

Technical Datasheet – CapSub4 | System 3 | Model 170-70

CapSub4 System 3 Model 170-70 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: Farms / Commercial Properties / Irrigation

Control

CapDrive Ultimate 040 Constant Pressure Control is a unique, water-cooled full flow control system that delivers exceptional efficiency and expanded control options.

- 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
- Digital inputs enable additional device/control equipment connection
- Dry-run and over pressurization protection
- 3-Phase connection (3 Phase connection requires licensed electrician)

For more information on the CapDrive 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 50/16 Features:

- 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

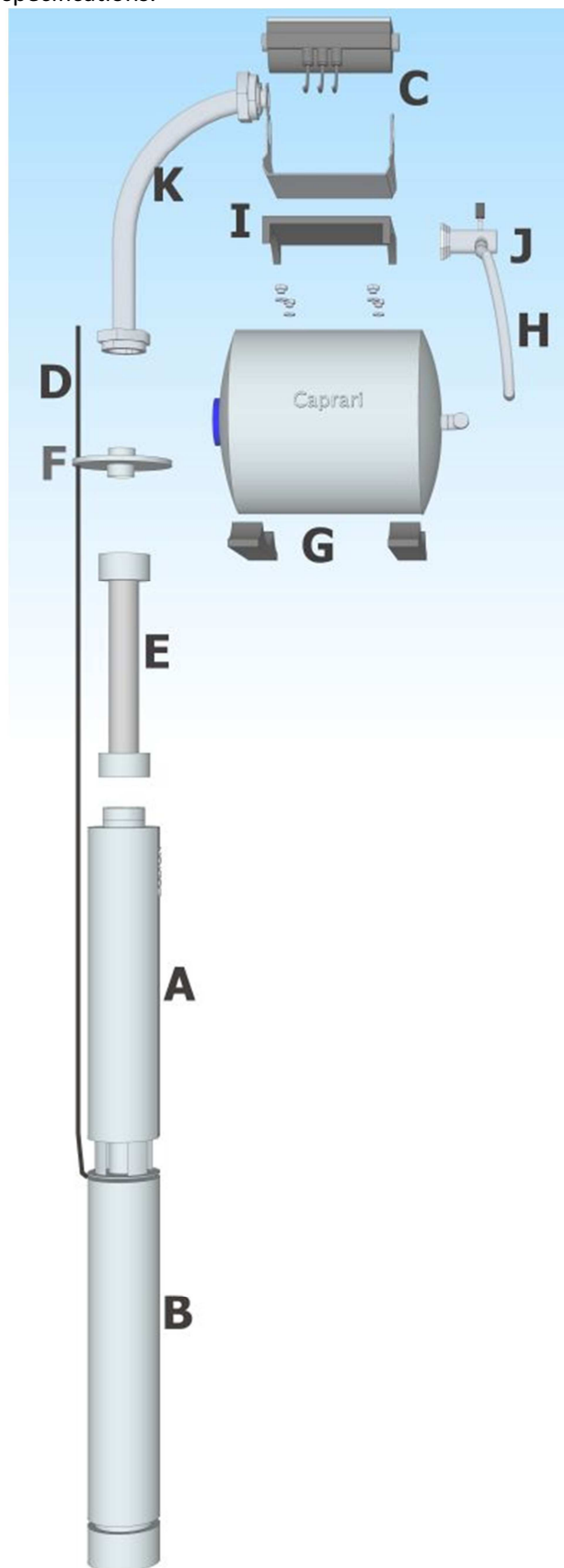
Performance Data

Flow	l/min	0	90	96	108	120	132	144	156	168	180	192	204	216	228	240
Head	m	106	91	89.2	87.5	85	82	79	74	70	66	61	56	52	48	41
Flow	gph	0	1,188	1,267	1,425	1,584	1,742	1,901	2,059	2,217	2,376	2,534	2,692	171	157	135
Head	feet	348	299	293	287	279	269	259	243	230	217	200	184	2,851	3,009	3,168

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

System in Detail – CapSub4 | System 3 | Model 170-70

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.

