



Installation Manual

for the UK and Ireland

Model 71945



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

7/15/05

REV 11



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.

A single pool installation can be carried out in one of three ways:-

- 1. 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. The chlorine solution can be evacuated instead by the use of a conventional dosing pump.**
- 3. Using a venturi which employs the motive power of the pools' own circulating pump. In this instance consultation with Arch technical services is necessary to advise on feasibility.**

For multi pool installations – again the venturi and booster pump can be employed 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 extract 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 100m³

Instructions for Easiflo® 3 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)/20 Amp	Pressure gauge
1½" 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:

One ½" BSP male x male grey ball valve	One ½" BSP male x female grey ball valve
½" O.D. LDPE tubing	Two ½" closed PVC nipples
Two ½" Female Parker tube fittings (P8FC8)	One Scoop
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 1½" 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® 3 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 (~ 35 psi) to drive the jets in the manifold of the Easiflo® 3 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® 3 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 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 Easiflo 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 = $(34 - \text{height differential in feet}) / 34$

Example: height differential is 6 feet, therefore

$$\begin{aligned}\text{Suction lift factor} &= (34-6) / 34 \\ &= 28 / 34 \\ &= 0.82\end{aligned}$$

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

The formula is: $F1 \times \text{suction lift factor} = \text{actual outlet flow}$

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.

$F1 \times \text{suction lift factor} = \text{actual outlet flow}$

$$14.4 \text{ lt/m} \times 0.82 =$$

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

$F1 \times \text{suction lift factor} = \text{actual outlet flow}$

$$10.2 \text{ lt/m} \times 0.82 =$$

8.33 lt/m = actual outlet flow **(This flow is insufficient to drain chlorinator)**

It will be necessary to use 1½" shut-off ball valves in the booster pump/venturi loop.

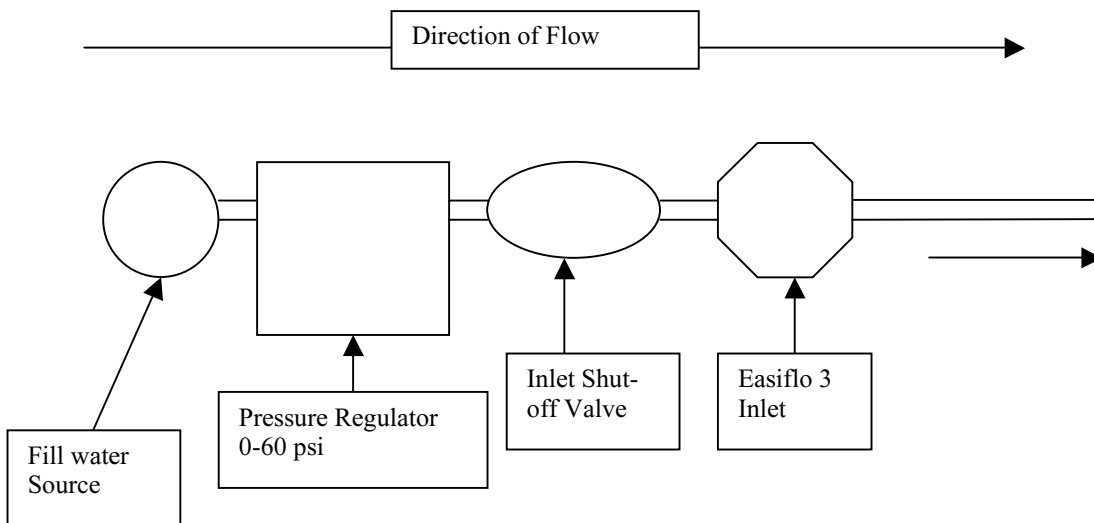
Refer to Graph #4 to determine suction capacity @ 25 psi with 1½" ball valves.

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 375m³ pool will use approximately 75 litres of chlorinated solution from the Easiflo System per day. A typical outdoor 375m³ pool will use approximately 225 litres of chlorinated solution from the Easiflo[®] System per day. The Easiflo[®]3 System also puts **an additional 3.3m³ 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 30-35 psi inlet water pressure. See diagram below for proper fill water plumbing hook-up.



Pump

The ³/₄ H.P. pump is wired for 240V.

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.

