

## Technical Datasheet – CapSub4 | System 2 | Model 60-100

CapSub4 System 2 Model 60-100 is a complete bore pumping and control system - designed and configured by the manufacturer, and delivered complete with everything you need for DIY installation.

Best Suited to: Medium to two storey home and garden / Deep Bores

### Control

CapSmart VFD maintains a constant delivery pressure by matching pump speed to water delivery requirements – eliminating pressure fluctuations when demand changes.

- Fully automatic electronic control system
- Programmable, user-friendly digital interface
- Real time system feedback including pump pressure and motor current
- Fault finding, diagnostics and error logging.
- Variable Frequency Control Technology
- Reduced Power consumption; power consumed matches water delivery requirements
- Dry-run protection with automatic system reset and restart
- Over Pressurization cut out protection
- Soft Start eliminates water hammer
- Standard 15amp 3 pin 240v power connection – Plug directly into power point.

For more information on the CapSmart VFD, refer to the operating manual at:

<http://www.capsub.com.au/pages/techlibrary.aspx>

### Pumping Power

The E4XP Series pump platform is newly designed from the ground-up, using the latest technology, materials and patented design innovations to deliver the most efficient, longest service life submersible pumps available.

The E4XP 30/21 Features:

- Desert Sand Out System® - delivers best in class capabilities for sandy bores, and can handle up to 300 gm3 of solids (twice the industry standard) with no deterioration in service life.
- Defender® - Integrated Galvanic Corrosion System protects the pump and motor from galvanic corrosion by passivating stainless steel components.
- Easy-Check® - Combining a unique low head loss check valve for improved flow, and innovative sealing and assembly system to extend pump life, avoid the possibility of the check valve jamming, and simplify inspection and maintenance
- Micro-cast Stainless Steel Pump Ends
- Fully enclosed Pump shaft
- Fully dismountable pump end

