

# Domestic Product Brochure

**PRESSURE • RAINWATER • DRAINAGE** 





ClayTech Pumps is a division of White International and a recognised brand leader in the Australian market for domestic household pumps.

With quality, reliability and innovation driving the ClayTech range, the Italian designed pumps have a strong local market presence. Our knowledge and service have made these pumps a preferred choice for Domestic, Rural and Septic pumping solutions.

ClayTech will continue to offer innovative pumping solutions to the water-wise Australian community.

We enjoy what we do and we are passionate about delivering water to every home in the most efficient way.



Disclaimer: Every effort has been made to publish the correct details in this brochure. No responsibility will be taken for errors, omissions or changes in product specifications.

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# ClayTech **C-Series**







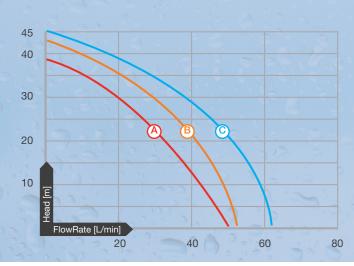
ClayTech C-Series Jet pumps are a range of innovative and energy efficient pressure systems for domestic use.

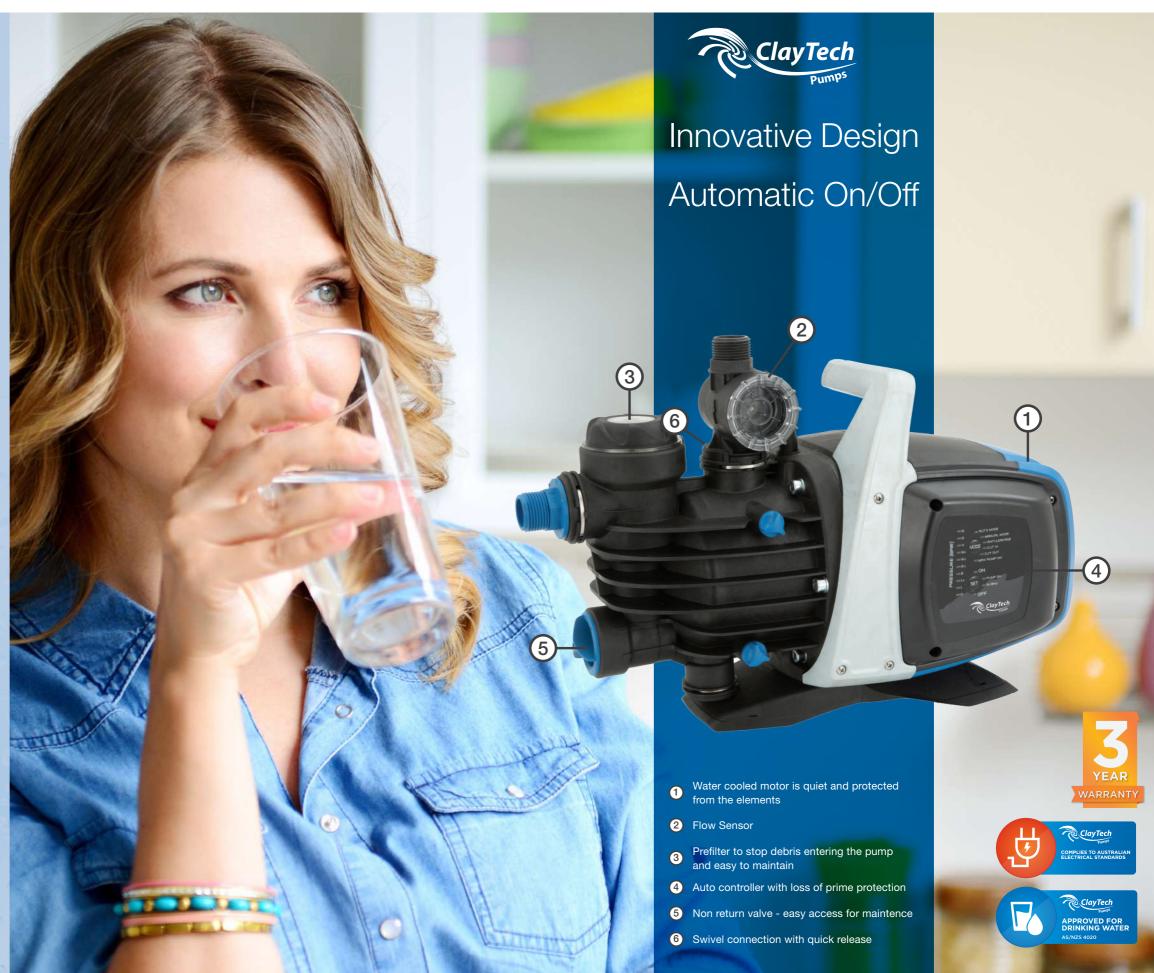
The built in pre-filter stops debris entering the pump and is easy to maintain and clean. The non-return valve is also built into the pump body allowing for easy service without removing any pipework. An integrated pressure controller automatically turns the pump on or off upon demand and together with the flow sensor it protects the pump from running dry and damaging the pump.