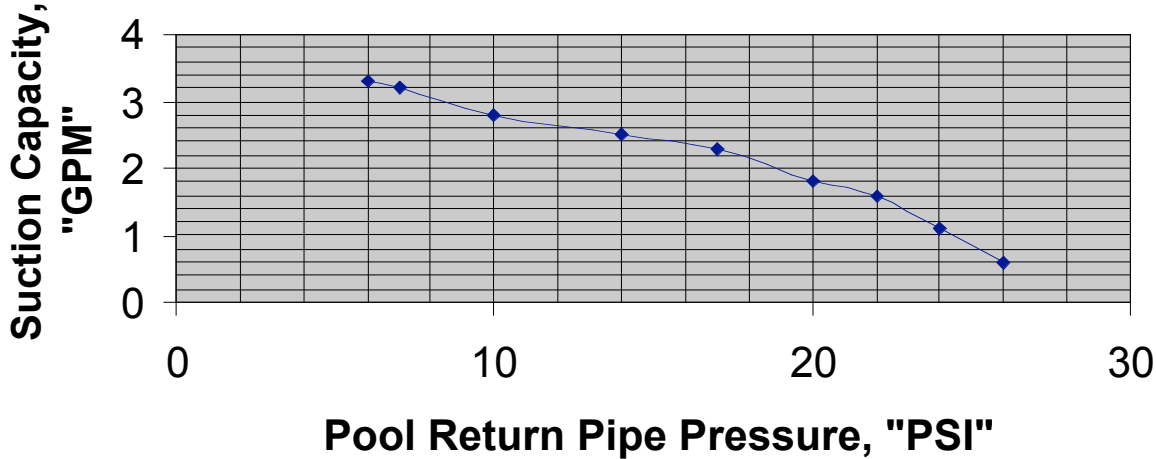
Installation of equipment

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

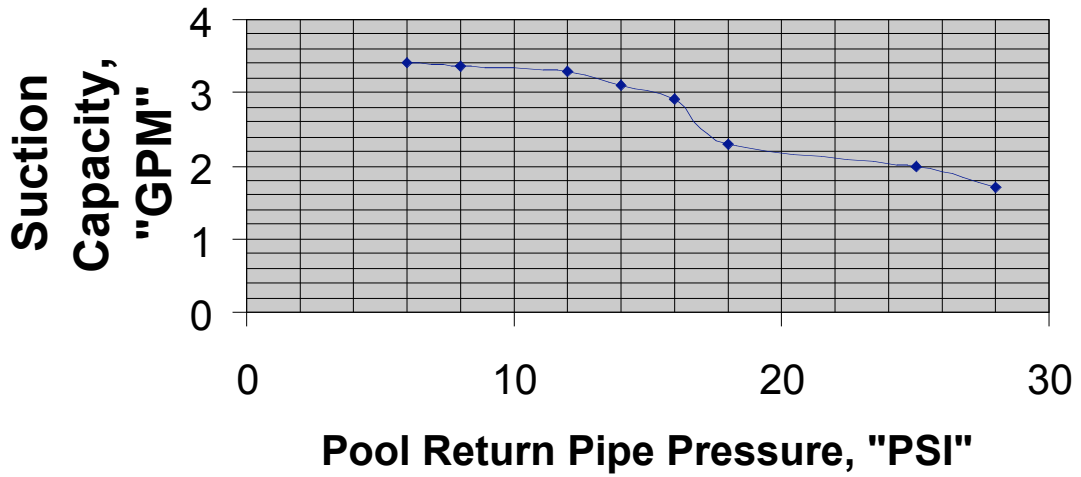
Shut off the pool recirculation equipment before proceeding with the installation. Review the installation diagram prior to installation.

Dealer Installation Notes:

**Graph #3: Easiflo[®] 3 Installation
3/4 HP Booster Pump with 1585X
Mazzei Venturi and 1" Ball Valves**



**Graph #4: Easiflo[®] 3 Installation
3/4 HP Booster Pump with 1585X Mazzei
Venturi and 1 1/2" Ball Valves**



1. Based on your site assessment, drill and tap a 1 1/2" 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 1 1/2" 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 1 1/2" tapped hole or saddle clamp.



4. PTFE tape the 2" X 1 1/2" 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.



- Screw and tighten the two pieces into the inlet and outlet of the Easiflo[®] pump.



- Take the 1^{1/2}" 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 1^{1/2}" PVC piping.



- Drill and tap another 1^{1/2}" 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 feed point. This is to avoid problems that may occur with the controller operation. See installation diagram. Thread one of the cut 1^{1/2}" nipples into the 1^{1/2}" tapped hole or saddle clamp.
- Take the 1^{1/2}" ball valve and glue it onto the nipple installed 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.



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

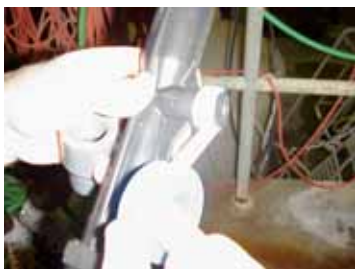
11. Using 1½" PVC piping, connect the inlet side of the Easiflo® pump to the 1½" ball valve installed in step 7.



12. Piping the discharge side of the Easiflo® pump will involve installing a venturi and reducing tee. See Figure 1 for a reference. Place and glue the 1½" x 1/2" reducing tee on the 1½" cut nipple on the discharge side of the pump. This reducing tee will have a 1/2" 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 ¾" x 1/2" 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.