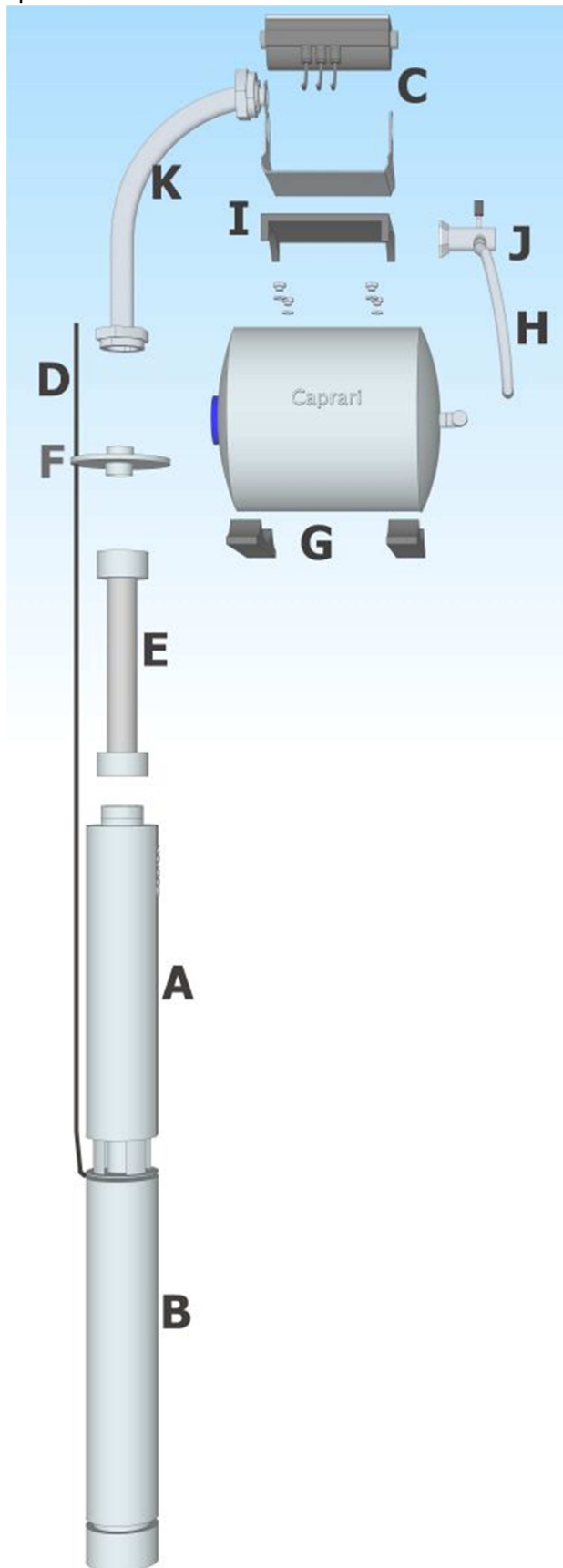
#### Performance Data

Flow	l/min	0	30	36	42	48	54	60	66	72	78	84	90
Head	m	135	120	117	114	111	105	100	92.2	84.5	76	66.5	56.5
Flow	gph	0	396	475	554	634	713	792	871	950	1,029	1,109	1,188
Head	feet	443	394	384	374	364	344	328	302	277	249	218	185

For Performance Curve and additional performance detail refer to page 3.

## System in Detail – CapSub4 | System 2 | Model 60-100

Every CapSub System includes everything you need for simple installation. It's professionally pre-wired, internally pre-plumbed with the pump unit, power supply and rising main configured to match your supplied bore specifications.