The pump is powered by a revolutionary water cooled motor. This means quieter operation. Also, no air movement is required across the motor for cooling purposes meaning the pump can be located in confined spaces or completely covered, protecting it from the

The C-Series also has a friendly LED display to view the pressure and operation mode of the pump.

12 2 2 2 2 1	(A)	B	C
MODEL	C3	C4	C5
ITEM CODE	807676	807677	807678
Max Flow Rate (I/min)	50	53	62
Max Head (m)	39	43	45
Power Absorbed (w) P2	400	600	750
Max Suction Lift (m)	8	8	8
Inlet Size (mm)	25	25	25
Outlet Size (mm)	25	25	25
Weight (kg)	9.0	9.5	10.0









# ClayTech **M-Series**





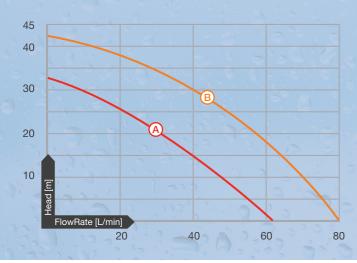
ClayTech M-Series integrated water pump has a multi-stage impeller design. Pressure is developed over multiple impellers making the operation quieter and more efficient. It is the ideal pump for your house

The built in pre-filter stops debris entering the pump and is easy to maintain and clean. The non-return valve is also built into the pump body allowing for easy service without removing any pipework. An integrated pressure controller automatically turns the pump on or off upon demand and together with the flow sensor it protects the pump from running dry and damaging the pump.

The pump is powered by a revolutionary water cooled motor. This means quieter operation. Also, no air movement is required across the motor for cooling purposes, meaning the pump can be located in confined spaces or completely covered, protecting it from the

The M-Series also has a friendly LED display to view the pressure and operation mode of the pump.

	A	B
MODEL	M3	M6
ITEM CODE	807679	807680
Max Flow Rate (I/min)	60	80
Max Head (m)	32	40
Power Absorbed (w) P2	380	560
Max Suction Lift (m)	6	6
Inlet Size (mm)	25	25
Outlet Size (mm)	25	25
Weight (kg)	9.0	9.5









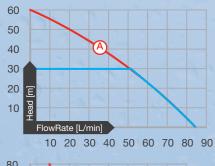
# ClayTech **ePUMP**

The ClayTech ePump is a revolutionary variable speed pump ideal for Australian homes. The ePump provides constant pressure and flow independent of how many taps are open.

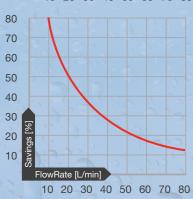
The ePump's state-of-the-art inverter technology ensures energy cost savings every time water is used via soft starting and only using the minimum amount of power necessary to maintain the set pressure.

The ePump also has a water cooled motor making it quieter. There is no need for air to flow over the motor, like a traditional fan cooled motor, allowing it to be located in a confined space or even completely covered. The ePump has an easy to clean pre-filter and a unique easy connect system allowing quick disconnection from pipework for maintenance.

	(A)
MODEL	ePUMP
ITEM CODE	807681
Max Flow Rate (I/min)	85
Max Head (m)	60
Power Absorbed (w) P2	640
Max Suction Lift (m)	8
Inlet Size (mm)	25
Outlet Size (mm)	25
Weight (kg)	14







# Theoretical max

Actual performance at 3 bar (30m) standard

At less than 50LPM the motor speed will reduce to maintain

#### **Energy Savings** at corresponding flow rates.

The energy savings improve as the flow rate decreases demonstrating the benefits of a variable speed pump.







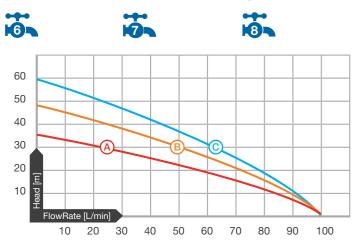


### **ClayTech Inox Series Self-Priming**

The Self-Priming Inox Series multistage pump is well-known for its quiet and reliability in the Australian market. Designed for use in a larger home, it is more energy efficient than a jet pump and can self prime to a depth of 4 meters. This makes it ideal for above and below ground rainwater tanks.

The AquaTron pressure controller makes the pump an automatic pressure system with run dry protection and will restart every 24 hours to check if there is water in the tank.

