Installation Manual

for the UK and Ireland

Model 73179

Arch Chemicals Ltd
Wheldon Road, Castleford
West Yorkshire, WF10 2JT

1/10/03

REV 7

Product Stewardship

MAKING THE WORLD A BETTER PLACE

Arch is committed to maintaining and improving our leadership in Product Stewardship. One of the six initiatives outlined under the Chemical Manufacturers Association (CMA) Responsible Care® Program is to make health, safety, and environmental protection an integral part of a product's life cycle – from manufacture, marketing, and distribution to use, recycling, and disposal.

Successful implementation is therefore, a shared responsibility. Everyone involved with the product has responsibilities to address society's interest in a healthy environment and in products that can be used safely. We are each responsible for providing a safe workplace. All who use and handle products must follow safe and environmentally sound practices.

For more information about our Product Stewardship Program, contact your Arch Representative.

SITE SURVEY

When conducting the site survey and in discussions with the pool operator decide which type of installation will be carried out.

1. **A single pool installation should be carried out as described in the manual using the venturi and booster pump to evacuate the chlorine solution produced by the feeder into the circulation line of the pool.**

2. **A single pool installation can also utilise a venturi which employs the motive power of the pools' own filtration pump. However in this instance consultation with Arch Technical Services is necessary to advise on feasibility.**

3. **Multi pool installations - as described below using the venturi and booster pump to evacuate the chlorine solution into the largest of the pools on site. For additional smaller pools a conventional dosing pump can be used to take and inject chlorine solutions from the discharge tank of the feeder. Ensure an adequately sized pump is employed. Entry to the discharge tank can be gained by drilling an access hole close to the top of the tank ensuring the hole and subsequent suction line to the pump does not interfere with the discharge valve arm or float. The dosing pump should be selected carefully realising that the chlorine solution produced is only around 1.5% of available chlorine. Approximate sizing of pumps for different sizes of pools are as follows:**

Up to:-
100m3 = 30 l/h
100 – 200m3 = 50l/h
200 – 300m3 = 75l/h
Count 25l/h for each additional 100m^3

Instructions for Easiflo® 4 Booster Pump Installation

To simplify installation: Please read this installation manual completely before going to the pool site.

Equipment needed to install:

Drill – Cordless recommended	Tube cutters or utility knife
PVC pipe fittings (as required)	Silicon thread sealant
PVC Primer/Cleaner	2 pipe wrenches or gas pliers (Channel Locks)
PVC Glue	Water tight connectors for pump wiring
Saw to cut PVC Pipe	Wire for pump (14gauge minimum required)
Electricity for the pump (240V)/15 Amp	Pressure gauge
1 1/2″ PVC pipe (length will vary)	Saddle clamps (optional)
PTFE tape	Solenoid valve - we recommend a ……..
	In line filter – we recommend a …….. available from Prominent

The following parts are included with the feeder:

Two 1/2″ BSP closed nipples	One flow indicator
One female Parker tube fitting (W10FC8), 5/8″	One line strainer
One 1/2″ BSP male x male grey ball valve	One 1/2″ BSP male x female grey ball valve
5/8” O.D. LDPE tubing (20 feet)	One male Parker tube fitting W10MC8, 5/8”
One Venturi	

Not included with the feeder:

A booster pump is not included with the feeder. In order to get the optimal performance out of the feeder and the reliability from the pump, we recommend the following pump:

Sta-rite 1.0 HP pump, reference S5P2RE1 available from SCP UK – tel: 01293 546 126
Alternatively Sta-rite 5P2RE1, can be used. However, for reliability we recommend the pump seal is changed to silicon carbide. These seals have the part number 17304-0100.

Overview

A 1 1/2″ loop is going to be added to the main pool recirculation line. The loop will have an in-line Easiflo® pump to drive a venturi. The Easiflo® 4 inlet line will get water from the discharge of the Easiflo® pump. The discharge valve of the chlorinator will be hooked up to the venturi. The Easiflo pump provides the correct pressure (~ 35psi) to drive the jets in the manifold of the Easiflo® 4 chlorinator. It also provides correct flow through the venturi to create a vacuum to evacuate the chlorinator. This installation method gives optimal performance of the Easiflo® 4 chlorinator in most above and below grade installations. The use of a pressure gauge on the discharge side of the pool pump after the filter is recommended for correct installation of the system.

Easiflo® System Site Assessment

It is critical to determine the effluent pressure of the system prior to installation. This pressure must be measured immediately after backwashing when it will be at its highest level. Refer to the appropriate system diagram in the back of this manual to determine where to measure this pressure (P1).

Take a pressure reading and refer to the graph on page 8 (Easiflo® 4 Installation - 1 HP Booster Pump and 1585X Venturi) to determine the suction capacity of the system assuming that there is no suction lift correction. Record this suction capacity as F1.

Next, determine where the Booster Pump and Venturi loop will be installed.

Always minimize the backpressure on the venturi. Avoid use of elbows after the venturi if possible. Never install an elbow within 3 feet of the venturi outlet. Always use elbows on the inlet to the Easiflo® pump or prior to the venturi if possible. After the evacuation system has been laid out, measure the height differential (in feet) between where the venturi will be installed and discharge valve of the Easiflo® chlorinator. Use this height differential to calculate the suction lift factor in the formula that follows. The greater the height differential the more suction you will lose from the venturi. Next calculate the outlet flow using F1 and the suction lift factor. The minimum outlet flow required is 8.7 litres per minute.

Suction lift factor = (34 – height differential in feet) / 34

Example: height differential is 6 feet, therefore

Suction lift factor = (34-6) / 34
= 28 / 34
= 0.82

Take the suction capacity F1 and multiply it by the suction lift factor to get the actual outlet flow.

The formula is: F1 x suction lift factor = actual outlet flow

Example #1: Assume that the pressure measured in the pipe is 12psi. Using the P4 graph 1 in this manual the outlet flow (F1) is determined to be 14.4 litres per minute.