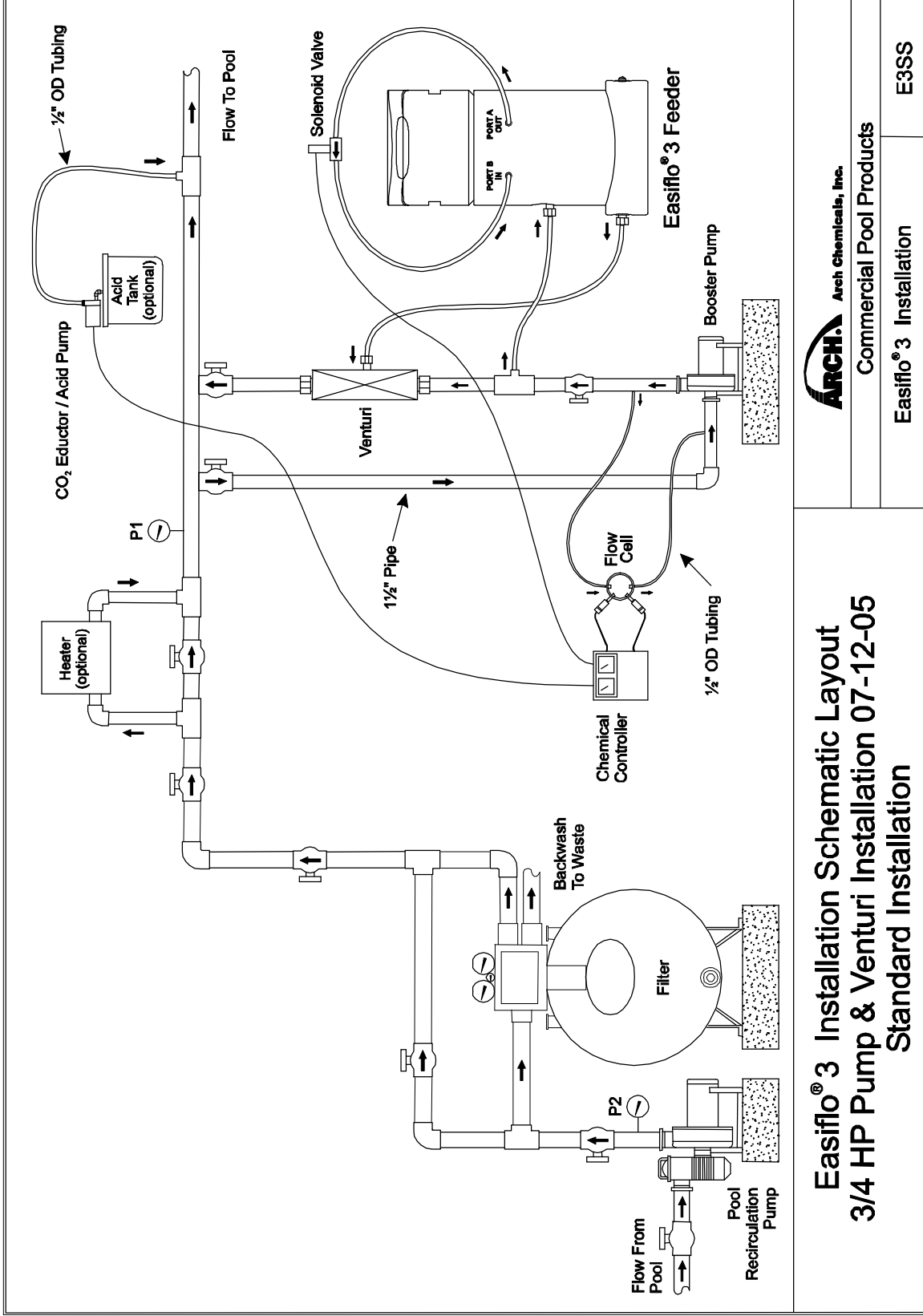


15. The recirculation loop is now complete.



16. Now hook up the Easiflo 3 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. Connect the ½" tubing from the flow indicator to the **inlet** on the Easiflo





