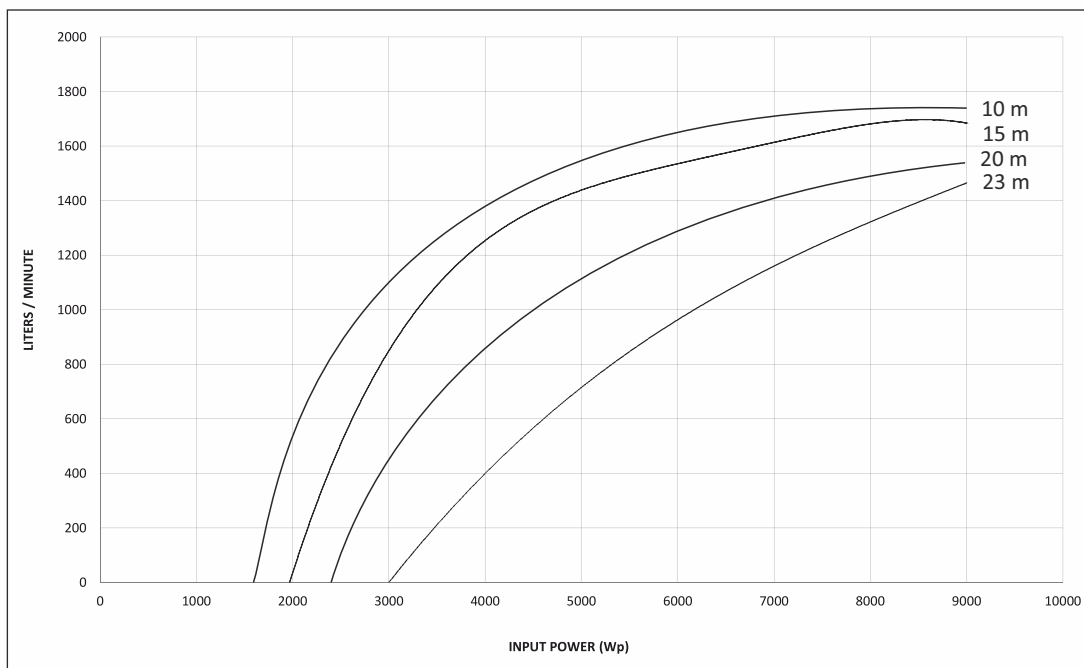
Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
125 mm	125 mm

SOLAR PUMPING SYSTEM

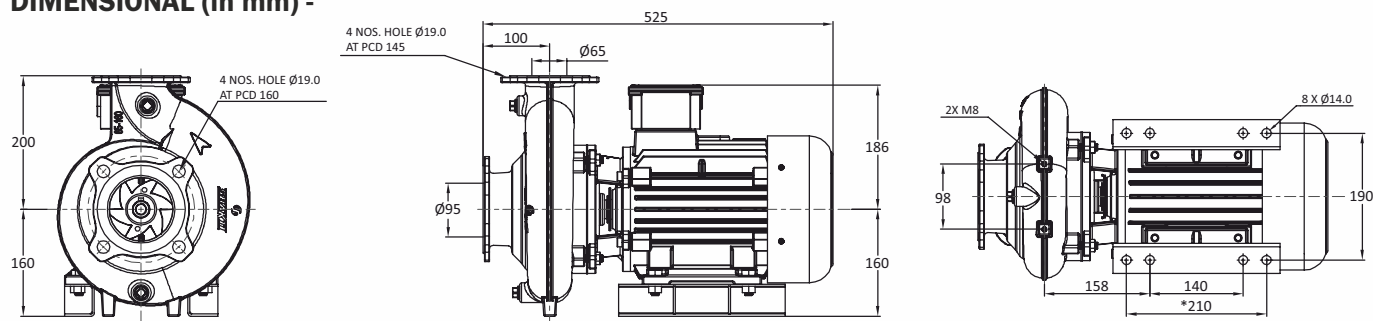
SOLAR 101 DCSMP 9000

PUMPSET CODE : 9500002137
DISCHARGE (LPD) : 615600
DISCHARGE (LPW) : 68.4
DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	9000	7000	5000	3000	2400	2000	1600
HEAD (m)	FLOW IN LPM						
23	1465	1160	715	0			
20	1540	1320	1100	420	0		
15	1685	1610	1450	800	500	0	
10	1740	1670	1550	1120	800	480	0