F1 x suction lift factor = actual outlet flow
14.4 lt/m x 0.82 =
11.7 lt/m = actual outlet flow **(This flow is acceptable) It is above 8.7 lt/m which is above the minimum.**

Example # 2: Assume that the pressure measured in the pipe is 25psi. Using the P4 graph, the outlet flow (F1) is determined to be 10.2 lt/m

F1 x suction lift factor = actual outlet flow
10.2 lt/m x 0.82 =
8.33 lt/m = actual outlet flow **(This flow is insufficient to drain chlorinator)**

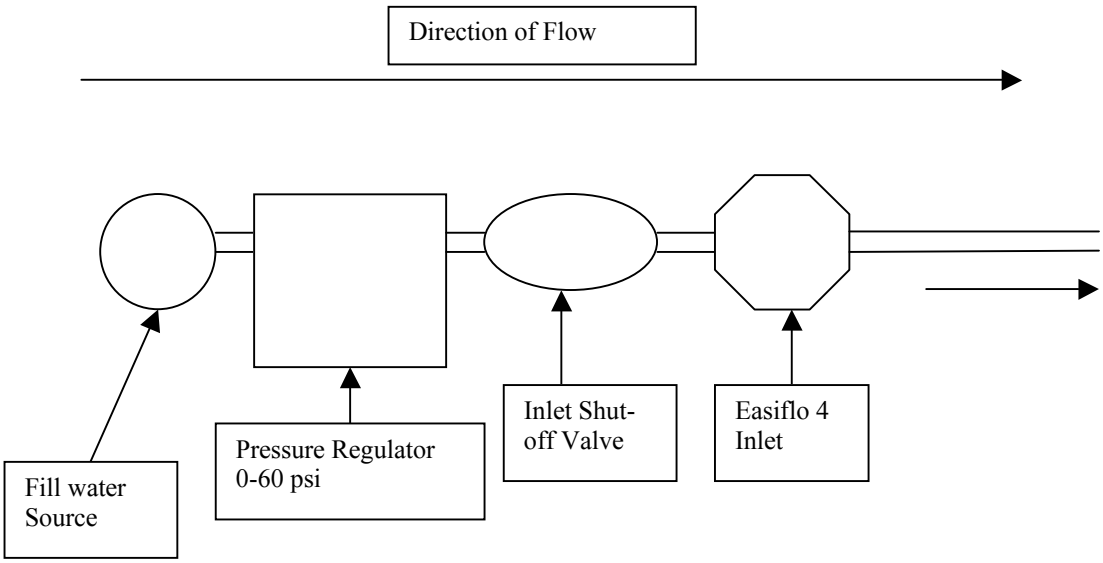
A larger pump will be required to generate sufficient outlet flow. Consult Arch.

Now determine where the power source will come from for both the booster pump and solenoid. These considerations will help determine the length and gauge of wire needed.

The last consideration for the site assessment is the fill/tap water source and the type of pH control system to be used. If Carbon Dioxide will be used for pH control, it may be preferable to provide the inlet flow to the chlorinator from the fill water source. Typically, Carbon Dioxide pH control systems will raise the Total Alkalinity of the pool water to well over 100 ppm. This TA level will increase the tendency for scale formation in the chlorinator. Consequently, it is recommended that the inlet flow be provided from the fill water source **if** the TA of the fill water is below 100 ppm.

The use of fill water to the chlorinator inlet will add water to the pool on a daily basis in relatively small amounts. A typical indoor 375m^3 pool will use approximately 75 litres of chlorinated solution from the Easiflo® System per day. A typical outdoors 375m^3 pool will use approximately 227 litres of chlorinated solution from the Easiflo System per day. The Easiflo® 4 System also puts **an additional 3.3m^3 of water a day** in the pool from the wash-down system. If you use this installation method make sure that the pool has that amount of water being removed as to not cause the pool to overflow.

Fill water systems typically operate at pressures between 50-80 psi. This pressure is too high for the Easiflo® System valves to operate properly. It is therefore necessary to install a pressure regulator on the inlet flow to the Easiflo® system. This regulator must be installed directly at the fill water source. This will insure a reduced pressure in the flexible polyethylene tubing and solenoid valve on the inlet side of the chlorinator. Adjust the pressure regulator to provide between 30-35psi inlet water pressure. See diagram below for proper fill water plumbing hook-up.



Pump

The 1 H.P. pump is to be wired for 240V single-phase service only.

The power supply to the Easiflo pump must be interlocked to the pool recirculation pump. This is to prevent running the Easiflo pump dry when the pool pump is shut off. Use watertight connectors when wiring the pump.