# (A) Inox 230 A (B) Inox 240 A (C) Inox 250 A



	A	B	<u>(C)</u>
MODEL	INOX 230 A	INOX 240 A	INOX 250 A
ITEM CODE	807723	807724	807725
Max Flow Rate (I/min)	100	100	100
Max Head (m)	35	48	60
Power Absorbed (w) P2	550	750	985
Max Suction Lift (m)	4	4	4
Inlet Size (mm)	25	25	25
Outlet Size (mm)	25	25	25
Weight (kg)	11	12	13





# **In-tank Submersible Pump**

# A DiverTron C6 B DiverTron C7



The revolutionary design has allowed the electronic pressure controller to be incorporated into the submersible pump.

The ClayTech DiverTron can be installed inside above or below ground rain water tanks and will automatically start and stop when water is needed.

Loss of prime protection will turn the pump off when the rainwater tank is empty and will restart the pump every 24 hours until it is re-primed and ready to resume operation.



## © BlueDiver C30A D BlueDiver C40A





The BlueDiver pump series are of robust design and truly versatile. In this combination they are teamed with the AquaTron pressure controller to turn it into an automatic pressure system, thus making them suitable for use with normal household tap operation.



70										
60				-						
50			_							
40		2	B							
30		8)					_		_	
20			+	+			D		+	
[m] Head [m]										
0	FlowRate	e [L/min								
	10	20	30	40	50	60	70	80	90	100

	(A)	(B)	(C)	(D)
MODEL	DIVERTIRON C6	DMERTRON C7	BLUEDIVER C30A	BLUEDIVER C40A
ITEM CODE	807685	807686	807739	807749
Max Flow Rate (I/min)	95	95	95	95
Max Head (m)	36	46	36	46
Power Absorbed (w) P2	650	750	650	750
Outlet Size (mm)	25	25	25	25
Weight (kg)	10	11	8	9





# **Rainwater Harvesting Systems (CMS)**

#### What is it?

ClayTech Management Systems (CMS) provide the convenience of automatic selection between your water tank and mains supply, with the emphasis on maximizing the use of your rain water.









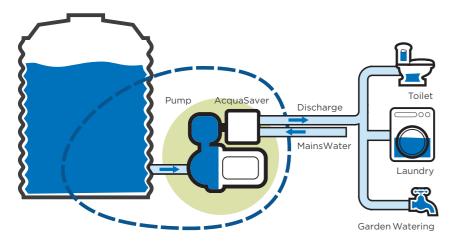
Pump Control

#### How it works.

When tank water is available, the CMS will automatically choose to draw water from this source using the pump to deliver your water requirements.

During power outages or in the case your tank supply is depleted, the CMS automatically transfers to mains water supply.

CMS will automatically select to supply from your water tank as soon as rain water is available again.









#### **Above Ground Rainwater Management Systems**





CMS C3A2

CMS C4A2







MODEL	CMS C3A1	CMS C4A1	CMS C5A1	CMS M3A1	CMS M6A1	CMS I240A1	CMS I250A1
ITEM CODE	807726	807728	807730	807731	807733	807734	807735
MODEL	CMS C3A2	CMS C4A2		CMS M3A2	-	-	-
ITEM CODE	807727	807729	-	807732	-	-	-
Pump	C3	C4	C5	M3	M6	Inox240	Inox250
Max Flow Rate (I/min)	50	53	62	60	80	100	100
Max Head (m)	39	43	45	32	40	48	60
Power Absorbed (w) P2	400	600	750	380	560	750	985
Inlet Size (mm)	25	25	25	25	25	25	25

# **AcquaSaver Diversion Valve**

This valve has proven to be the most reliable mains water diversion valve on the Australian market. It is of nickle plated brass construction, hydraulically operated with full port flow and pressure when it switches to mains. There are two sizes of valves; A1 - 1 inch valve, A2 - 3/4 inch valve. (Watermark to ATS5200.477)



#### A1 - 1 inch valve

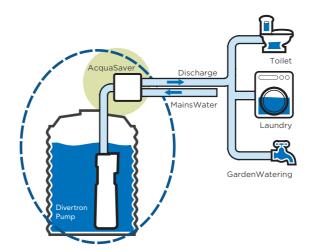
Max mains pressure 1050 Kpa Max pump pressure 1050 Kpa Max flow rate 200+Lpm Rainwater inlet 1" BSP F (25mm) Mains water inlet 1" BSP F (25mm) Outlets 1" BSP F (25mm) Weight 1.9 Kg



#### A2 - 3/4 inch valve

Max mains pressure 500 Kpa Max pump pressure 600 Kpa Max flow rate 50 Lpm Rainwater inlet 1" BSP F (25mm) Mains water inlet 3/4" BSP F (20mm Outlets 3/4" BSP F (20mm) Weight 0.85 Kg











# **Submersible Rainwater Management System**









MODEL	CMS C6A1	CMS C7A1	CMS C30A1
ITEM CODE	807736	807738	807739
MODEL	CMS C6A2	-	CMS C30A2
ITEM CODE	807737	-	807740
Pump	DiverTron C6	DiverTron C7	BlueDiver C30A
Max Flow Rate (I/min)	95	95	95
Max Head (m)	36	46	36
Power Absorbed (w) P2	650	750	650
Outlet Size (mm)	25	25	25









# **ClayTech 18 Litre Tank Kit**

The ClayTech 18 Litre Tank Kit is compact and easy to connect to the C-Series pump. The tank prevents repetitive pump starts when the system has a slow leak. When the flow rate goes above 1.5LPM the pump will start.