Easiflo[®] 3 Installation Schematic Layout

3/4 HP Pump & Venturi Installation 07-12-05

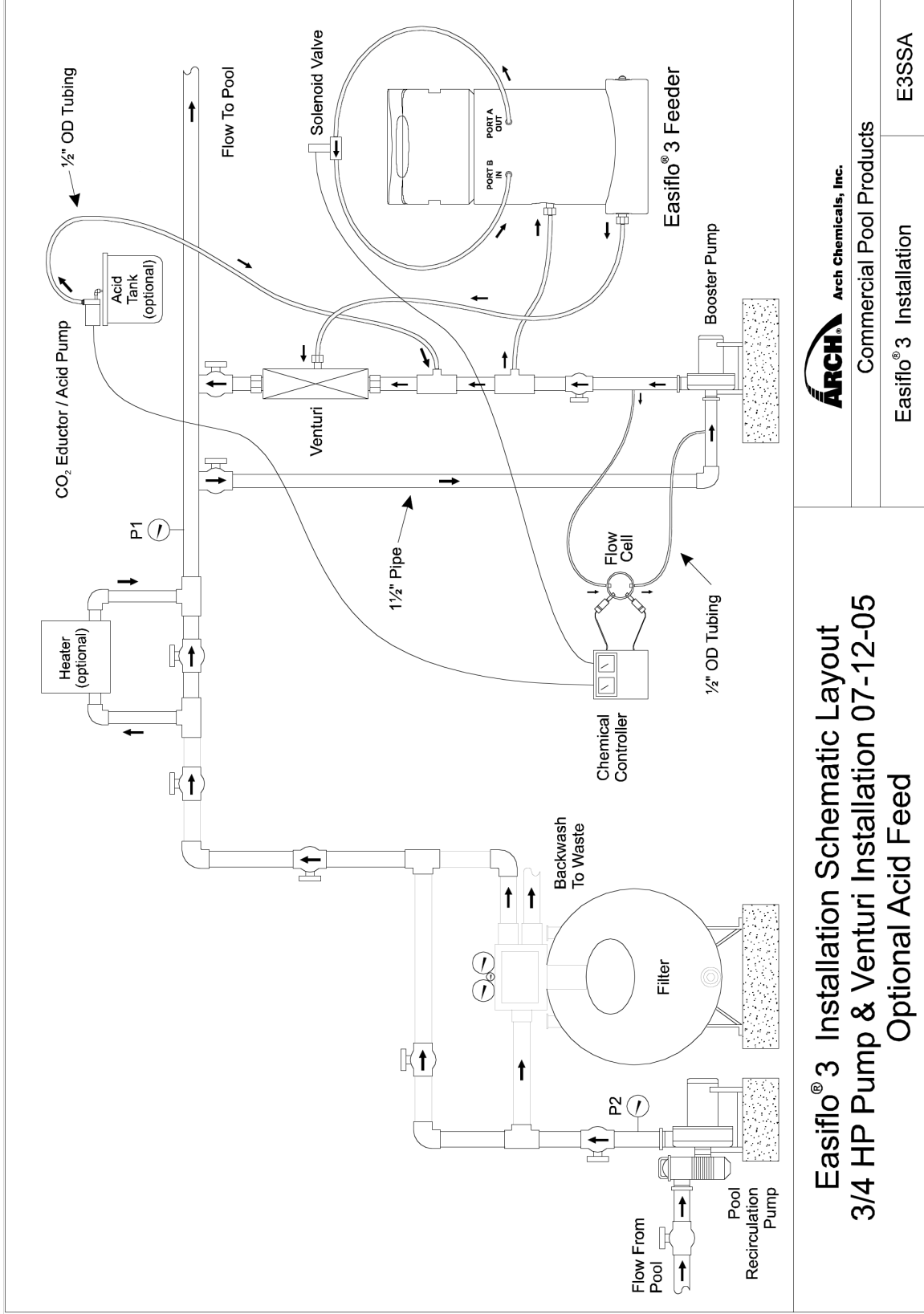
Standard Installation



Commercial Pool Products

Easiflo[®] 3 Installation

E3SS



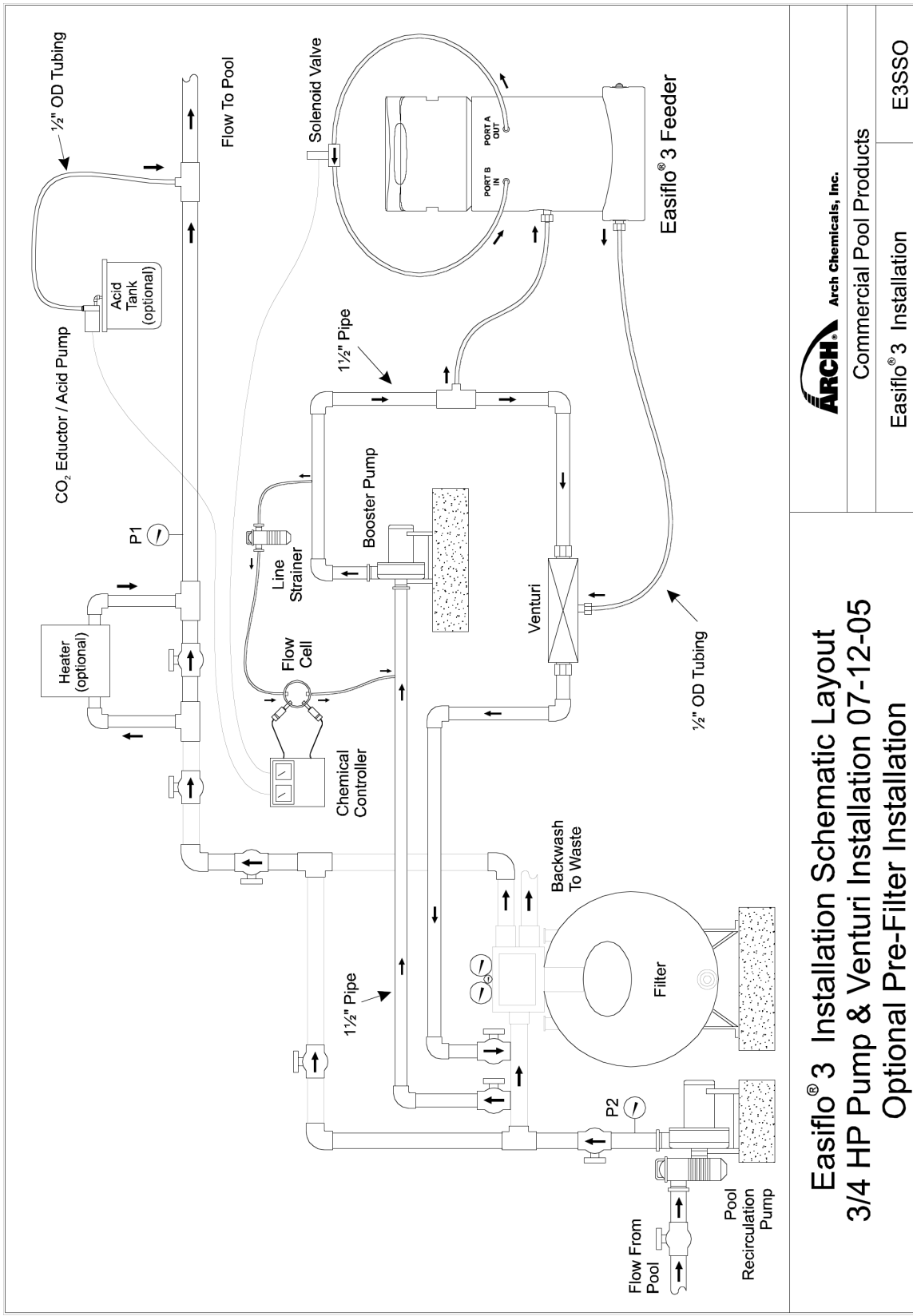
Easiflo[®] 3 Installation Schematic Layout 3/4 HP Pump & Venturi Installation 07-12-05 Optional Acid Feed



Commercial Pool Products

Easiflo[®] 3 Installation

E3SSA



Easiflo® 3 Installation Schematic Layout 3/4 HP Pump & Venturi Installation 07-12-05 Optional Pre-Filter Installation



Arch Chemicals, Inc.