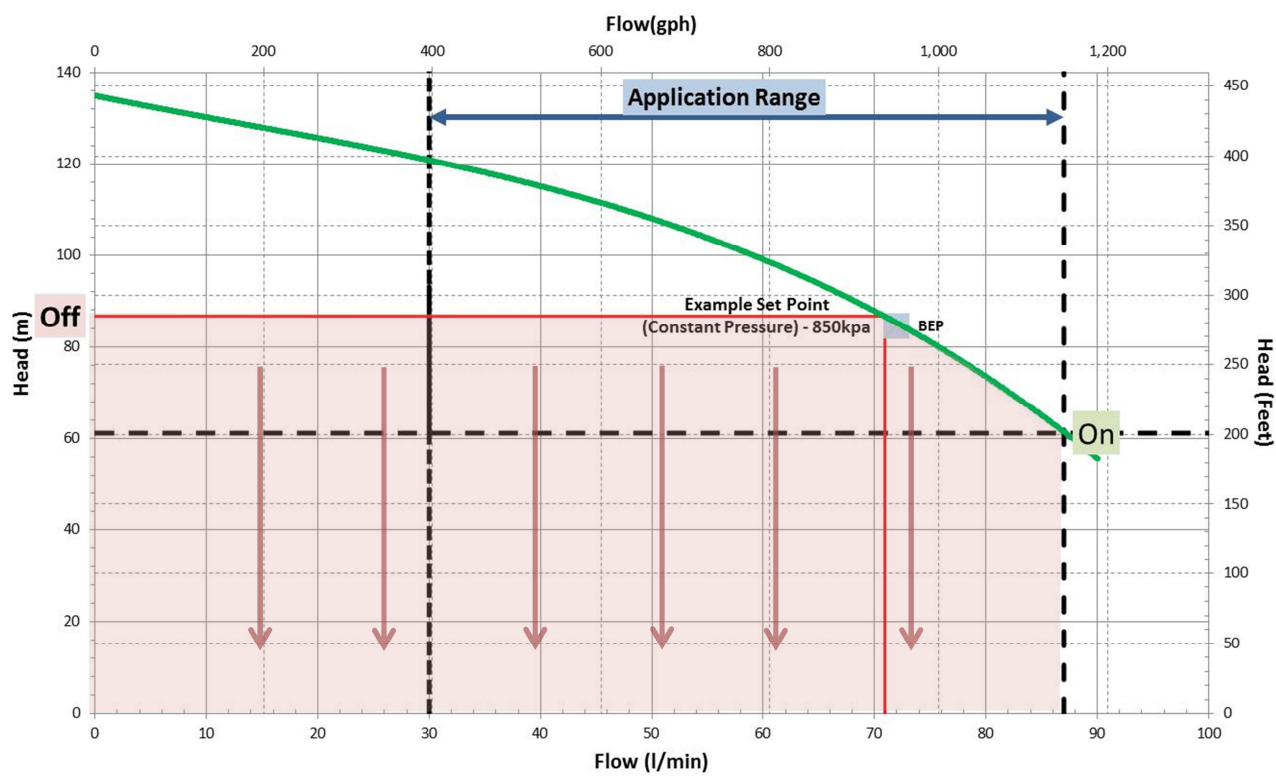


	<b>System</b>	2
	<b>Model</b>	60-100
	<b>Suitable for</b>	Medium /Two Storey Home and Garden / Deep Bores
	Comes with everything you need	✓
	<b>Pumping Power</b>	
A	Caprari E4XP Series Pump Model	30/21
B	Motor Model	MCH42-8
	Motor P2 Power (kW)	1.5
	Max in-bore diameter (suits 4")	98mm
	<b>Controller</b>	
C	Controller Model	CapSmart VFD
	Automatic On/Off Control	✓
	Variable Frequency Drive (Constant Pressure)	✓
	Current sensing technology (Pump & Motor Protection)	✓
	Plug and Play - 240v 15 Amp 3 Pin "IN" (2m Length)	✓
	Power Out, to Motor	240V, 3 Phase
	<b>The Pump</b>	
	Galvanic Defender ® Corrosion Protection	✓
	Easy Check ® High Flow Check Valve	✓
	Desert Sand ® (Sand Protection system to 300gm3)	✓
	<b>Down the Bore</b>	
D	Electrical Drop Cable (High Quality Rubber Submersible rated)	3C+E 2.5mm
E	Flexibore 100 Series Flexible Rising Main, c/- Stainless Steel Couplings	✓
	Flexible Rising Main Size	32mm
	Pump and Motor Suspension	Not Independently Required - Flexibore is designed to suspend the pump
F	Solid Stainless Steel Bore Cap (Adjustable) - Suit Bores	4-6"
	Bore Cap Outlet (Threaded)	1 1/4"
	<b>Additional Plumbing and Components</b>	
	Fits inside Std "Polyslab" Pump Cover	✓
G	18L Horizontal Pressure Tank	✓
H	Connection Kit 316SS	1"
I	Bracket	32 SS
J	Delivery Connection (BSP)	32mm / 1 1/4"
K	Flexible Swept Bend in Stainless Steel, c/- Unions	1 1/4"
	<b>Performance Characteristics</b>	
	<b>Metric</b>	
	Max Head (m)	135
	Max Flow (l/min)	90
	Output at BEP	60 l/min @ 1,000 kPa
	<b>Imperial</b>	
	Max Pressure (psi)	192
	Max Flow (gph)	1200
	Output at BEP	790 gph @ 142psi

## Performance Data – CapSub4 | System 2 | Model 60-100

Pump Model: E4XP 30/21  
Motor: MCH42-8  
Controller: CapSmart-VFD

### CapSub4 | System 2 | Model 60-100



**Flow Application Range** 0 - 87 l/min | 0 - 1,150 gph

**Available Pressure Range** 600kpa (ON) - 900 kpa (OFF) | 87psi (ON) - 131psi (OFF)  
61m (ON) - 92m (OFF) | 201 Feet (ON) - 301 Feet (OFF)

**Example Set Point** 850 kpa (This is preset at time of order to customer specification - it can be easily changed)

### How to read the Application Curve

This Application Curve defines the performance and application range of CapSmart VFD controller paired with Caprari E4XP 30/21 Submersible Pump and MCH42-8 Motor.

When flow demand is within the Application Range the controller runs the pump constantly. The CapSmart VFD controller detects system flow requirements to vary the motor frequency, and deliver a constant pressure for all flows from 30 l/min to the set point. In the example, with a set point of 850kpa, constant pressure will be maintained up to a flow of 87 l/min.

CapSmart VFD will switch the pump off when zero flow is detected for a preset minimum of time<sup>1</sup> (this will occur when, for example, all taps have been turned off). When system pressure falls below the bottom of the pressure range<sup>2</sup>, the pump is switched on.

<sup>1</sup> It is at this point that the pressure tank is charged with reserve water

<sup>2</sup> The pressure tank first delivers 18 litres of water, then the pump is switched on automatically.

### Using your own details

Plot the Total Dynamic Head<sup>3</sup> of your water delivery system against the vertical axis. Read across to the Pump Curve (the green line) to determine flow delivery. The closer to BEP (Best Efficiency Point) on the curve, the closer to the pump's optimal operating range.