This energy saving tank is a patented design only available to ClayTech. There is no need to add air to the tank. The unique method to the pump removes the need for external pipes and cables.

The ClayTech Tank is ideal to manage slow pipework leaks on properties.

#### C-Series with Tank

MODEL	СТЗ	CT4	CT5
ITEM CODE	807720	807721	807722
Parts	C3+Tank	C4+Tank	C5+Tank









# **High Head - Waste Water Treatment System**

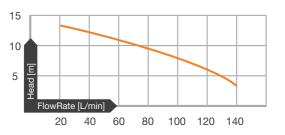
#### Pitbull 15

The ClayTech PitBull 15 possesses a unique design, conceived specifically for the Australian waste water treatment system. It was designed for above surface irrigation applications where it operates at its 'best efficiency point' during normal operation.

Most comparable pumps have a maximum head capacity of 11m. This means that they operate towards the top of their curve under normal operating conditions causing a reduction in the pumps service life. The Pitbull, at 10m head is at the centre of its curve and still produces 80 LPM.



MODEL	PITBULL 15
ITEM CODE	807690
Max Flow Rate (I/min)	170
Max Head (m)	15
Power Absorbed (w) P2	550
Outlet Size (mm)	32
Pump Diameter (mm)	150
Pump Height (mm)	325
Cable Length (m)	8
Weight (kg)	5



#### AB&C BlueDiver

The ClayTech BlueDiver has been specifically designed for the Australian aerated waste-water treatment system. They have been designed for high head applications and are particularly suited for applications using sub-surface irrigation.

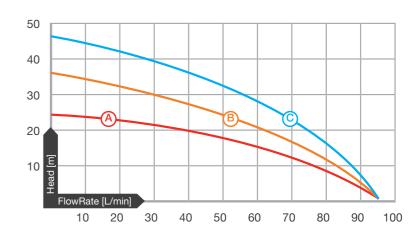
These pumps have been designed to ClayTech specifications with high head and relatively low flow, allowing the pumping system to operate at the 'best efficiency point' of the pump.

	(A)	(B)	<u> </u>
MODEL	BLUEDIVER C20	BLUEDIVER ©30	BLUEDIVER C40
ITEM CODE	807691	807692	807693
Max Flow Rate (I/min)	95	95	95
Max Head (m)	24	36	46
Power Absorbed (w) P2	550	650	750
Outlet Size (mm)	25	25	25
Pump Diameter (mm)	149	149	149
Pump Height (mm)	350	375	400
Cable Length (m)	8	8	8
Weight (kg)	7	8	9









# **Filtered Grey Water**

#### ProSub C6/C9

The ProSub is used for screened grey water applications, like domestic washing machine water. The float switch is integrated into the pump body allowing it to operate in small tanks or pits. Switching from automatic to manual is as simple as flipping a switch allowing water to be removed down to a depth of 3mm.

Normal operation switch on at 115mm and off at 50mm.

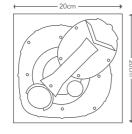


Cable Length (m)

Weight (kg)





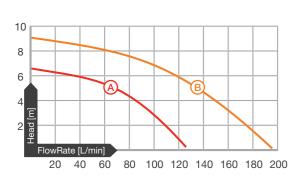




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	(A)	(B)
MODEL	PROSUB C6	PROSUB C9
ITEM CODE	807694	807695
Max Flow Rate (I/min)	125	195
Max Head (m)	6.5	9
Power Absorbed (w) P2	170	250
Max Solids Handling (mm)	5	5
Outlet Size (mm)	32	32
Pump Diameter (mm)	215	215
Height (mm)	320	320

10

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#### **Pond Circulation**

#### **SubPond**

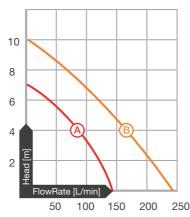
The SubPond is an ideal pump for running waterfalls or ornamental fountains. Designed for continuous operation in either vertical or horizontal positions.







	(A)	(B)
MODEL	SUBPOND 300	SUBPOND 700
ITEM CODE	807696	807697
Max Flow Rate (I/min)	140	240
Max Head (m)	7	10
Power Absorbed (w) P2	200	550
Outlet Size (mm)	32	32
Cable Length (m)	8	8
Weight (kg)	5	6



Disclaimer: Every effort has been made to publish the correct details in this brochure.