DIMENSIONAL (in mm) -



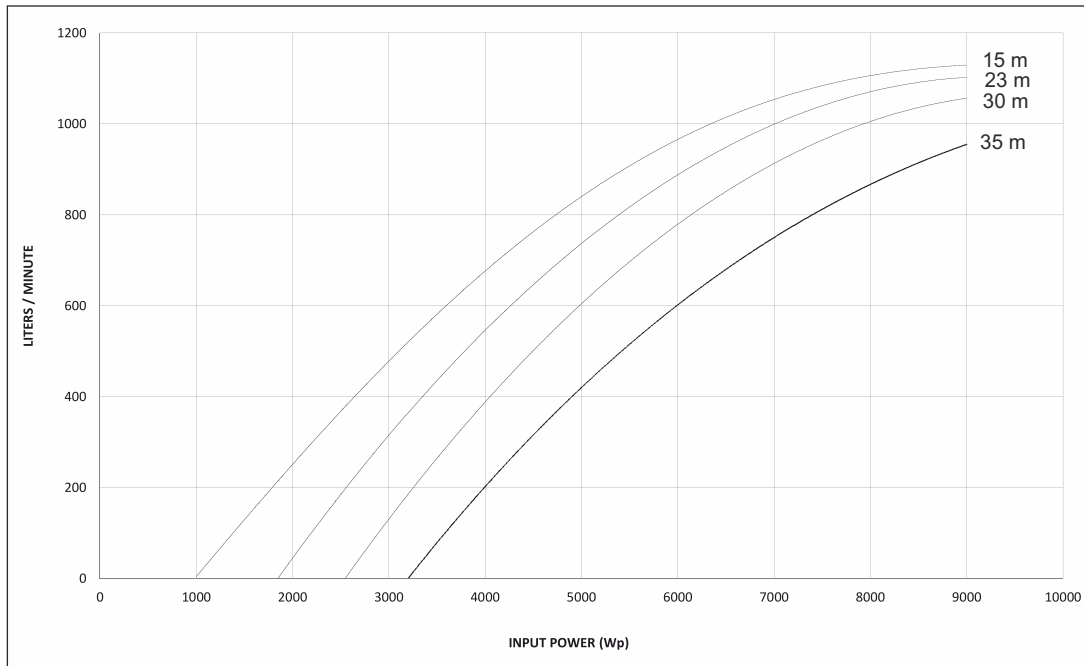
Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

SOLAR PUMPING SYSTEM

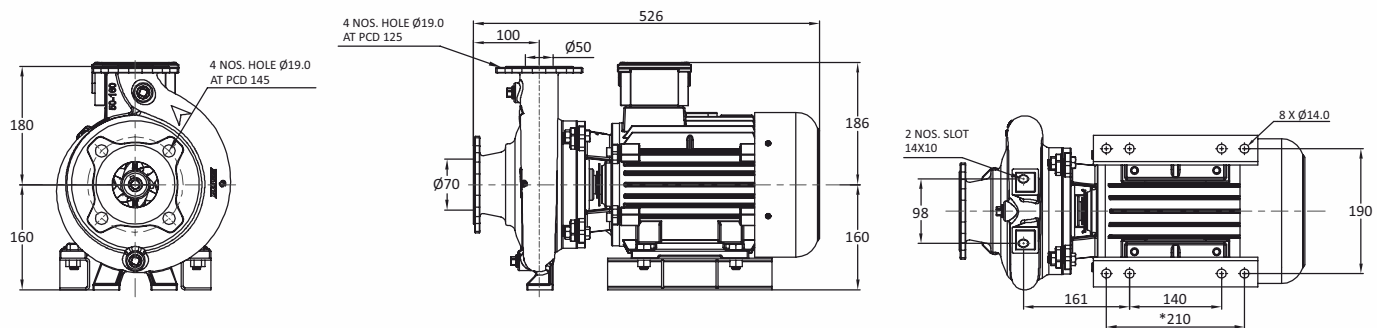
SOLAR 70 DCSMP 9000

PUMPSET CODE : 9500002051
DISCHARGE (LPD) : 418500
DISCHARGE (LPW) : 46.5
DUTY HEAD : 30 METER



	INPUT POWER (Wp)						
	9000	7000	5000	3200	2600	1800	1000
HEAD (m)	FLOW IN LPM						
35	955	750	420	0			
30	1065	890	620	200	0		
23	1100	1000	750	350	200	0	
15	1130	1050	850	500	400	210	0

DIMENSIONAL (in mm) -



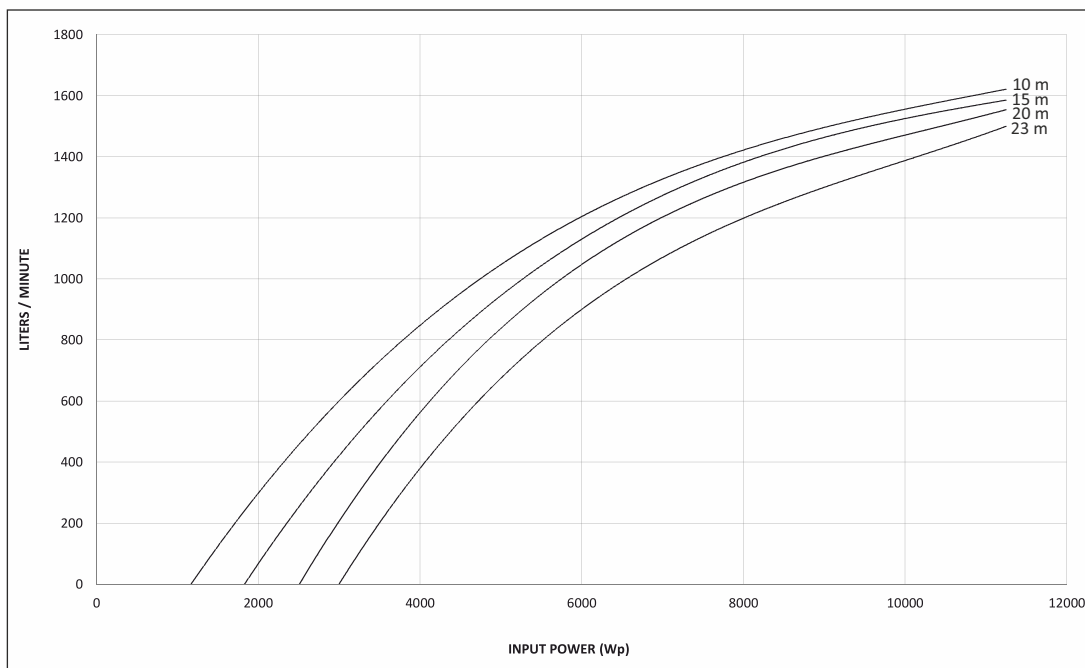
Note:- * Mark dimension recommended for base frame/ground bolting

Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	75 mm

SOLAR PUMPING SYSTEM

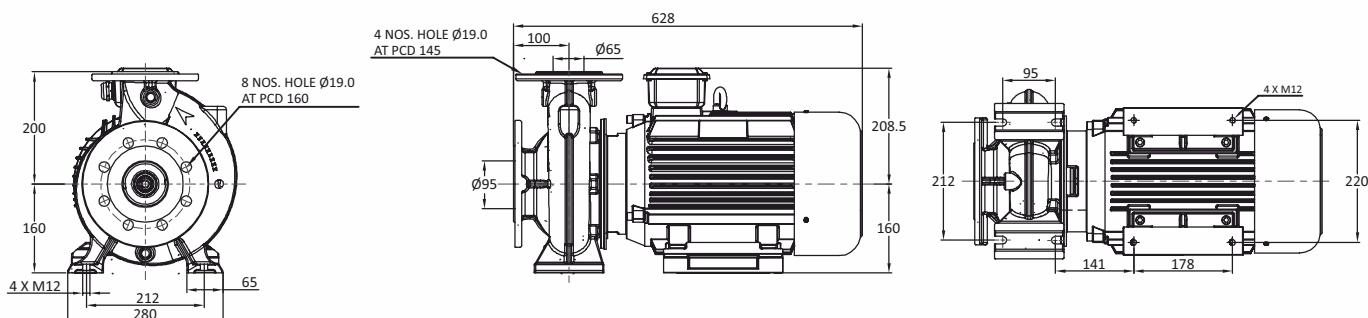
SOLAR 124 DCSMP 11250

PUMPSET CODE : 9500002097
DISCHARGE (LPD) : 742500
DISCHARGE (LPW) : 66
DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	11250	9000	6000	3000	2500	1800	1200
HEAD (m)	FLOW IN LPM						
23	1500	1300	900	0			
20	1555	1400	1050	200	0		
15	1590	1450	1150	400	250	0	
10	1620	1500	1200	600	450	250	0

