Installation Manual

for UK and Ireland

Model 75876

Arch Chemicals Ltd
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9/16/03

REV 1

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.

Installation Manual

General Principles of Installation

The Easiflo 1 chlorinator is an atmospheric system designed for pools and ranging from 15 to 600 m^3 depending on bather load and operating conditions. It is possible to install the feeder on a pool and dose a spa or small pool also with a conventional dosing pump drawing solution from the discharge tank, but this possibility again depends on volumes and bather load. Arch Technical Services personnel can help to determine this.
Tel:- 01977 714100 for this or other helpful advice if needed.

There are two different types of installations. The location of the pool pump (above grade or below grade) will determine the installation type necessary. Both Easiflo 1 installations use the small feeder venturi to inject chlorine post filter/heater.

Selecting a location for the Easiflo 1:

Choose a location in the pump room that will allow easy access and service. Always try to minimize the length of the outlet tubing when locating the Easiflo 1. The Easiflo 1 comes with 6mt of half inch OD polyethylene tubing.

Equipment Required for Chlorinator Installation:

Drill - Cordless Recommended	Tube Cutters or Utility Knife
1/2″ BSP Tap and 11/16″ Drill Bit	1/2″ MBSP x 1/4″ FBSP Reducing Bushing
PTFE or Pipe Sealant	PVC Primer/Cleaner and PVC Glue
Saw to cut PVC Pipe	Gas Pliers (Channel Locks)
Vacuum Gauge (Inches of Hg)	

Equipment Required for Venturi Installation:

1″ PVC Pipe and Fittings (elbows, tees etc.)	Ball or Gate Valve for Pool Return Line
1 1/2″ BSP Tap and 1 3/4″ Hole Saw (Optional)	Saddle Clamps (optional)

Parts Included with the Easiflo 1 Chlorinator:

1/2″ OD Polyethylene Tubing (20 feet)	1/2″ FBSP threaded Sch. 40 PVC coupling
(2) 1/2″ FBSP x FBSP PVC ball valve/W8MC8	0 - 4lts acrylic flow indicator
Parker tubing connector: 1″ Tube x 1″ MBSP (W8MC4) for ESV inlet	(3) Parker tubing connector: 1/2″ OD tube x 1/2″ FBSP (W8FC8) for discharge valve and flow indicator
Arch Venturi (2) 1/2″ PVC Nipples	(2) 1 1/2″ Slip x Slip Sch. 40 PVC Unions

Will the Small Feeder Venturi Work @ Site

Ask the pool operator what the flow rate (minimum) of the pool is with a dirty filter. Backwash or clean the filter and measure the effluent pressure of the pool system after the heater at "P1" in the Installation Schematic. If this pressure is 17psi or less and the minimum flow rate of the pool is greater than 170 lts /min, the small feeder venturi will provide adequate suction to operate the Easiflo 1. The chart overleaf lists the suction flow generated by the small feeder venturi at various pressure differentials.

Install the venturi loop as shown in the appropriate Installation Schematic for either an above or below grade filtration system. The primary difference between the two is the use of ball valves on the below grade installation to allow the loop to be isolated from the pool system for service. Once the loop has been installed using the step by step instructions in the Installation Manual, adjust the pressure differential ball valve to achieve a vacuum reading of 13″ Hg.

Easiflo® 1 Venturi Installation: Theory

Inlet Pressure (psi)	Outlet Pressure (psi)	Flow Through Venturi (lts /min)	Suction Flow (lts /min)
5.5	5	87	3.78
6	5	106	6.00
6.5	6	91	3.78
7.5	6	106	1.5
7.5	7	98	3.78
8	7	106	4.92
12	10	121	3.78
12.5	10	128	4.92
15.5	12	140	3.78
17.5	15	144	3.78
18	15	148	4.92
21.5	17	155	3.78
22	17	159	4.92

Flow to the venturi is taken from the pressure side of the pool recirculation pump after the filter and heater loop (if present). Flow from the venturi is returned downstream of the venturi inlet. A partially closed valve in between the venturi inlet and outlet provides the pressure drop needed to power the venturi. The three critical parameters in choosing a venturi are the inlet and outlet pressures and the suction lift. The Venturi must be capable of evacuating 4lt /min from the discharge tank when the filter is dirty. Suction flow will decrease with an increase in filter pressure as less water will flow through venturi.

Always minimize the backpressure when installing a venturi. **This includes eliminating/minimizing any elbows on the outlet side of the venturi.** In addition, if the venturi is located more than 0.9 metres above the chlorinator outlet, it will be necessary to calculate the effect of the suction lift loss on outlet flow. Follow instructions below to perform the Suction Lift calculation if required.