## **Dirty Water - Vortex Pumps**

Dirty water is classified as water that has suspended solids larger than 1mm in diameter or long stringy soft solids (such as leaves) suspended in it.

A normal drainage pump with a standard closed impeller will not be able to handle this.

That is why our heavy duty, rugged, drainage pumps have been designed to meet almost any need. Made for our harsh Australian conditions.

#### **BlueVort 9**

BlueVort 9 has an open vortex design and can handle pumping soft solids up to 25mm making it suitable for grey water tank and final pumping from domestic water treatment systems. It has been designed as a multi-purpose submersible pump also suited for drainage and water transfer applications.



#### A BlueVort 7

Recognised for their reliability and performance BlueVort 7 has an open vortex design and can handle pumping soft solids up to 15mm. It has been designed as a multi-purpose submersible pump also suited for drainage and water transfer applications.



#### © BVP C11

The BVP is a heavy duty all-purpose, reinforced polypropylene vortex pump. This pump is tough and light! It has been trialled, and survived, the pumping of debris from construction pits.

Making it the perfect high flow pump to get you out of trouble on a flooded job site.



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10
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6
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2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
2 68 7
FlowRate [L/min]
40 80 120 160 200 240 280 320 360

	(A)	B	<u>©</u>
MODEL	BLUEVORT 7	BLUEVORT 9	BVP C11
ITEM CODE	807944	807700	807698
Max Flow Rate (I/min)	135	200	320
Max Head (m)	7	8.5	11
Power Absorbed (w) P2	180	450	600
Max Solids Handling (mm)	15	25	38
Outlet Size (mm)	32	50	40
Cable Length (m)	10	10	8
Weight (kg)	9	18	8

reflex

Ranging from 2-400L, Reflex Pressure Tanks are manufactured in Europe and are ideally suited for a wide range of applications. These include booster systems, bore hole systems, sprinklers, irrigation systems, HVAC, thermal expansion and water hammer arresting.



#### **APPLICATIONS**

An energy saving device such as a Reflex Pressure Tank pressure storage cell, stores energy in the form of pressurised water. The energy is transformed by the pump from electricity to water pressure. With a Reflex Pressure Tank, there is no loss of energy once it has been stored in the device.

By installing a Reflex Tank, the pump start events can be cut by 40 – 80%

- Saving power
- Extending pump life
- Reducing noise
- Low initial cost

The Reflex Tank is easy to fit to most pumps and can also be wall mounted.

The tank can be installed within minutes and the system can be fitted to any brand or type of pump.



#### **BENEFITS**

- · Constructed for long life
- Extends pump life
- Reduces pump starts and noise
- · Protects against water hammer and thermal expansion

#### **FEATURES**

- Manufactured in Europe
- 304 & 316Ti Stainless Steel water connection
- · Corrosion resistant for long life
- UV resistant epoxy coating with a minimum thickness of 30 micron in blue RAL5007
- Air valve with sealing cap eliminates leaks
- Internal coating for drinking water applications
- Food grade approved high-grade butyl membranes and bladders WRAS, ACS, AS/NZS4020
- Maximum working temperature 70°C
- Maximum working pressures of 45psi/10bar or 232psi/16bar
- Tank pre-charge 58psi/4bar Nitrogen
- 5 year tank replacement guarantee



# **REFIX DE**

- 2-18 Litres
- · Bladder according to DIN EN 13831
- All vessel parts in contact with water are corrosion resistant
- · Meets or exceeds EC norms for pressure vessels 2014/108/EC directives
- · Durable epoxy coating
- · Factory pre-charged
- Vertical

# **REFIX HW**

- 25-80 Litres
- Diaphragm according to DIN EN 13831 norm part 3
- All vessel parts are corrosion resistant
- · Meets or exceeds EC norms for pressure vessels 2014/108/EC directives
- · Durable epoxy coating
- Factory pre-charged
- Horizontal

# **REFIX DC**

- Diaphragm, according to DIN EN 13831 norm part 3
- · All vessel parts in contact with water are corrosion resistant
- Meets or exceeds EC norms for pressure vessels 2014/108/EC directives
- · Durable epoxy coating
- Factory pre-charged
- Vertical / Free-Standing











#### **DE Series**

- Vertical tanks
- · High-grade butyl bladder according to DIN EN 13831

Part Number	Item Code	Vertical Size (L)	Bar	Outlet	Litres	List
REF-DE2**	806043	2			1	\$74
REF-DE8**	806044	8	10	1" BSPM	3	\$99
REF-DE18**	806045	18			6	\$132
REF-DE8-16	806046	8			3	\$221
REF-DE25-16	806048	25	16	1" BSPM	9	\$279
REF-DE80-16	806049	80			29	\$1,375