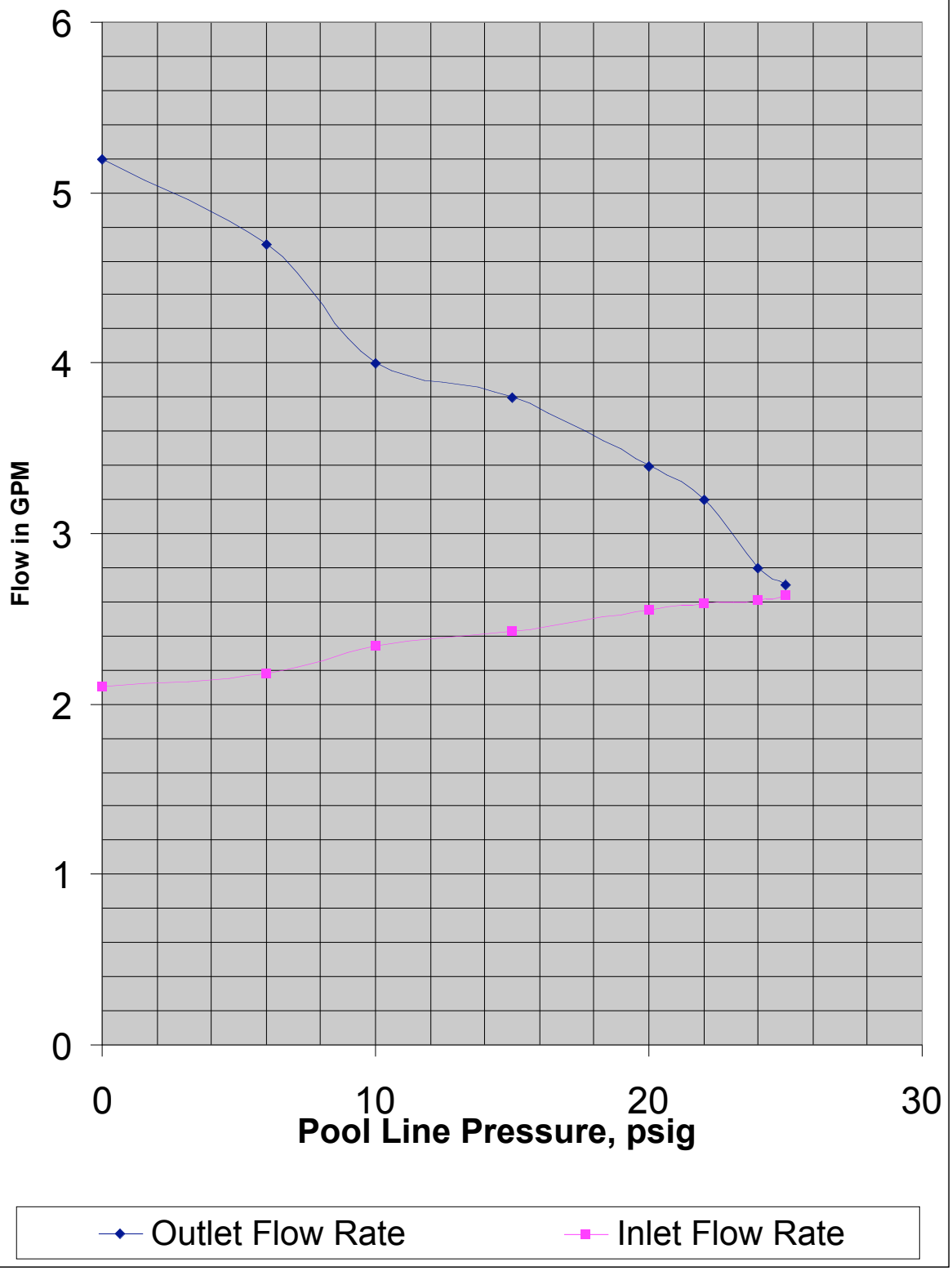
Installation of equipment

Place the equipment, pump and chlorinator, in the poolroom in a convenient location.

Shut off the pool recirculation equipment before proceeding with the installation. Review the installation diagram prior to installation.

Dealer Installation Notes:

Easiflo 4 Installation
1 HP Booster pump and 1585X Venturi

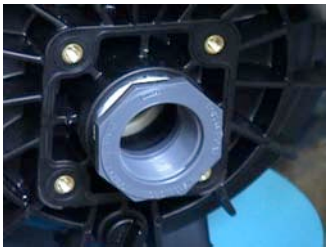


1. Based on your site assessment, drill and tap a 1½″ BSP hole down stream of the pool filter and heater. Note: You can use saddle clamps if you wish. This is one of two holes that will be needed in the installation. The hole should be drilled on the side or bottom of the pipe, if the pipe is horizontal**. NOT ALL PIPES RUN FULL.**

2. Cut both of the 12″ x 1½″ PVC nipples in half. (4 pieces). Take one of the pieces and apply PTFE tape to the threads. On top of the PTFE tape add a silicon seal bead around the threads. The silicon seal helps to make a good seal. Wipe off any excess.

3. Thread the nipple into the 1½″ tapped hole. Skip this step if using saddle clamps.

4. PTFE tape the 2″ X 1½″ reducer bushing and screw and tighten it securely into the inlet of the Easiflo® pump.



5. PTFE tape the threaded end of one of the nipples that was cut in half. Place a bead of silicon seal around the taped threaded ends.

6. Screw and tighten the two pieces into the inlet and outlet of the Easiflo® pump.

7. Take the 1½″ ball valve and glue it onto the nipple that has been screwed into the pool piping in step #3. This is what makes the connection from the pool recirculation system to the Easiflo® pump inlet using 1½″ PVC piping.

8. Drill and tap another 1½″ BSP hole downstream of the first hole that was drilled and tapped. This hole accommodates the discharge side of the Easiflo® pump. If automated controllers are used in the system, the drilled and tapped hole must be placed downstream of the auto control and pH probes location. This is to avoid problems that may occur with the controllers operation. See installation diagram. Thread one of the cut 1½″ nipples into the 1½″ tapped hole.

9. Take the 1½″ ball valve and glue it onto the nipple that has been screwed into the pool piping in step #8. Please make sure that there is a straight connection back into the pipe, no elbows. This is to connect the pool recirculation system to the discharge side of the Easiflo® venturi.

10. Tie in the electrical to the Easiflo® pump **making sure you have the pump configured for the correct voltage.**

11. Using 1½″ PVC piping, connect the inlet side of the Easiflo® pump to the 1½″ ball valve installed in step 7 using the plain x plain unions around the booster pump.

12. Piping the discharge side of the Easiflo® pump will involve installing a venturi and reducing tee. See diagram on Page 10 for a reference. Place and glue the 1½″ x ½″ reducing tee and 1½″ plain x plain union on the 1½″ cut nipple on the discharge side of the pump. This reducing tee will have a ½″ male x male ball valve screwed into it that will provide the inlet water to the chlorinator.

13. Take the black venturi and PTFE tape all the threaded ends. Take the two unions (makes for easy removal of venturi, for cleaning, after installation) and screw one on each end and tighten. Take and thread the ½″ x ½″ reducing union to the venturi.

14. Connect the venturi as close as possible to the ball valve installed in step 8 using a short section of 1½″ PVC pipe. Make sure the flow through the venturi is in the proper direction. Connect the other end of the venturi to the discharge side of the Easiflo® pump using 1½″ PVC pipe.