Commercial Pool Products

Easiflo® 3 Installation

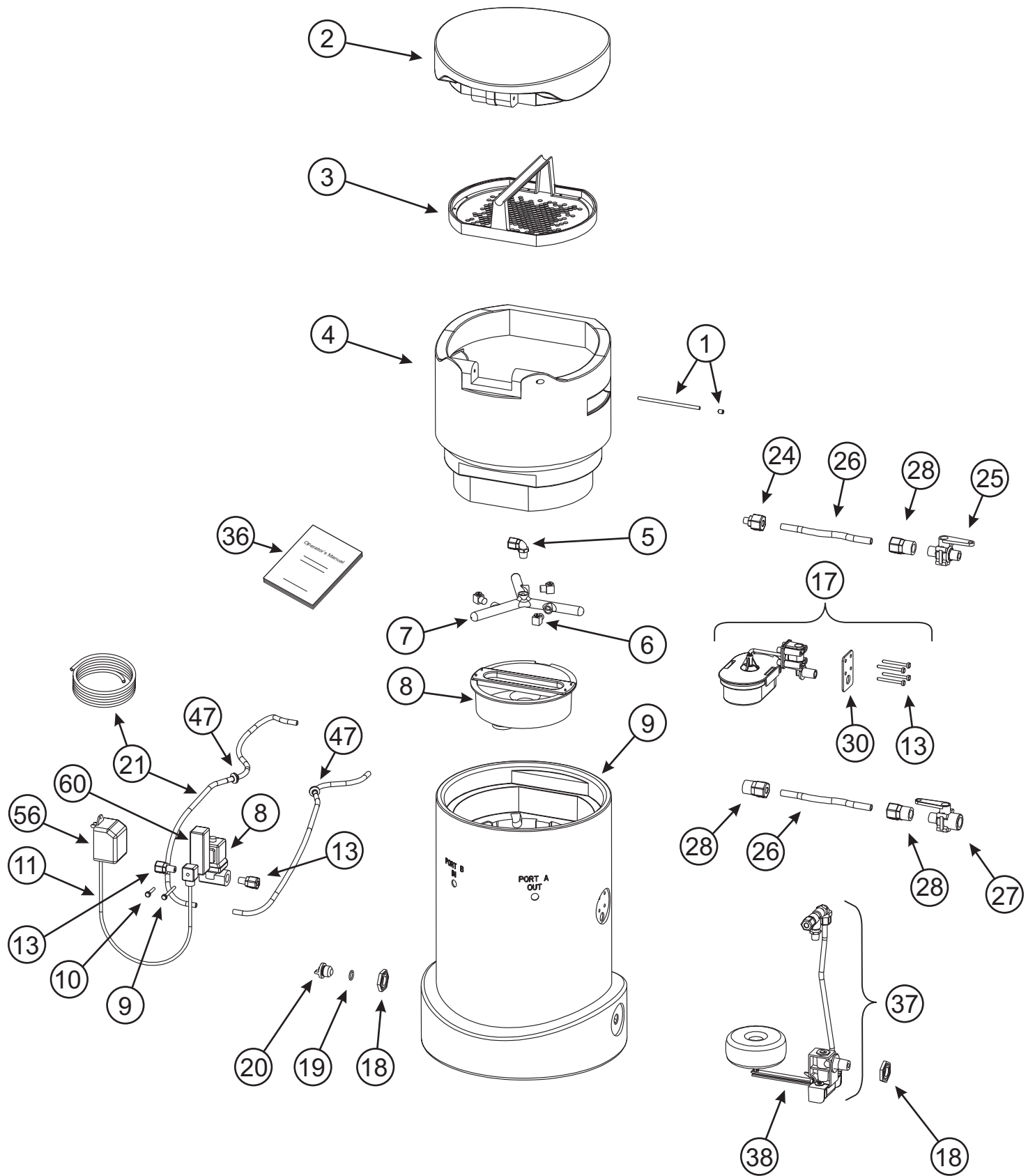
E3SSO

WARRANTY POLICY

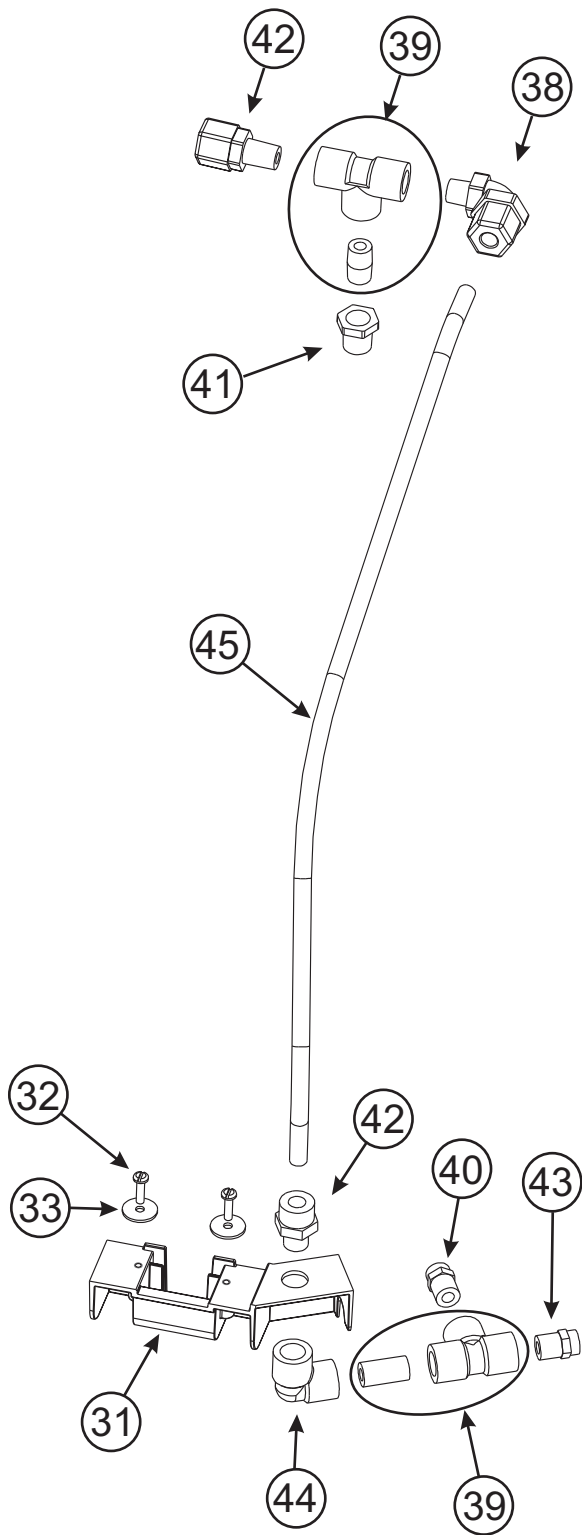
Easiflo® 3 Commercial Pool Chlorinator

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.