Note: Codes marked \*\* are WaterMark approved to WMTS-485:2018 Certificate No. 23340



#### **HW Series**

- Horizontal tanks
- · High-grade butyl diaphragm according to DIN EN 13831

Part Number	Item Code	Horizontal Size (L)	Bar	Outlet	Litres	List
REF-HW25**	806058	25			9	\$235
REF-HW60**	806059	60	10	1" BSPM	22	\$485
REF-HW80**	806060	80			29	\$535

Note: Codes marked \*\* are WaterMark approved to WMTS-485:2018 Certificate No. 23340



#### **DC Series**

- Vertical tanks
- · High-grade butyl diaphragm according to DIN EN 13831

Part Number	Item Code	Vertical Size (L)	Bar	Outlet	Litres	List
REF-DC25**	806050	25			9	\$212
REF-DC50**	806051	50			18	\$394
REF-DC80**	806052	80			29	\$526
REF-DC100**	806053	100	10 1" BSPM	36	\$582	
REF-DC140**	806054	140		50	\$897	
REF-DC200**	806055	200			72	\$1,262
REF-DC300**	806056	300			108	\$1,477
REF-DC400**	806057	400			144	\$1,892

Note: Codes marked \*\* are WaterMark approved to WMTS-485:2018 Certificate No. 23340



Image of 50L - 400L free standing versions

# **REFLEX ACCESSORIES**

Part Number	Item Code	Description	List	lmage
REF-WALLBRACKET	806107	Wall Bracket suit tanks 8L – 25L	\$36	
REF-LOCKSHIELD1	806108	Lockshield valve for maintenance and detachment of expansion vessels with drainage. According to DIN EN 12828. PN 10/120°C	\$213	
REF-PG	806109	Digital Pressure Gauge 0 – 9 bar	\$88	
REF-1000MFCKIT*	702977	1" F x 1" M x 1000mm	\$125	
REF-1000MFECKIT*	702978	1" 90°F x 1" M x 1000mm	\$125	WaterMark WMKA00105 to AS/NZS3499

<sup>\*</sup>Includes nuts, bolts, washers, thread tape and instruction sheet for mounting pumps onto horizontal pressure tanks. Some dealer supplied fittings may be required for some pressure systems. Maximum working pressure 2070kPa, rigid pipework is recommended.



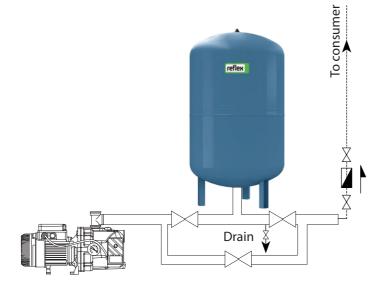
# NOTES

# **Reflex Applications**

#### Vessel on a pressure system

With the vessel mounted on the discharge side of the booster system, the numbers of pump starts are reduced and also pump starts at small draw-offs are totally eliminated. This reduces pump wear and extends pump life time. Maintenance of the vessel can be done without shutting off the water supply with the shown pipework.

Diaphragm expansion tank mounted on discharge side of pump					
Cut-in pressure of pump	Precharge pressure of tank				
2 bar	1.8 bar				
3 bar	2.8 bar				
4 bar	3.7 bar				
5 bar	4.7 bar				
6 bar	5.7 bar				
7 bar	6.6 bar				
8 bar	7.5 bar				
9 bar	8.5 bar				
10 bar	9.5 bar				
11 bar	10.5 bar				
12 bar	11.5 bar				
13 bar	12.5 bar				



#### **Pre-charge instructions**

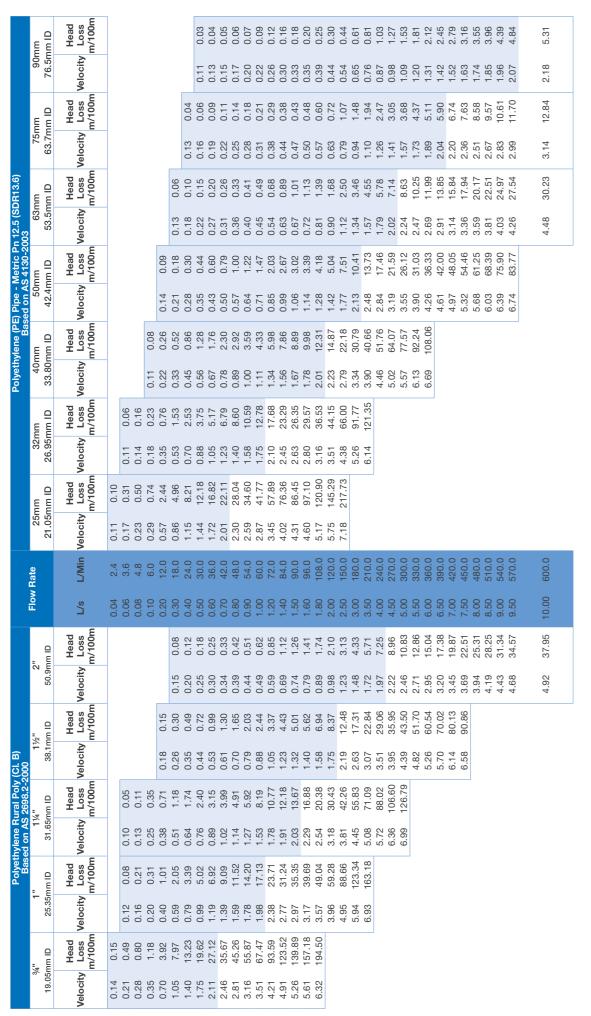
- 1. Pressure switch controlled pumps with differential pressure set at 140 kPa (20 psi), pre-charge the tank to 20 kPa (3 psi) below the cut in pressure.
- 2. For pumps controlled by pressure switches with higher differential pressures, electronic controls or variable speed controls, pre-charge the tank to 65% of the maximum system pressure.
- 3. Pressure tanks installed on mains pressure, pre-charge should be set at the mains pressure.
- 4. For hot water expansion, pre-charge should be set at the mains pressure.