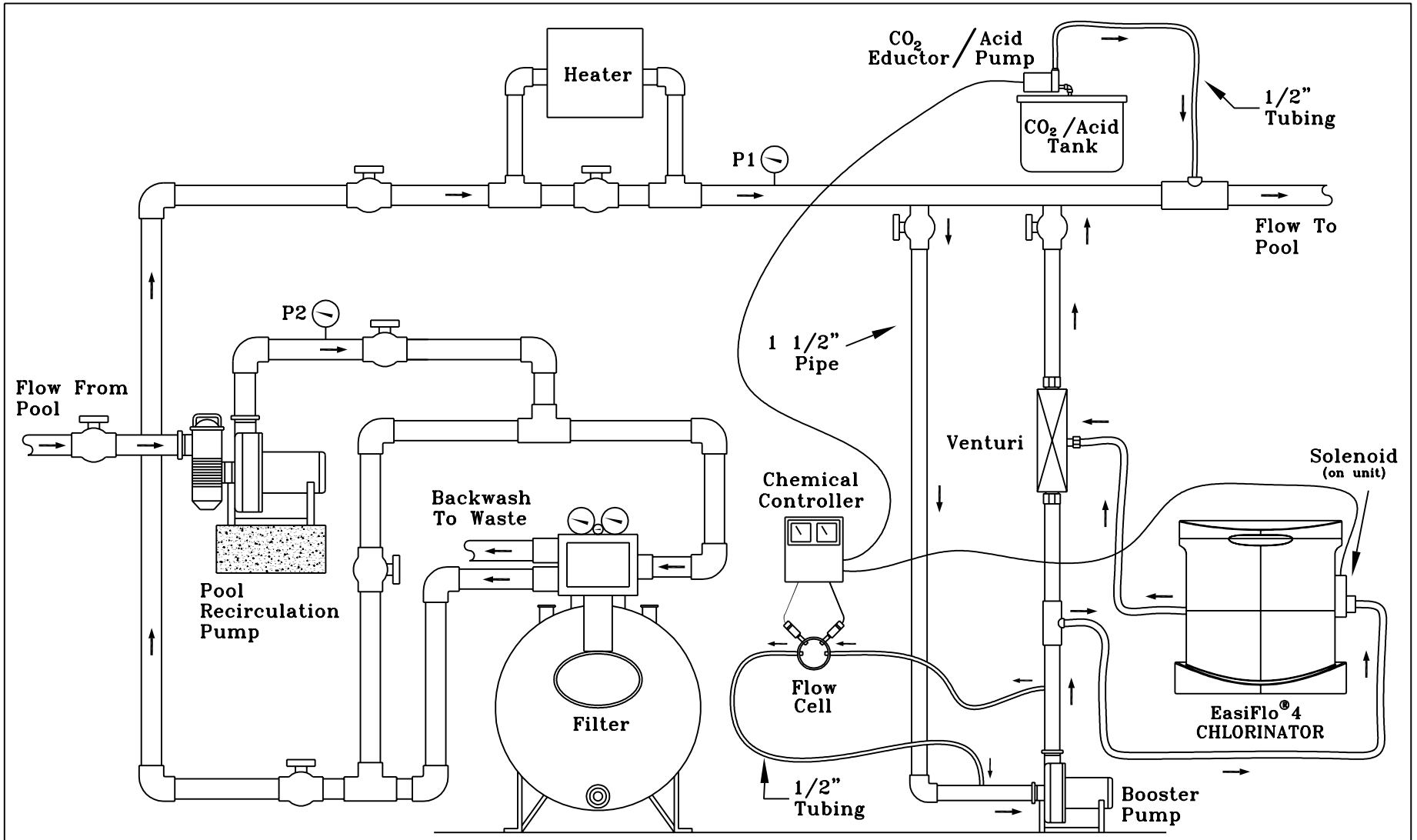
15. The recirculation loop is now complete.

16. Now hook up the Easiflo® 4 feeder to the Easiflo® recirculation loop. Two ½″ BSP grey ball valves have been included with the feeder. One is a ½″ x ½″ male valve which is screwed into the reducing tee, which is located on the discharge side of the Easiflo® pump. Once this is done, thread on the line strainer (NOTE: Direction of flow arrow on line strainer) assembly. Next thread the ½″ closed nipple into the line strainer assembly. Install the flow indicator onto the closed nipple and then screw in the tubing connector (⅝″ tubing x ½″ MBSP) into the flow indicator. Connect the ⅝″ tubing from the flow indicator to the solenoid valve **inlet** on the Easiflo® 4. Plug the transformer into the controller or power source (115v). See Easiflo® 4 Installation Schematic layout in the back of the manual for clarification.

17. The next ½″ grey ball valve is a female by male valve. Take the ½″ closed nipple and thread it into the female side of the ½″ ball valve. This valve is threaded into the reducing bushing on the venturi. Install female Parker fitting on ball valve. Connect the ⅝″ tubing from the venturi to the **discharge** valve of the feeder.

18. Restart the pool pump. Open the 1½″ ball valves and start the Easiflo® pump. Run the Easiflo® pump for 3-4 minutes. Open the ½″ grey valves and allow water to flow into the chlorinator, checking for leaks.

19. Refer to the Operators Manual for Easiflo® 4 chlorinator operation.



EasiFlo®4 Installation Schematic Layout

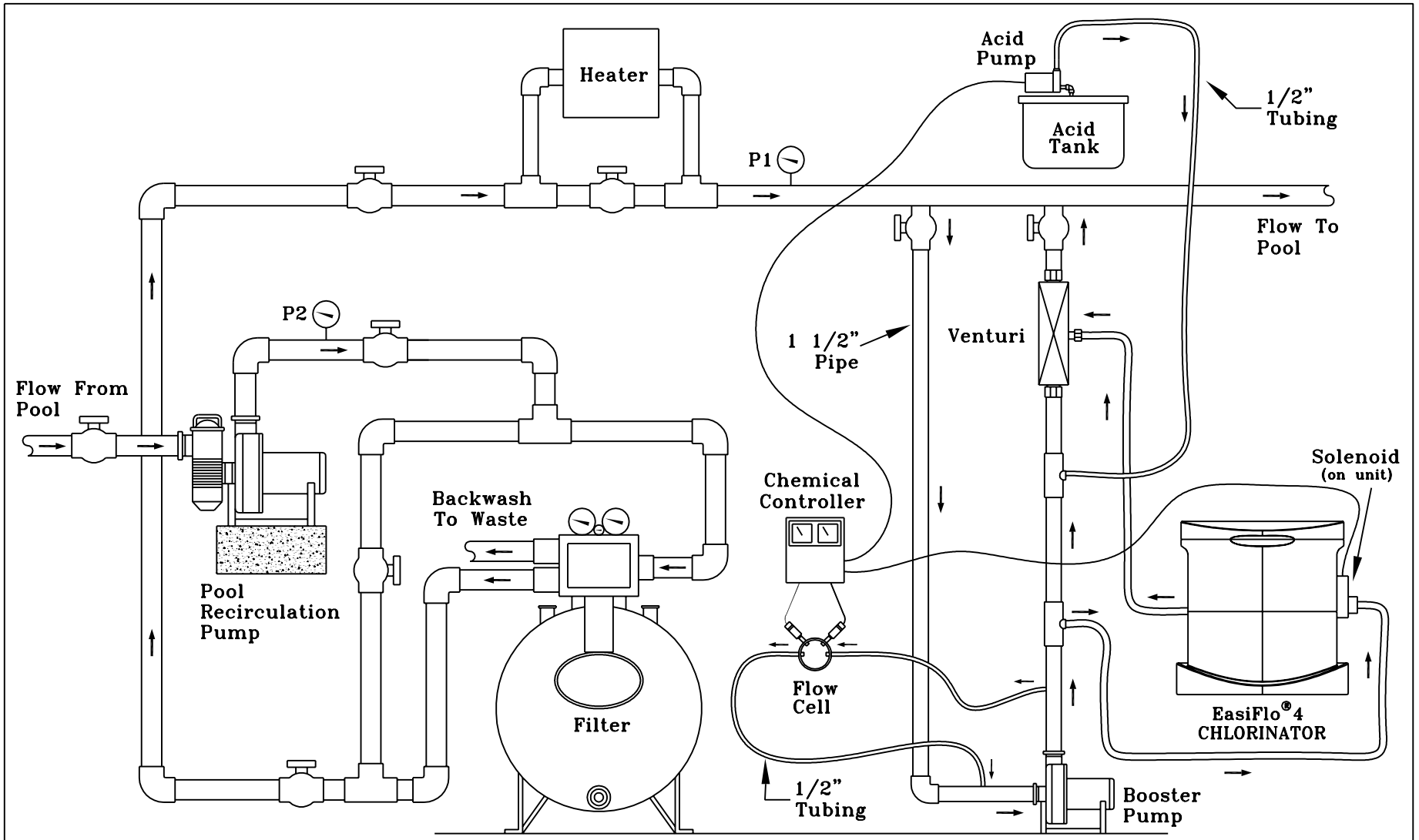
1 HP Pump & Venturi Installation 10-20-03

Standard Installation

Arch Chemicals, Inc.