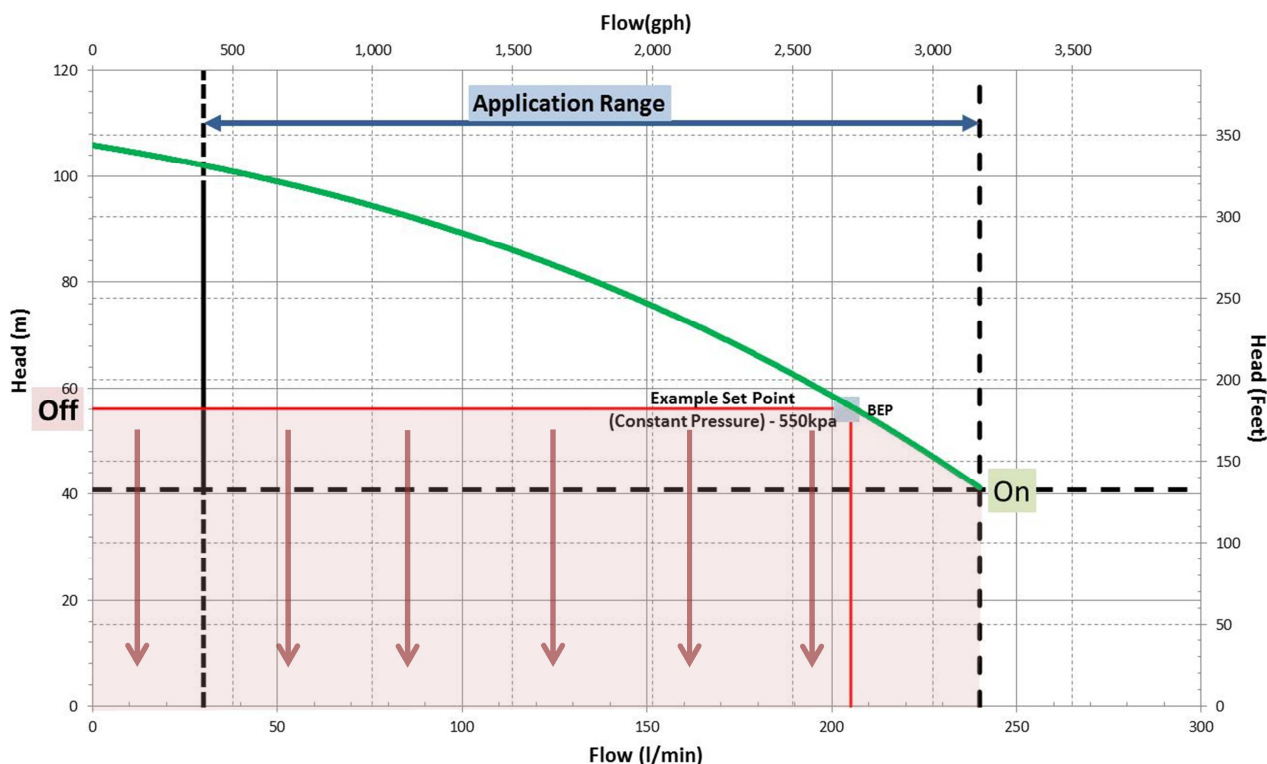


System	3
Model	170-70
Suitable for	Larger Homes / Farms / Small Commercial
Comes with everything you need	✓
Pumping Power	
A Caprari E4XP Series Pump Model	50/16
B Motor Model	MCH44-8
Motor P2 Power (kW)	3
Max in-bore diameter (suits 4")	98mm
Controller	
C Controller Model	CapDrive Ultimate 040
Automatic On/Off Control	✓
Variable Frequency Drive (Constant Pressure)	✓
Current sensing technology (Pump & Motor Protection)	✓
Plug and Play - 240v 10 Amp 3 Pin "IN" (2m Length)	415V, 3 Phase
Power Out, to Motor	415V, 3 Phase
The Pump	
Galvanic Defender ® Corrosion Protection	✓
Easy Check ® High Flow Check Valve	✓
Sand Protection system to 150gm3	✓
Down the Bore	
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	50mm
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)	2"
Additional Plumbing and Components	
Fits inside Std "Polyslab" Pump Cover	X
G 18L Horizontal Pressure Tank	✓
H Connection Kit 316SS	1"
I Bracket / Heat Exchanger	50mm Alu / SS
J Delivery Connection (BSP)	50mm / 2"
K Flexible Swept Bend in Stainless Steel, c/- Unions	2"
Performance Characteristics	
Metric	
Max Head (m)	106
Max Flow (l/min)	240
Output at BEP	204 l/min @ 750 kPa
Imperial	
Max Pressure (psi)	151
Max Flow (gph)	3200
Output at BEP	2720 gph @ 109psi

Performance Data – CapSub4 | System 3 | Model 170-70

Pump Model: E4XP 50/16
Motor: MCH44-8
Controller: CapDrive Ultimate

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Flow Application Range	0 - 240 l/min 0 - 3,168 gph
Available Pressure Range	400kpa (ON) - 950 kpa (OFF) 58psi (ON) - 138psi (OFF) 41m (ON) - 97m (OFF) 134 Feet (ON) - 318 Feet (OFF)
Example Set Point	550 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 CapDrive Ultimate 040 controller paired with Caprari E4XP 50/16 Submersible Pump and MCH44-8 Motor.