DIMENSIONAL (in mm) -

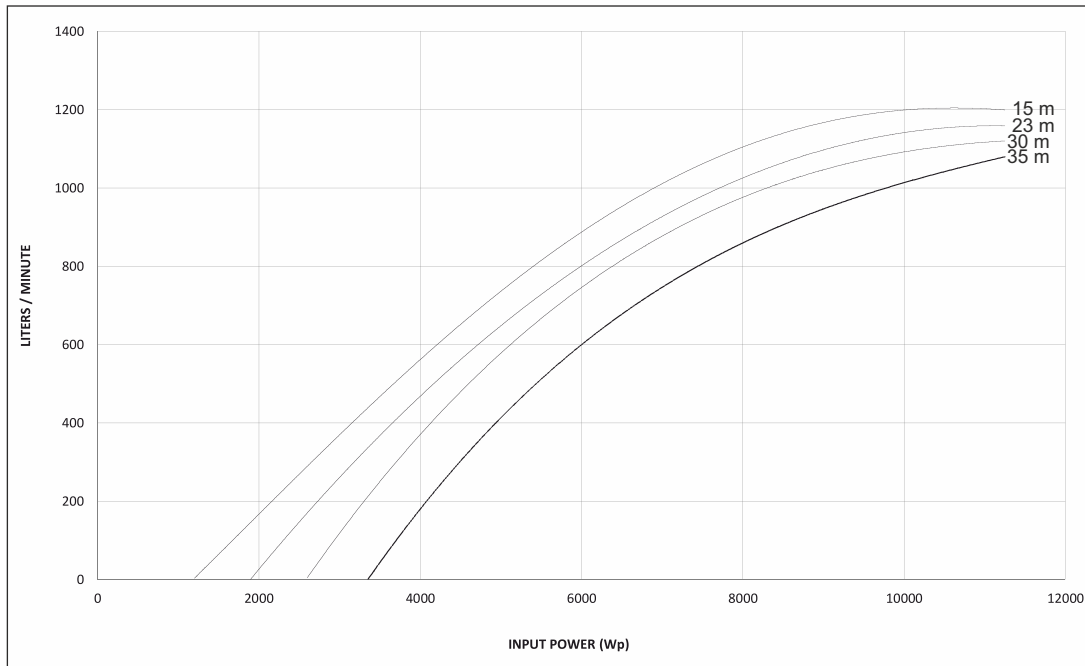


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

SOLAR PUMPING SYSTEM

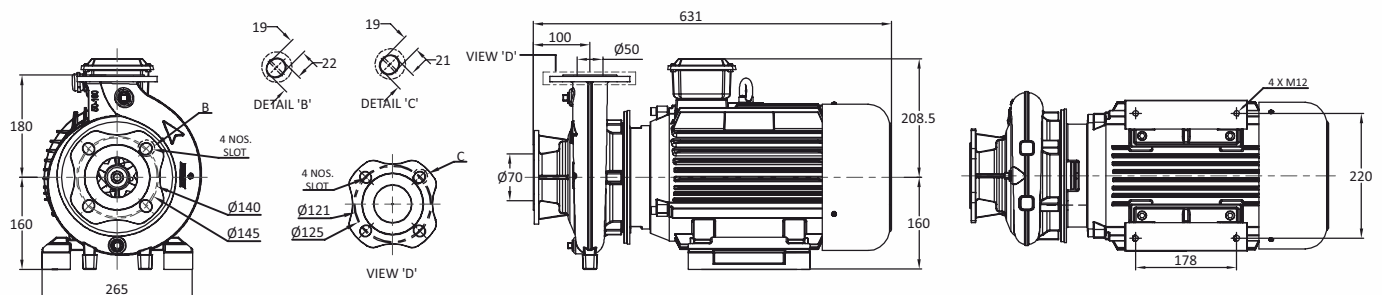
SOLAR 85 DCSMP 11250

PUMPSET CODE : 9500002074
DISCHARGE (LPD) : 506250
DISCHARGE (LPW) : 45
DUTY HEAD : 30 METER



	INPUT POWER (Wp)						
	11250	8000	6000	3350	2600	1800	1200
HEAD (m)	FLOW IN LPM						
35	1080	860	600	0			
30	1120	980	740	220	0		
23	1150	1050	800	300	170	0	
15	1200	1100	900	400	330	120	0