Commercial Pool Products

EasiFlo®4 Installation | E4SS



EasiFlo®4 Installation Schematic Layout

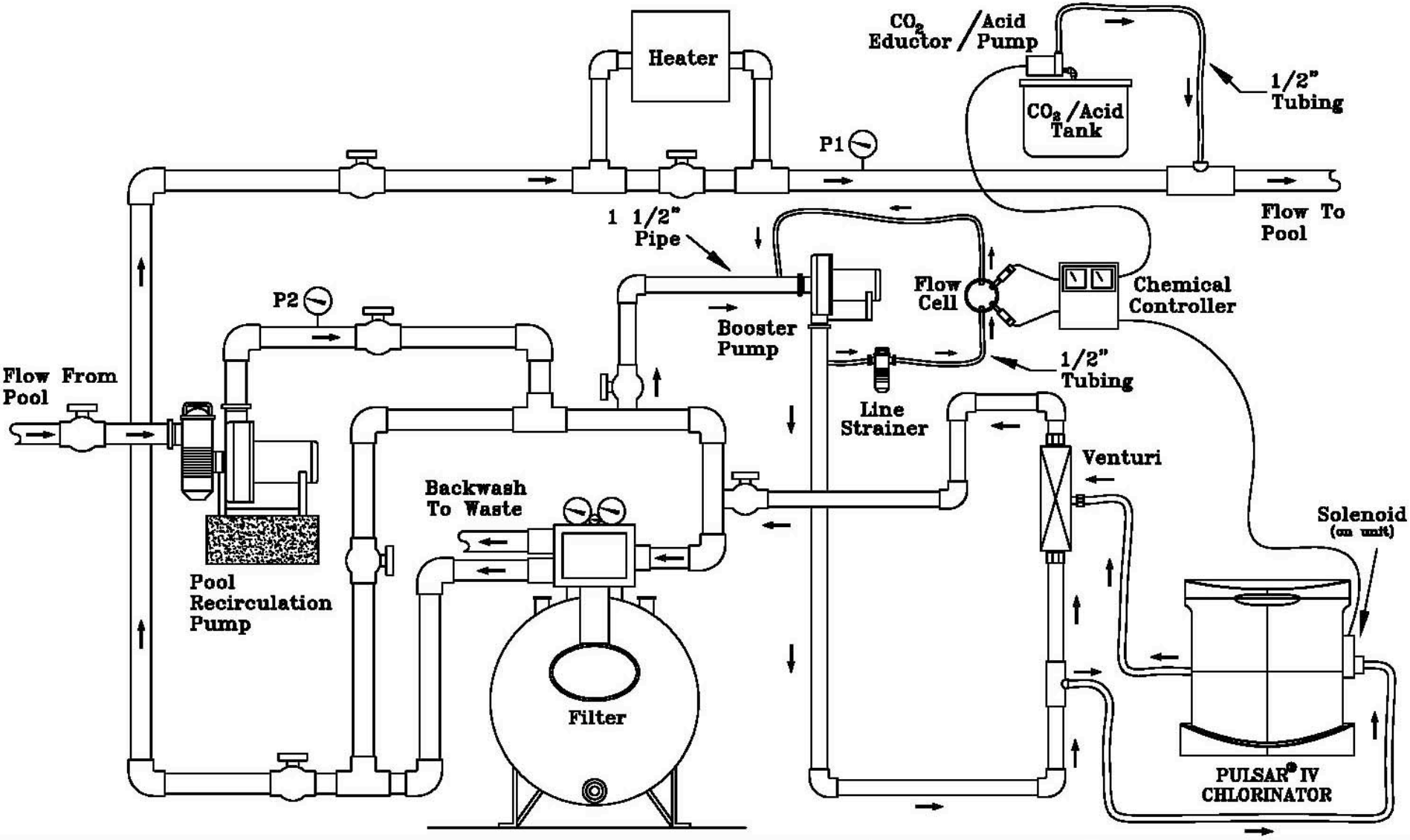
1 HP Pump & Venturi Installation 10-20-03

Optional Acid Feed

Arch Chemicals, Inc.

Commercial Pool Products

EasiFlo®4 Installation | E4SSA



PULSAR® IV Installation Schematic Layout
3/4 HP Pump & Venturi Installation 7-20-01
Optional Pre-Filter Installation

ARCH Arch Chemicals, Inc.