<sup>3</sup> Calculate Total Dynamic Head for your bore installation using the CapSub selection tool:

## CapSub4 - System 2 - 60-100

### Requested data

Flow	0 l/min
Head	0 m
Fluid	Clean Water
Pumpe type	Single head pump
No. of pumps	1

### Operating pump data

Flow	
Head	
Shaft power	
Efficiency	%
Head H(Q=0)	134 m
Discharge connection	1 1/4"

### Motor data

Frequency	50 Hz
Rated voltage	400 V
Nominal speed	2820 1/min
Number of poles	2
Rated power P2	1.5 kW
Rated current	4 A
Motor type	3~
Insulation class	B
Degree of protection	IP 68

### Operating limits

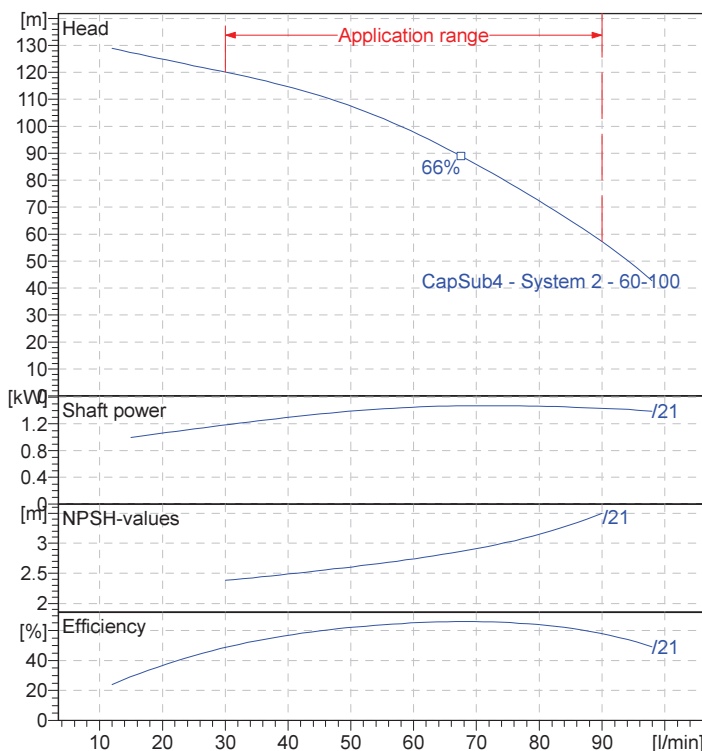
Starts per hour max.	20
Maximum temperature of pumped fluid	30 °C
Maximum content of solid	300 g/m³
Max. Density	998 kg/m³
Max. viscosity	1 mm²/s

### General data

Weight	17.8 kg
--------	---------

### Materials

PUMP CONSTRUCTION	
Suction and delivery body	AISI 304 Precision cast stainless steel
Outer shell	AISI 304 Stainless steel
Shaft	AISI 304 Stainless steel
Protective bushing	Chromed, precision cast AISI 304
Impeller	Thermoplastic resin
Diffuser	Thermoplastic resin
Insert, middle disc and stage seal	AISI 304 Stainless steel
Transmission coupling	AISI 316 Stainless steel
Cable guard	AISI 304 Stainless steel
Cone strainer	AISI 304 Stainless steel
Swing check valve with spring return	
MOTOR CONSTRUCTION	
Upper bearing	Protected by a stainless steel cover
Shaft	Stainless steel
Outer shell	Stainless steel
Seal on shaft, external	Ring with rubber lip
Seal on shaft, internal	Mechanical in ceramic/graphite
Guide-Thrust bearing	Ball bearing steel



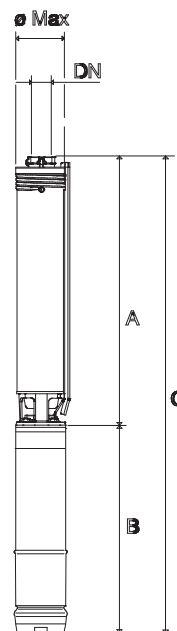
### Operating data

ISO 9906 grade 2

Q [l/min]	H [m]	P [kW]	Eff. [%]	NPSH [m]

A = 770.5  
B = 447  
C = 1217.5  
DN = G1 1/4"  
ø Max = 98

### Dimensions mm



Remarks:

Date 2014-03-12	Page 2	Offer no.	Pos.no 1.1
--------------------	-----------	-----------	---------------