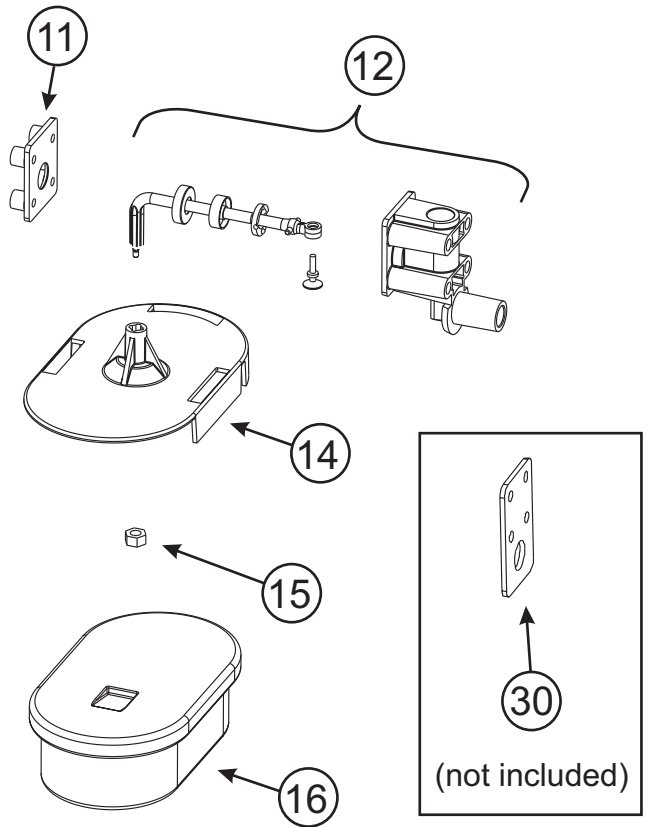
Easiflo 3 Feeder Detailed View



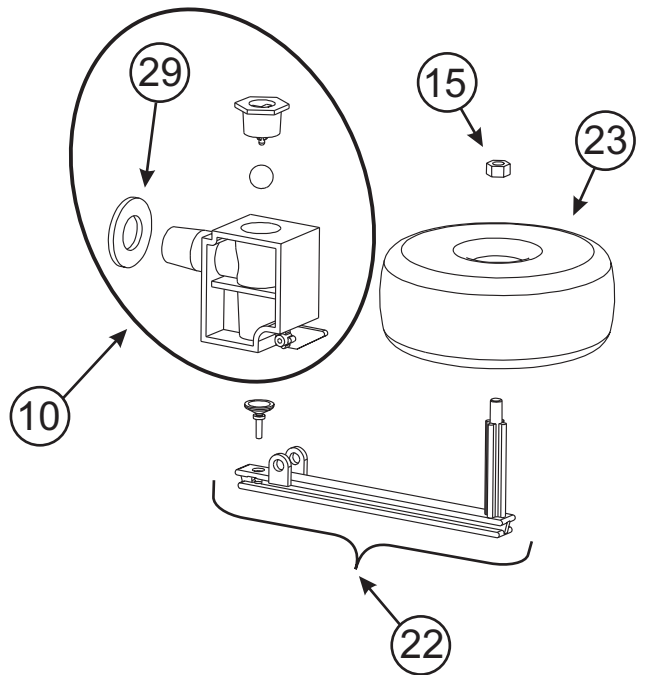
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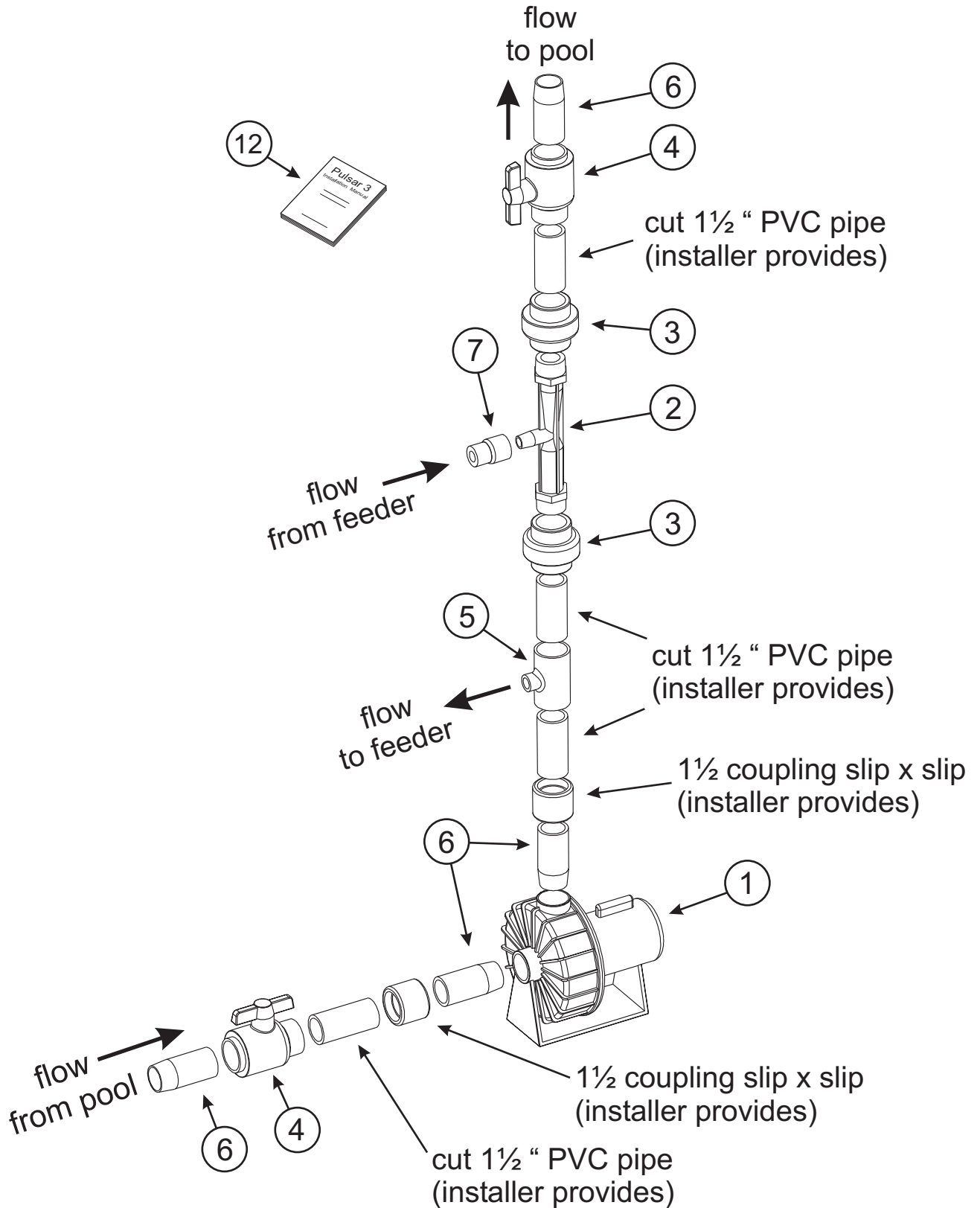
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Installation Kit