Commercial Pool Products

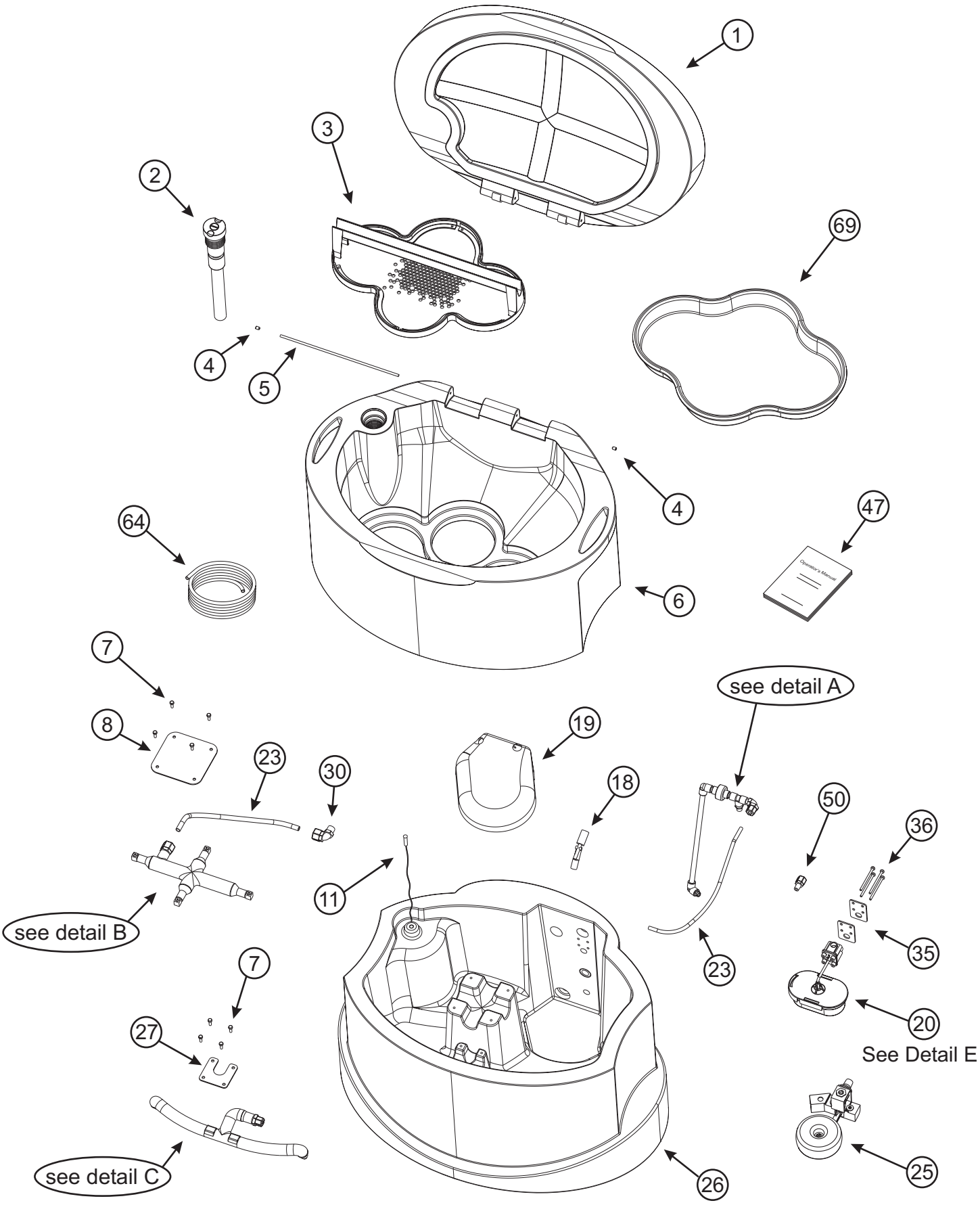
PULSAR® IV Installation | P4SSO

WARRANTY POLICY

Easiflo® 4 Commercial Pool Chlorinator

The Easiflo® Chlorine Feeder comes with a 12 month warranty from the date of installation. In order for the warranty to be validated the Warranty Registration Document W2 must be completed and returned to Arch Water Products, Wheldon Road, Castleford WF10 2JT.

Easiflo 4 Detailed View



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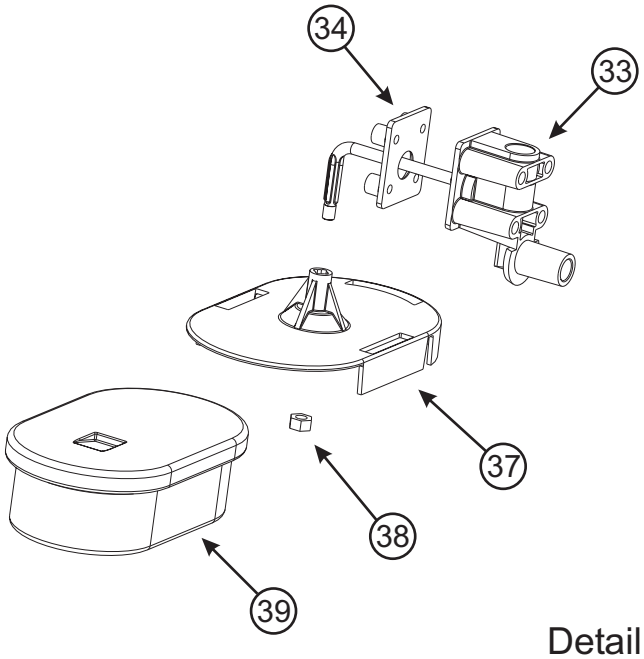
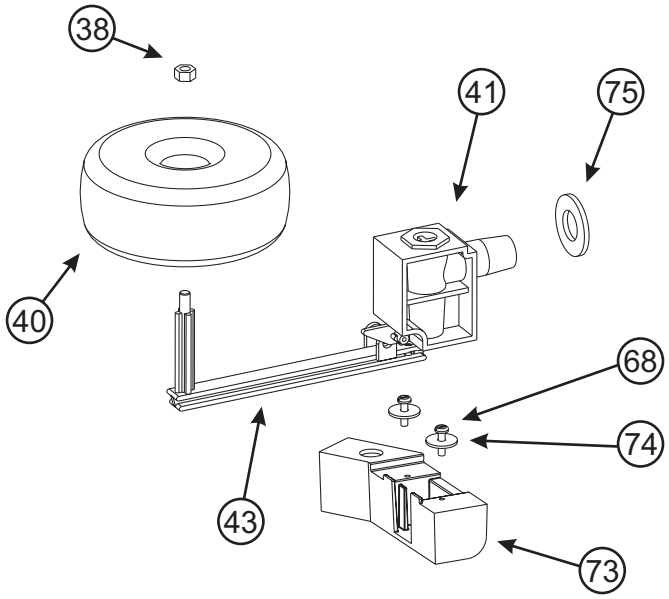
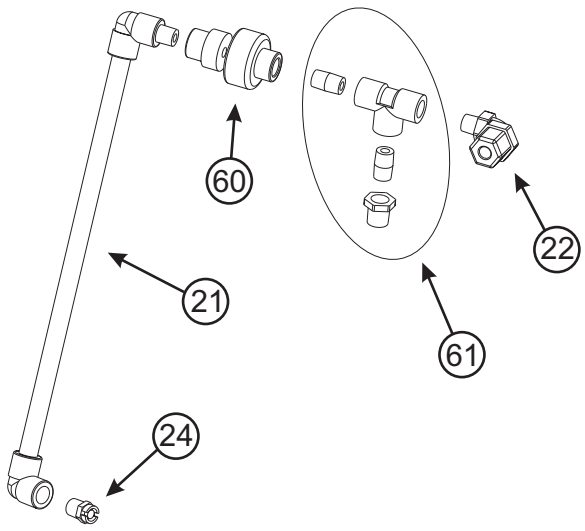