DIMENSIONAL (in mm) -

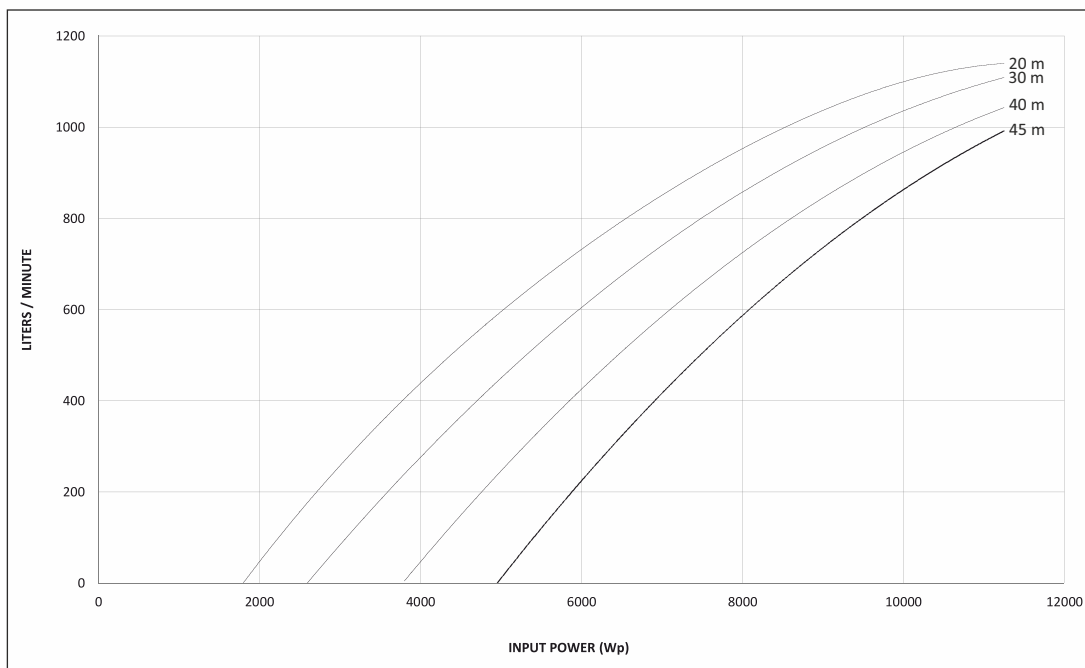


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	75 mm

SOLAR PUMPING SYSTEM

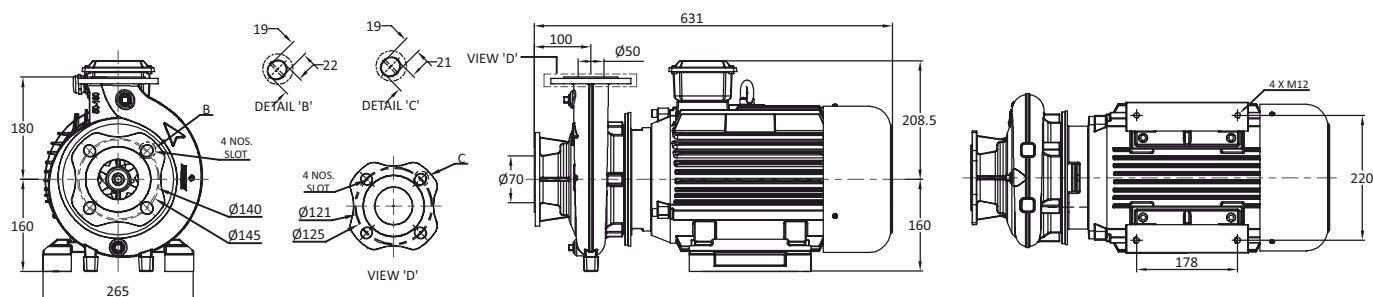
SOLAR 58 DCSMP 11250

PUMPSET CODE : 9500002098
DISCHARGE (LPD) : 348750
DISCHARGE (LPW) : 31
DUTY HEAD : 40 METER



	INPUT POWER (Wp)						
	11250	10000	6000	5000	3800	2600	1800
HEAD (m)	FLOW IN LPM						
45	1000	850	240	0			
40	1050	935	430	250	0		
30	1100	1050	600	440	250	0	
20	1140	1100	730	600	400	180	0

DIMENSIONAL (in mm) -

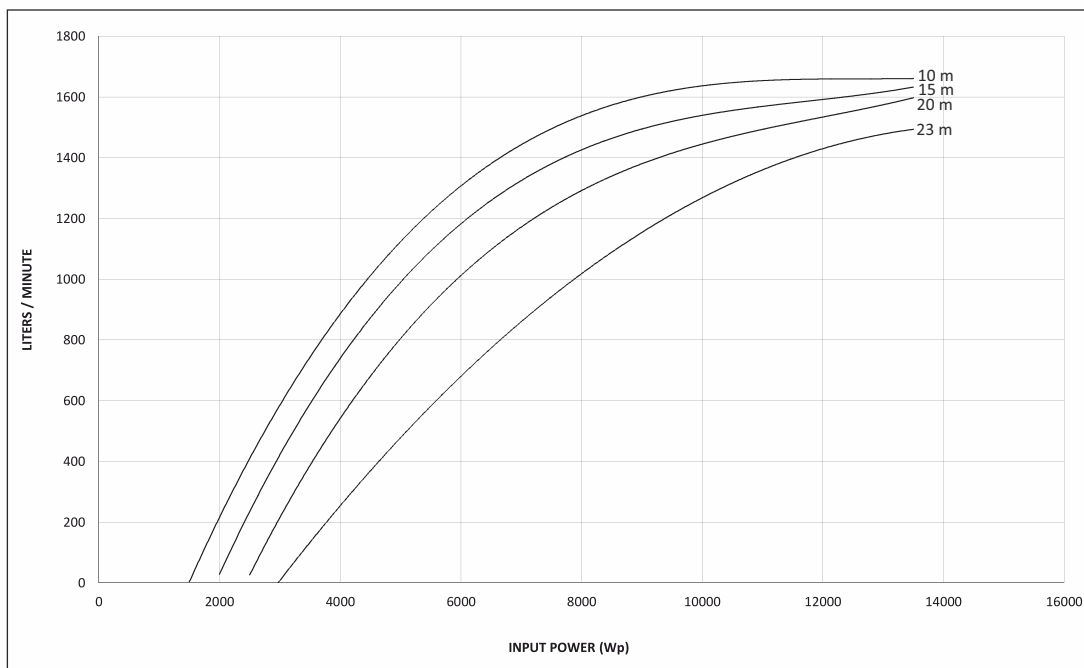


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	75 mm

SOLAR PUMPING SYSTEM

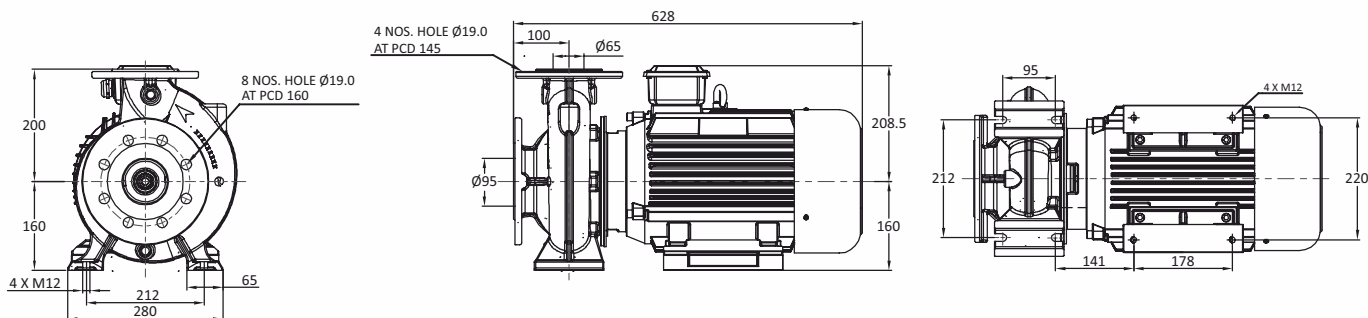
SOLAR 144 DCSMP 13500

PUMPSET CODE : 9500002102
DISCHARGE (LPD) : 870750
DISCHARGE (LPW) : 64.5
DUTY HEAD : 20 METER



	INPUT POWER (Wp)						
	13500	10000	6000	3000	2500	2000	1500
HEAD (m)	FLOW IN LPM						
23	1500	1250	700	0			
20	1596	1450	1000	250	0		
15	1630	1550	1160	450	250	0	
10	1660	1640	1300	600	400	220	0