Easiflo 3

Diagram Number	Part Number	Qty	Description
0	71528	1	Easiflo 3 System, PS 5000-Includes Installation Kit
1	71608	1	Hinge Rod W/Set Screw for E3 Hopper
2	71607	1	Lid for E3
3	71609	1	Briquette Screen Assembly for E3
4	71606	1	Hopper without Lid for E3
5	71619	2	Elbow (P6ME6) 3/8" For Feeders 30991 & E3
6	71617	3	Spray Nozzle for E3
7	71616	1	Manifold for E3
8	71620	1	Deflection Plate Assembly
9	71610	1	Base without assembled parts for E3
10	71615	1	Discharge Valve Body with Plug, Ball & Gasket
11	71536	1	Emergency Shut Off Mounting Plate
12	71535	1	Emergency Shut Off Valve with Arm Only
13	71537	4	Emergency Shut Off Mounting PVC Screws(1/4x20x2 1/4)
14	71539	1	Emergency Shut Off Float Plate
15	71538	1	Emergency Shut Off Float Plate PVC Nut/Discharge Arm Nut
16	71540	1	Emergency Shut Off Overflow Float
17	71496	0	Emergency Shut Off Valve Assembly - Part 71910 Not Included
18	71583	2	Discharge Valve Locknut
19	71613	1	(4026) O-Ring #115 - Used in Plug
20	71612	1	Plug for Feeder Body for E3
21	71558		3/8" O.D. Polyethylene Tubing - 20'
22	71584	1	Discharge Valve Arm with Suction Cup
23	71585	1	Discharge Valve Float
24	71614	1	Tube Connector (P8MC4) for E3
25	71621	1	1/2" Ball Valve MM (Inlet)
26	71626	1	20' 1/2" O.D. PE Tubing(P4 only need 3 inch piece)
27	71627	1	1/2" Ball Valve MF (Outlet)
28	71588	3	(5008) 1/2" X 1/2" Female Connector (P8FC8)
29	71611	1	1/2" X close PVC Nipple
30	71910	1	Rubber Gasket for Emergency Shut Off Valve
31	72863	1	Discharge Valve Enhancement Adaptor
32	71925	2	8 - 32X5/8" PVC Screws
33	72865	2	Custom Washer for Discharge Valve Adapter
34	71373	1	Cleaning pan for Briquette Grid (Easiflo 3)

1/8/2003

Note: Items 29 through 32 are not shown

Easiflo 3

Diagram Number	Part Number	Qty	Description
35	71598	1	(8001) Scoops (Easiflo Accessory)
36	71622	1	Operators Manual for E3 System
37	72864	0	E3 Enhancement Kit
38	71900	1	Parker fitting W6ME4
39	71968	2	1/4" Threaded PVC Tee with Nipple
40	72862	1	Spray Nozzle (Lechler 632.364.5E.BC)
41	71572	1	(3045) Reducing Bushing (3/8"x1/4") For Feeder 30025 (PPI)&E3 Enhancement K
42	71582	2	(4014) Parker Fitting P6MC4
43	72861	1	Spray Nozzle (Lechler 632.564.5E.BC)
44	71563	1	(3002) PVC Elbow For Feeders 30025, 30991and P3 Enhancement Kit
45	71574	1	(3103) 3/8" P.E. Tubing E-64-0500 (13.5")

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).**