		CUT IN PRESSURE												
		1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0					
	2.5	1.30	1.80	Greer	Green cells - precharge is 20kpa below cut in pressure									
	3.0	1.66	1.80	2.30	Blue cells - precharge is 66.6% of cut out pr									
	3.5	2	1.80	2.30	2.80									
ᇤ	4.0	2.33	2.33	2.33	2.80	3.30								
PRESSURE	4.5	2.66	2.66	2.66	2.80	3.30	3.80							
) HE	5.0	3	3	3	2.80	3.30	3.80	4.30						
	5.5	3.33	3.33	3.33	3.33	3.30	3.80	4.30	4.80					
CUT OUT	6.0			3.66	3.66	3.66	3.80	4.30	4.80					
ეე	6.5			4	4	4	4	4.30	4.80					
	7.0			4.33	4.33	4.33	4.33	4.33	4.80					
	8.0			4.99	4.99	4.99	4.99	4.99	4.99					
	9.0				5.66	5.66	5.66	5.66	5.66					


Disclaimer: Every effort has been made to publish the correct details in this brochure.

No responsibility will be taken for errors, omissions or changes in product specifications.

#### **Pipe Friction Loss Chart**



#### Flow

1 1011						
GALLONS PER MINUTE			LITRES PER MINUTE	US GALLONS PER MINUTE	CUBIC METRES PER HOUR	
1	60	0.076	4.546	1.2	0.2728	
0.01667	1	0.00127	0.07578	0.02	0.004547	
13.2	792	1	60	15.84	3.6	
0.22	13.2	0.0167	1	0.264	0.06	
0.833	50	0.063	3.787	1	0.227	
3.666	220	0.278	16.667	4.4	1	

#### Volume

IMPERIAL GALLONS	LITRES	US GALLONS	CUBIC FEET	LBS WATER	CUBIC METRE	
1	4.546	1.2	0.1605	10	0.00455	
0.22	1	0.264	0.0353	2.2	0.001	
0.833	3.785	1	0.1337	8.333	0.00379	
6.23	28.32	7.48	1	62.3	0.02832	
0.1	0.4546	0.12	0.0161	1	0.00046	
220	1000	264	35.32	2200	1	

#### Length

<b>=</b> 0119ti1						
INCH	FOOT	YARD	CMS	METRE	MILE	KILOMETRE
1	0.0833	0.02778	2.54	0.0254		
12	1	0.3333	30.48	0.3048	0.000189	0.0003048
36	3	1	91.44	0.9144	0.0005681	0.0009144
0.3936	0.0328	0.010931	1	0.01		
39.37	3.2808	1.0936	100	1	0.00052	0.001
63,360	5,280	1760	160,934	1609.4	1	1.6093
39,371	3280.9	1093.6	100,000	1000	0.6214	1

#### **Pressure**

PSI	FOOT OF WATER	KPA	BAR	METRE OF WATER
1	2.31	6.895	0.68	0.704
0.433	1	2.986	0.03	0.305
0.145	0.335	1	0.01	0.102
14.5	33.5	100	1	10.21
1.42	3.281	9.797	0.098	1

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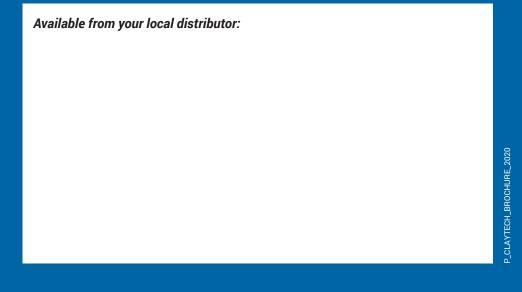
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#### Power