DIMENSIONAL (in mm) -

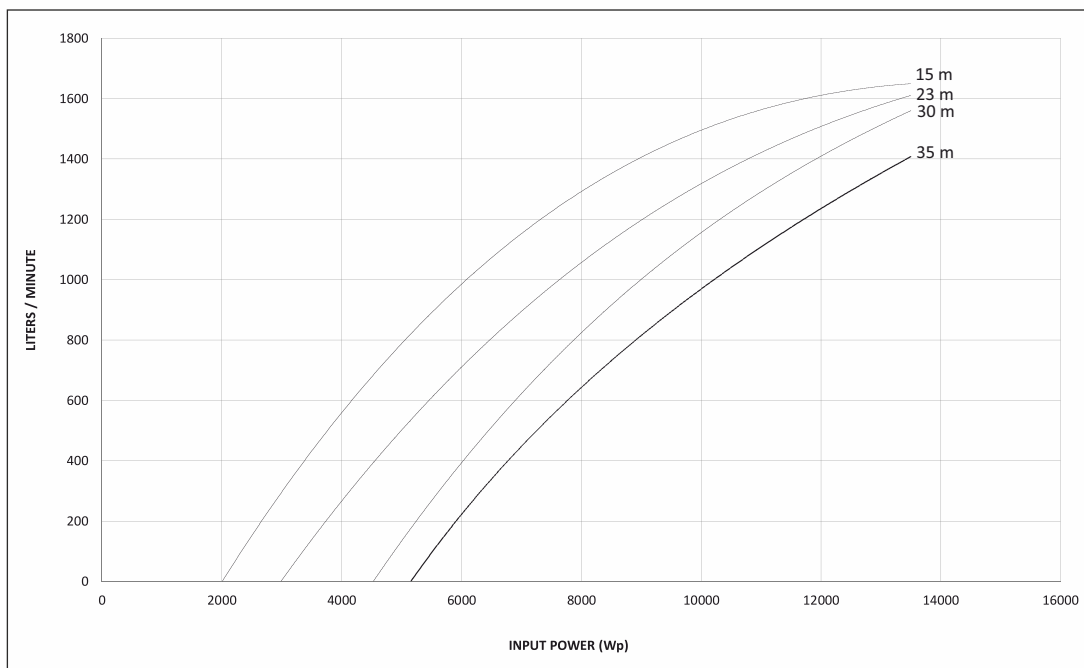


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

SOLAR PUMPING SYSTEM

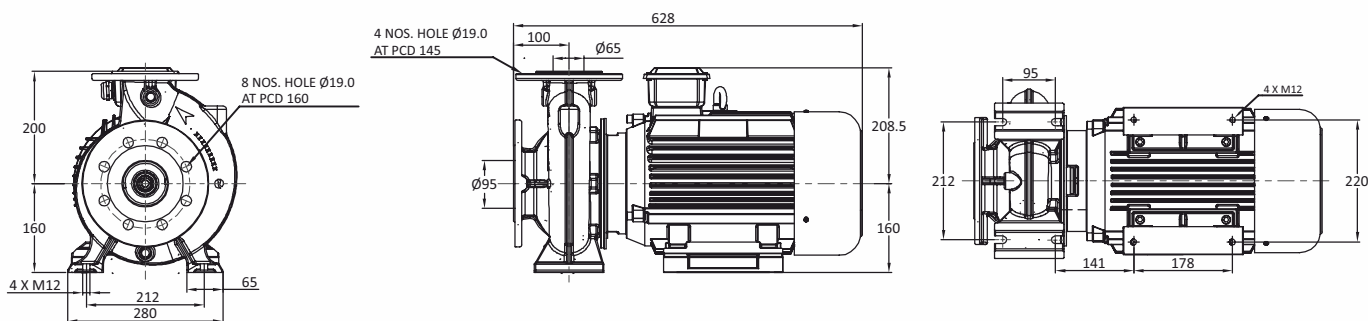
SOLAR 94 DCSMP 13500

PUMPSET CODE : 9500002075
DISCHARGE (LPD) : 560250
DISCHARGE (LPW) : 41.5
DUTY HEAD : 30 METER



	INPUT POWER (Wp)						
	13500	9000	6000	5000	4500	3000	2000
HEAD (m)	FLOW IN LPM						
35	1450	750	200	0			
30	1560	1000	400	120	0		
23	1610	1200	700	500	400	0	
15	1650	1400	1000	800	650	300	0