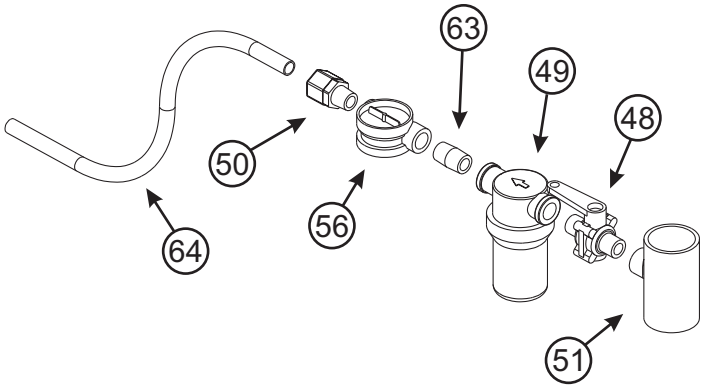
Detail E



Detail of (25)

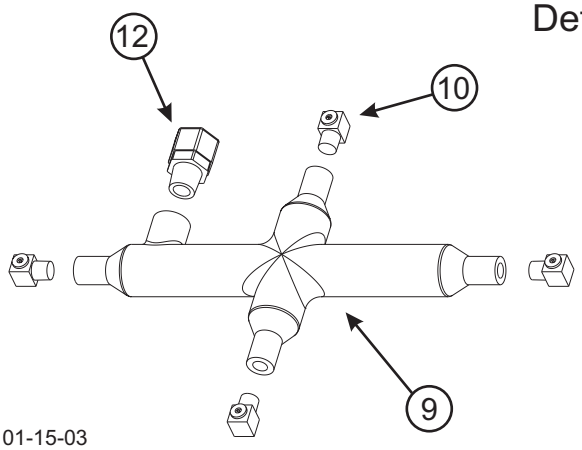


Detail A

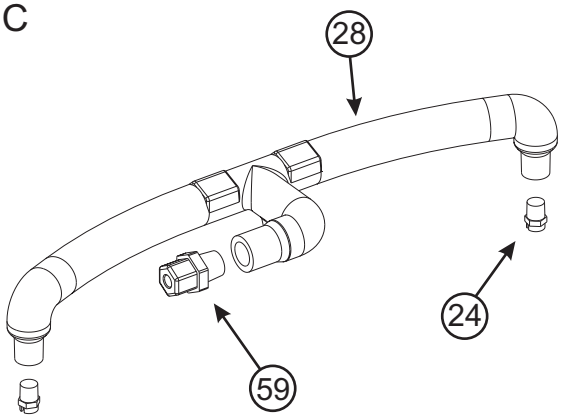


Detail D

Detail B

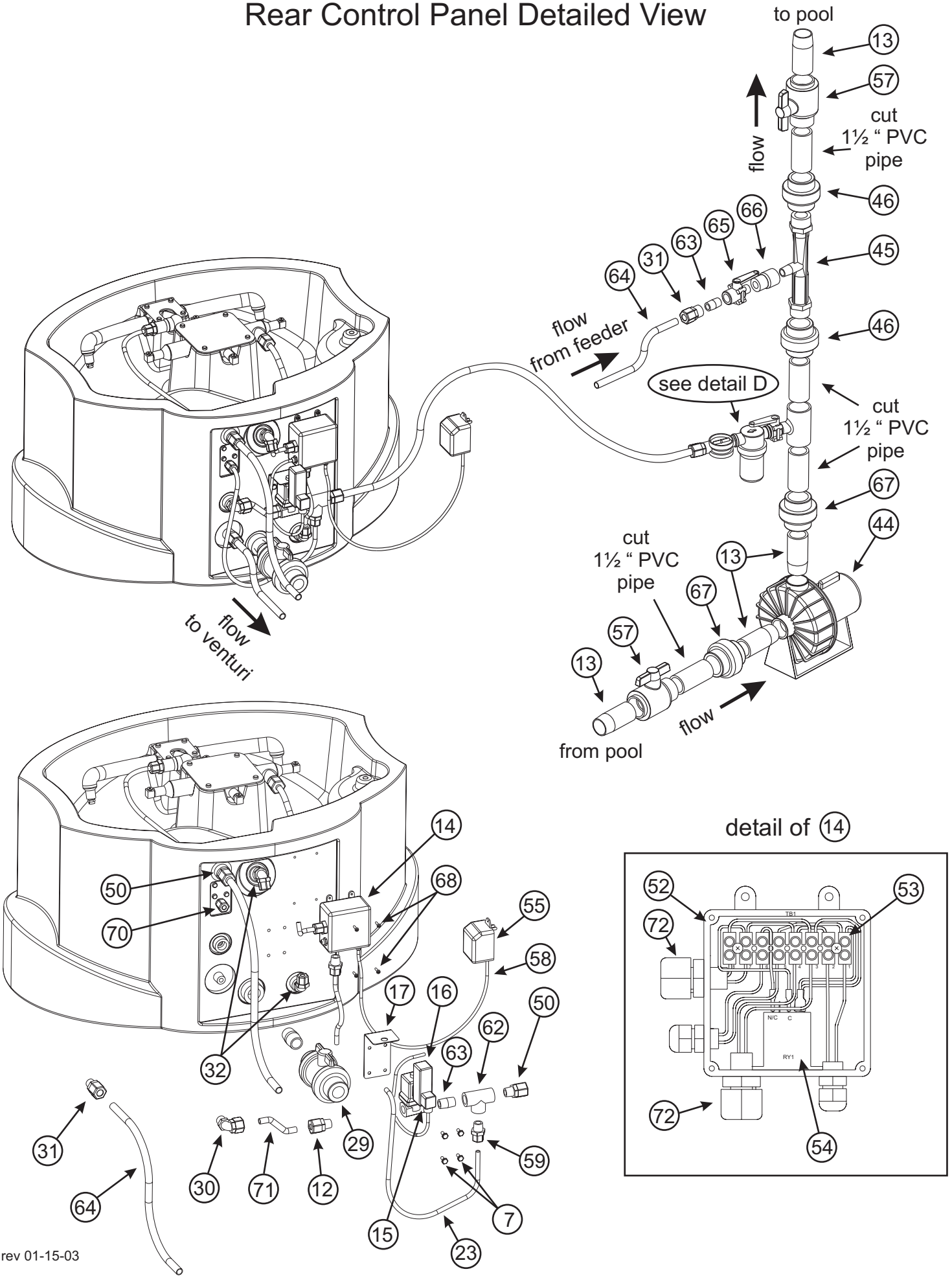


Detail C



rev 01-15-03

Rear Control Panel Detailed View



rev 01-15-03

Easiflo 4

Diagram Number	Part Number	Qty	Description	
0	71806	1	Easiflo 4 System	
1	71879	1	Lid for Easiflo 4 Feeder	
2	71880	1	Shut Off Assembly for Easiflo 4	
3	71881	1	Briquette Screen Assembly for Easiflo 4	
4	71882	2	Screw for Easiflo 4 lid	
5	71883	1	Hinge Rod for Easiflo 4 lid	
6	71884	1	Easiflo 4 Hopper	
7	71885	12	Hex Nut Plastic Screw, 1/4-20, 5/8"(sold single)	
8	71886	1	Mounting Plate for Spray Tree	
9	71887	1	Spray Tree	
10	71888	4	Spray Nozzle for Spray Tree (Full Cone)	
11	71889	1	Lid Switch	
12	71890	2	Parker Fitting, W8MC8 (also for solenoid)	
13	71548	2	1 1/2" X 12" PVC Nipple	
14	71920	1	Junction Box, Complete Assembly Easiflo 4	
15	71893	1	Timer (Easiflo 4) Includes Cord/Din Connector	
16	71894	1	Solenoid (24 Volt) Easiflo Line	
17	71895	1	Bracket for Timer/Solenoid	
18	71896	1	Electronic Shut Off	
19	71897	1	Deflection Plate	
21	71919	1	Well Agitator	
22	71900	1	Parker fitting W6ME4	
23	71618	1	3/8" PE Tubing (2 ft)	
24	71901	3	Spray nozzles for Washdown , Flat Fan	
26	71903	1	Easiflo 4 Discharge Tank	
27	71904	1	Washdown Mounting Plate	
28	71905	1	Washdown Manifold	
29	71906	1	1" drain valve (true union) With Nipple	
30	71898	2	Parker Fitting W8ME8	
31	71908	2	Parker Fitting W10FC8	
32	71909	2	Parker fitting W6ME8	
33	71535	1	Emergency Shut Off Valve with Arm Only	
34	71536	1	Emergency Shut Off Mounting Plate	
35	71910	2	Rubber Gasket for Emergency Shut Off Valve	
36	71749	4	Plastic Screws (1/4-20) 3 1/4" for ESV (For Easiflo 4 Only)	

Easiflo 4

Diagram Number	Part Number	Qty	Description	
37	71539	1	Emergency Shut Off Float Plate	
38	71538	1	Emergency Shut Off Float Plate PVC Nut/Discharge Arm Nut	
39	71540	1	Emergency Shut Off Overflow Float	
40	71585	1	Discharge Valve Float	
41	71615	1	Discharge Valve Body with Plug, Ball & Gasket	
43	71584	1	Discharge Valve Arm with Suction Cup	
44	71808	1	Easiflo 4 Pump (1 hp)	
45	71811	1	Venturi for Easiflo System	
46	71907	2	Unions(Quick disconnects) Venturi (Plain X Thread)	
47	71915	1	Manual for Easiflo 4	
48	71621	1	1/2" Ball Valve MM (Inlet)	
49	71605	1	(5100A) Line Strainer Assembly	
50	71918	3	Parker fitting W10MC8	
51	71547	1	1 1/2" X 1/2" Schedule 80 PVC T SXF	
52	71892	1	Junction Body w/Fittings	
53	71921	1	Terminal Block	