WATTS	KILOWATTS KW	HORSEPOWER HP			
1	0.001	0.00134			
1000	1	1.34			
746	0.746	1			

#### **Friction Loss Chart**

							PVC Pipe -	- Pn 12 Series ased on 1477-2006							
Flow	/ Rate	20	mm	25mm		321	mm	401	mm	50mm		80mm		100mm	
		23.7r	nm ID	29.8n	nm ID	37.5mm ID		42.8mm ID		53.7mm ID		79mm ID		101.7mm ID	
L/s	L/Min	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m	Velocity	Head Loss m/100m
0.06	3.6	0.14	0.12												
0.08	4.8	0.18	0.29	0.12	0.10										
0.10	6.0	0.23	0.43	0.14	0.14										
0.20	12.0	0.46	1.41	0.29	0.47	0.18	0.16								
0.30	18.0	0.68	2.85	0.43	0.96	0.27	0.32	0.14	0.09						
0.40	24.0	0.91	4.72	0.58	1.58	0.36	0.53	0.21	0.17	0.13	0.06				
0.50	30.0	1.14	6.99	0.72	2.34	0.45	0.78	0.28	0.28	0.18	0.10				
0.60	36.0	1.37	9.64	0.86	3.23	0.54	1.08	0.35	0.42	0.22	0.14	0.10	0.02		
0.70	42.0	1.59	12.67	1.01	4.23	0.64	1.41	0.42	0.57	0.27	0.20	0.12	0.03		
0.80	48.0	1.82	16.06	1.15	5.36	0.73	1.79	0.49	0.75	0.31	0.26	0.14	0.04		
0.90	54.0	2.05	19.80	1.29	6.60	0.82	2.20	0.56	0.95	0.35	0.32	0.16	0.05		
1.00	60.0	2.28	23.89	1.44	7.96	0.91	2.65	0.63	1.17	0.40	0.40	0.18	0.06	0.11	0.02
1.20	72.0	2.73	33.08	1.73	11.01	1.09	3.66	0.70	1.41	0.44	0.48	0.20	0.08	0.12	0.02
1.40	84.0	3.19	43.61	2.01	14.49	1.27	4.81	0.84	1.95	0.53	0.66	0.24	0.10	0.15	0.03
1.60	96.0	3.64	55.42	2.30	18.40	1.45	6.10	0.98	2.56	0.62	0.86	0.29	0.14	0.17	0.04
1.80	108.0	4.10	68.50	2.59	22.72	1.63	7.53	1.11	3.24	0.71	1.09	0.33	0.17	0.20	0.05
2.00	120.0	4.55	82.82	2.88	27.44	1.82	9.09	1.25	4.00	0.80	1.35	0.37	0.21	0.22	0.06
2.50	150.0	5.69	123.97	3.60	40.99	2.27	13.55	1.39	4.82	0.88	1.63	0.41	0.26	0.25	0.08
3.00	180.0	6.83	172.56	4.32	56.95	2.72	18.80	1.74	7.18	1.11	2.42	0.51	0.38	0.31	0.11
3.50	210.0			5.04	75.27	3.18	24.81	2.09	9.95	1.33	3.35	0.61	0.53	0.37	0.16
4.00	240.0			5.75	95.88	3.63	31.57	2.44	13.13	1.55	4.41	0.71	0.69	0.43	0.21
4.50	270.0			6.47	118.76	4.09	39.06	2.79	16.69	1.77	5.60	0.82	0.88	0.49	0.26
5.00	300.0					4.54	47.26	3.14	20.64	1.99	6.92	0.92	1.08	0.55	0.32
5.50	330.0					4.99	56.18	3.48	24.96	2.21	8.37	1.02	1.31	0.62	0.39
6.00	360.0					5.45	65.79	3.83	29.66	2.43	9.93	1.12	1.55	0.68	0.46
6.50	390.0					5.90	76.10	4.18	34.71	2.65	11.62	1.22	1.81	0.74	0.54
7.00	420.0					6.35	87.09	4.53	40.14	2.88	13.42	1.33	2.09	0.80	0.62
7.50	450.0					6.81	98.75	4.88	45.91	3.10	15.35	1.43	2.39	0.86	0.71
8.00	480.0							5.23	52.04	3.32	17.39	1.53	2.70	0.92	0.80
8.50	510.0							5.57	58.52	3.54	19.54	1.63	3.03	0.98	0.90
9.00	540.0							5.92	65.35	3.76	21.81	1.73	3.38	1.05	1.01
9.50	570.0							6.27	72.52	3.98	24.19	1.84	3.75	1.11	1.11
10.00	600.0							6.62	80.04	4.20	26.68	1.94	4.13	1.17	1.23
								6.97	87.89	4.42	29.29	2.04	4.54	1.23	1.35



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