When flow demand is within the Application Range the controller runs the pump constantly. The CapDrive Ultimate controller detects system flow requirements to vary the motor frequency, and deliver a constant pressure for all flows from 42 l/min to the set point. In the example, with a set point of 650kpa, constant pressure will be maintained up to a flow of 208 l/min.

CapDrive Ultimate will switch the pump off when zero flow is detected for a preset minimum of time¹ (this will occur when, for example, all taps have been turned off). When system pressure falls below the bottom of the pressure range², the pump is switched on.

¹ It is at this point that the pressure tank is charged with reserve water

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

Using your own details

Plot the Total Dynamic Head³ 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.

³ Calculate Total Dynamic Head for your bore installation using the CapSub selection tool:

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

CapSub 4 System 3 - 170-70

Requested data

Flow	0 l/s
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)	106 m
Discharge connection	2"

Motor data

Frequency	50 Hz
Rated voltage	400 V
Nominal speed	2800 1/min
Number of poles	2
Rated power P2	3 kW
Rated current	7.7 A
Motor type	3~
Insulation class	B
Degree of protection	IP 68

Operating limits

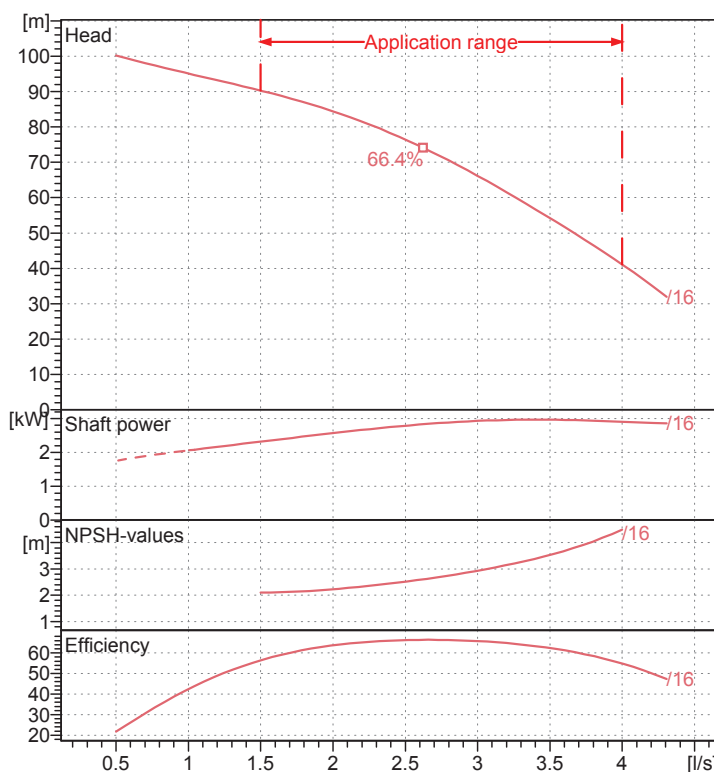
Starts per hour max.	20
Maximum temperature of pumped fluid	30 °C
Maximum content of solid	150 g/m³
Max. Density	998 kg/m³
Max. viscosity	1 mm²/s

General data

Weight	22.6 kg
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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 shell	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



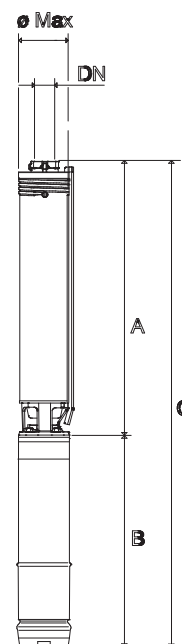
Operating data

ISO 9906-A

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

A = 925.5
B = 515
C = 1440.5
DN = G2"
ø Max = 98

Dimensions mm



Remarks:

Date 2013-10-31	Page 8	Offer no. CapSub 4 system curve	Pos.no 4.1
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