DIMENSIONAL (in mm) -

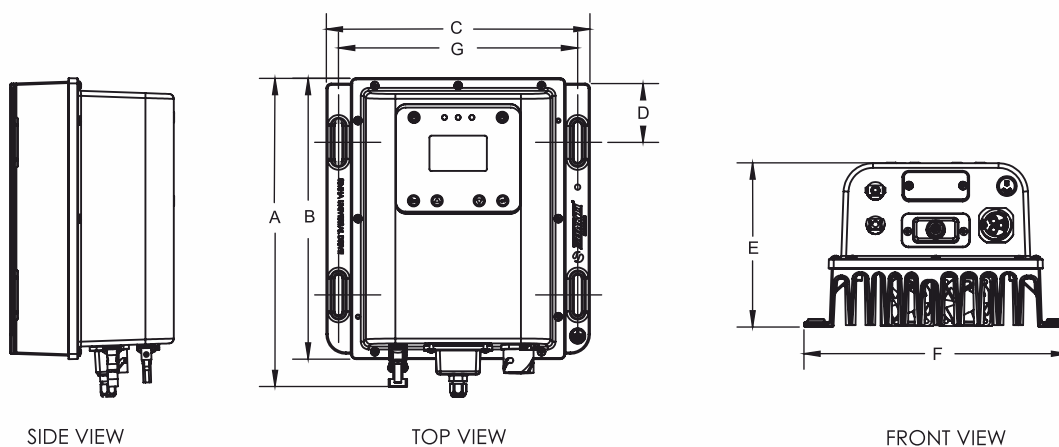


Recommended suction and delivery pipe size	
Suction flange size	Delivery flange size
100 mm	100 mm

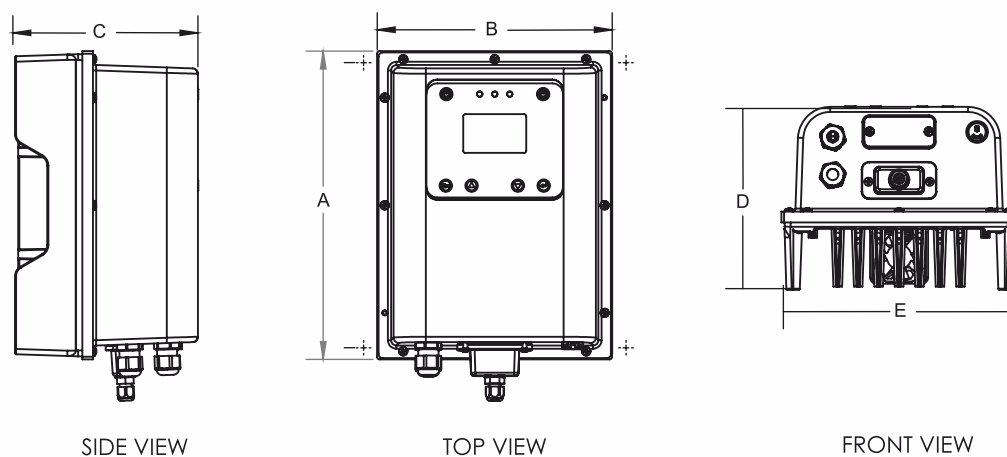
SOLAR PUMPING SYSTEM

SOLAR DC CONTROLLER GA DRAWING (in mm) -

CONTROLLER CODE	DESCRIPTION	A	B	C	D	E	F	G
9600000126	SIMHA UNIVERSAL DRIVE+3P 15A 450VDC	315	286	270	60	166	270	244
9600000127	SIMHA UNIVERSAL DRIVE+3P 15A 850VDC	315	286	270	60	166	270	244



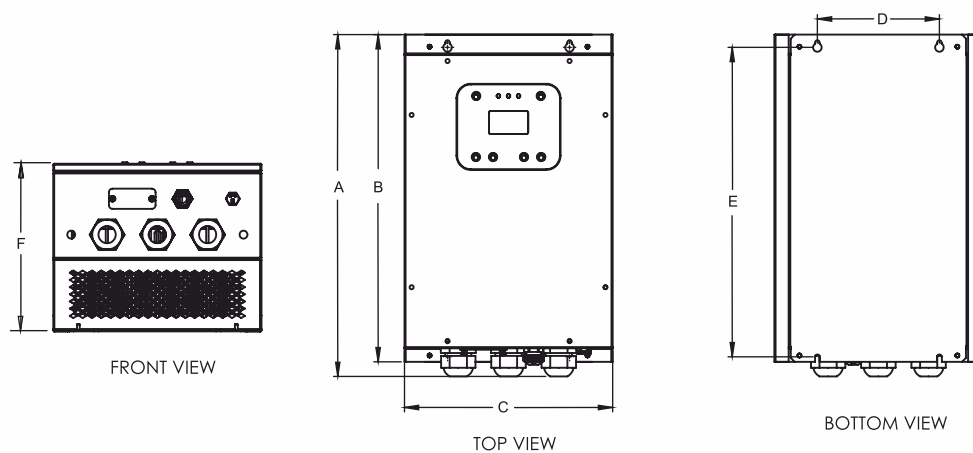
CONTROLLER CODE	DESCRIPTION	A	B	C	D	E
9600000143	SIMHA UNIVERSAL DRIVE+3Ø,15A,850V,HV	287	218	172	170	219