54	71922	1	Electronic Relay	
55	71923	1	24V AC Transformer/Plug US	
56	71928	1	Gem Sensors Flow Indicator (#155480) for Easiflo 4 only	
57	71913	2	1 1/2" Slip PVC sch40 ball valves	
58	71926	1	Power cord for Transformer (20 ft)	
59	71590	2	(5023) 1/2" X 3/8" Male Connector (W6MC8)-Parker	
60	71911	1	Union 1/4" Threaded	
61	71899	1	Washdown assmbly 2(1/4" clsed nipples), 1(1/4" threaded Tee), 1(3/	
62	71912	1	1/2" Threaded Tee	
63	71916	3	1/2" PVC Closed Nipple	
64	71891	1	20' Flexible Tubing 5/8"	
65	71627	1	1/2" Ball Valve MF (Outlet)	
66	71917	1	3/4" FNPT X 1/2" FNPT PVC Reducer	
67	71914	2	Quick Disconnects (Pump) Slip X Slip	
68	71925	4	8-32X5/8" PVC Screws (Packaged 4)	
69	71927	1	Briquette Cleaning Pan for Easiflo	
70	72006	1	Parker Fitting W6MC4	
71	71626	1	20' 1/2" O.D. PE Tubing(E4 only need 3 inch piece)	
72	71582	2	(4014) Parker Fitting P6MC4	

Easiflo 4

Diagram Number	Part Number	Qty	Description	
73	72863	1	Discharge Valve Enhancement Adaptor	
74	72865	2	Custom Washer for Discharge Valve Adapter	
75	71576		Discharge Valve Gasket	

ISSUE 1 SPRING 2003

EMERGENCY RESPONSE PROCEDURE FOR ARCH WATER PRODUCTS CUSTOMERS

1 In the event of a Health Safety or Environmental Emergency involving Arch Water products.

This includes

- Injury to persons requiring medical treatment
- Loss of containment of product to the environment
- Involvement of the Emergency Services (Police, Fire, Medical)
- Involvement of the Environmental agencies
- Major damage to property

FIRST TELEPHONE + 44 (0)1865 407333

This will connect you with the NCEC (National Chemical Emergency Centre) who support the Arch Emergency Response. *(It operates 24 hours a day, 365 days a year).*

THEN Phone your local Arch Water Products Office *(during office hours)*

2 NCEC will provide initial assistance and advice *(in English)*.

3 NCEC will also contact Arch Water Products Head Office.

4 When calling the Emergency No. have the following information available *(use your Emergency Response Procedure Checklist)*:

- Your name
- Your job title
- Your company name and location
- The Telephone (and fax) number that you can be contacted on
- The Product Name
- The Product Code
- The nature of the emergency
- The action you have taken
- Are the emergency services involved?
- Are the environmental agencies involved?

***PLEASE* ALWAYS CONTACT NCEC IN THE EVENT OF A HEALTH, SAFETY OR ENVIRONMENTAL EMERGENCY INVOLVING ARCH WATER PRODUCTS**
BUT
***PLEASE* ONLY USE THIS NUMBER FOR HEALTH, SAFETY AND ENVIRONMENTAL EMERGENCIES (as defined above).**