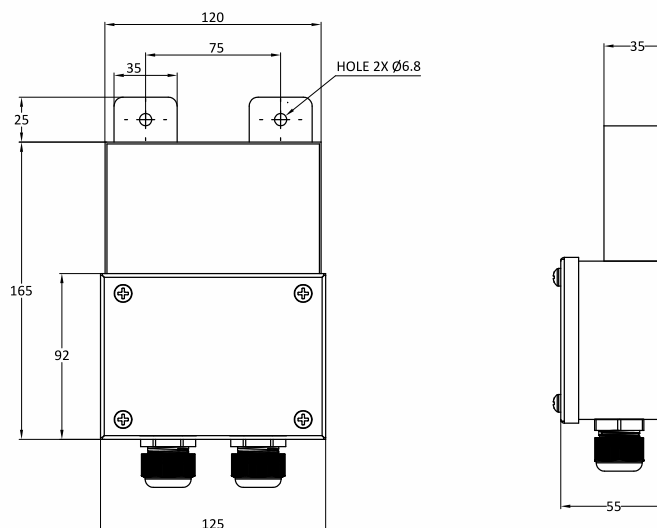
SOLAR PUMPING SYSTEM

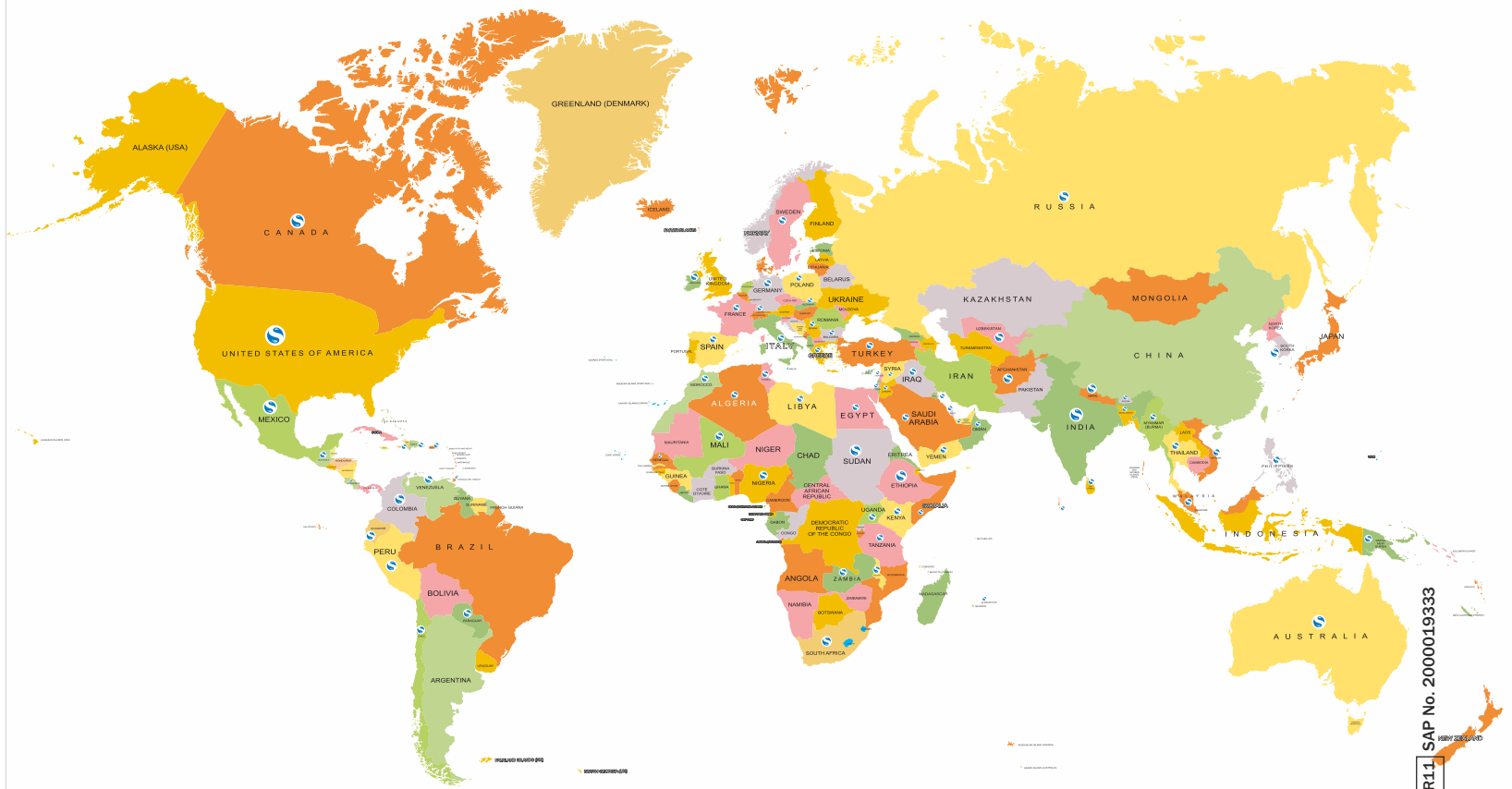
SOLAR DC CONTROLLER GA DRAWING (in mm) -

CONTROLLER CODE	DESCRIPTION	A	B	C	D	E	F
9600000073	NANDI UNIVERSAL DRIVE 3P 25A 850 VDC	420	409	250	160	386	218



CONTROLLER CODE	DESCRIPTION
9000032269	SOLAR CONTROLLER 3P, 1000 Watt





Jul./2025/R11 SAP No. 2000019333

Jul./2025-26/L9/000 VC -



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