After the evacuation system has been laid out, measure the height differential (in metres) between the venturi and discharge valve of the Easiflo®1 chlorinator. Use this height differential to calculate the suction lift factor in the formula that follows.

Suction lift factor = (10.37 – height differential in metres) / 10.37

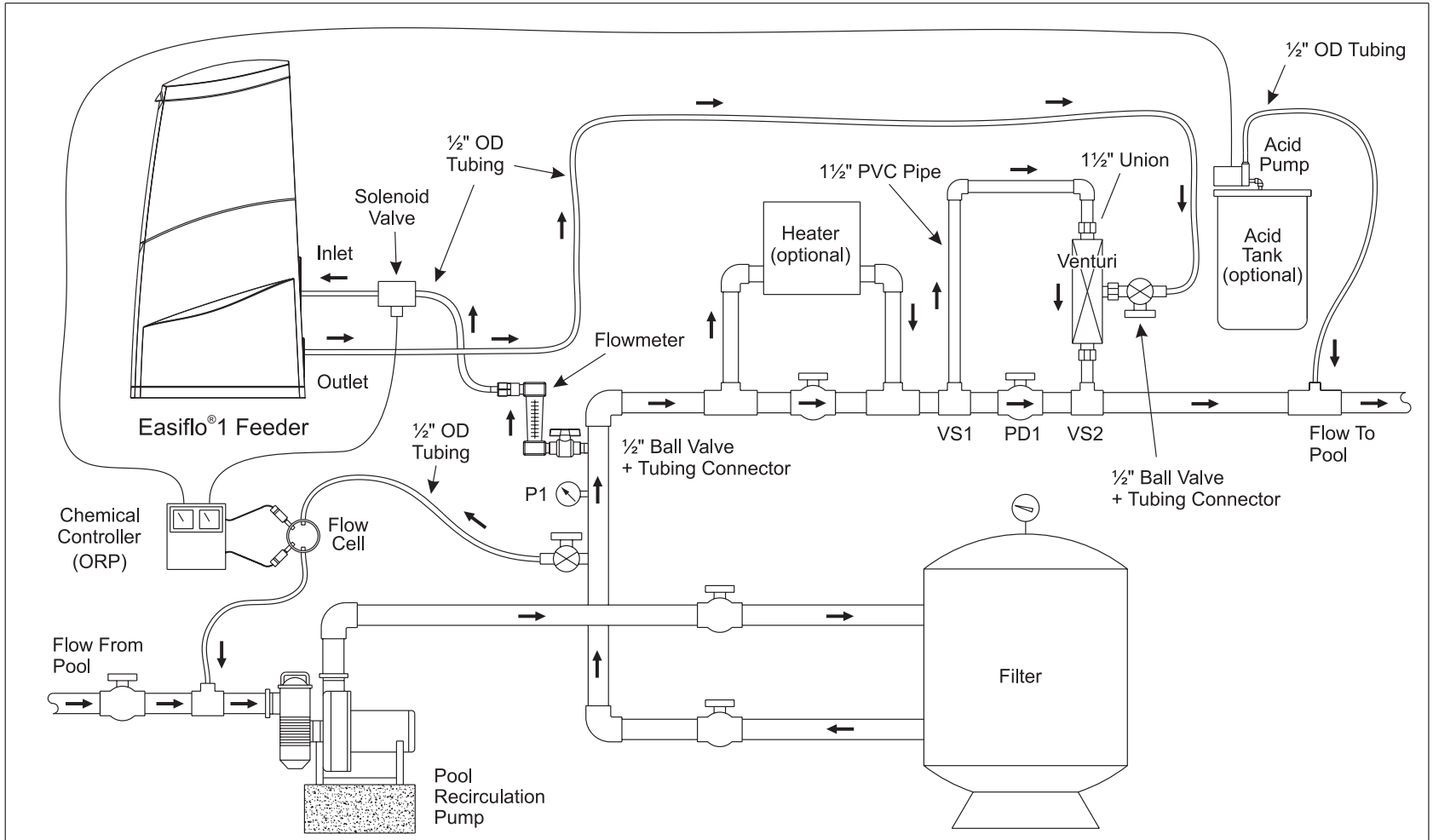
Example: height differential is 2 metres, therefore

Suction lift factor = (10.37 - 2) / 10.37
= 8.37 / 10.37
= 0.81

Take the suction flow (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

After installation, it is important to check the evacuation cycle of the Easiflo®1 Chlorinator to ensure that the drain time of the discharge tank is adequate. The maximum recommended elapsed time to drain a 4 litre bottle (positioned at the same height of the Easiflo®1 discharge valve) of water is 1 minute. This corresponds to an outlet flow-rate of approximately 4 litres per minute.

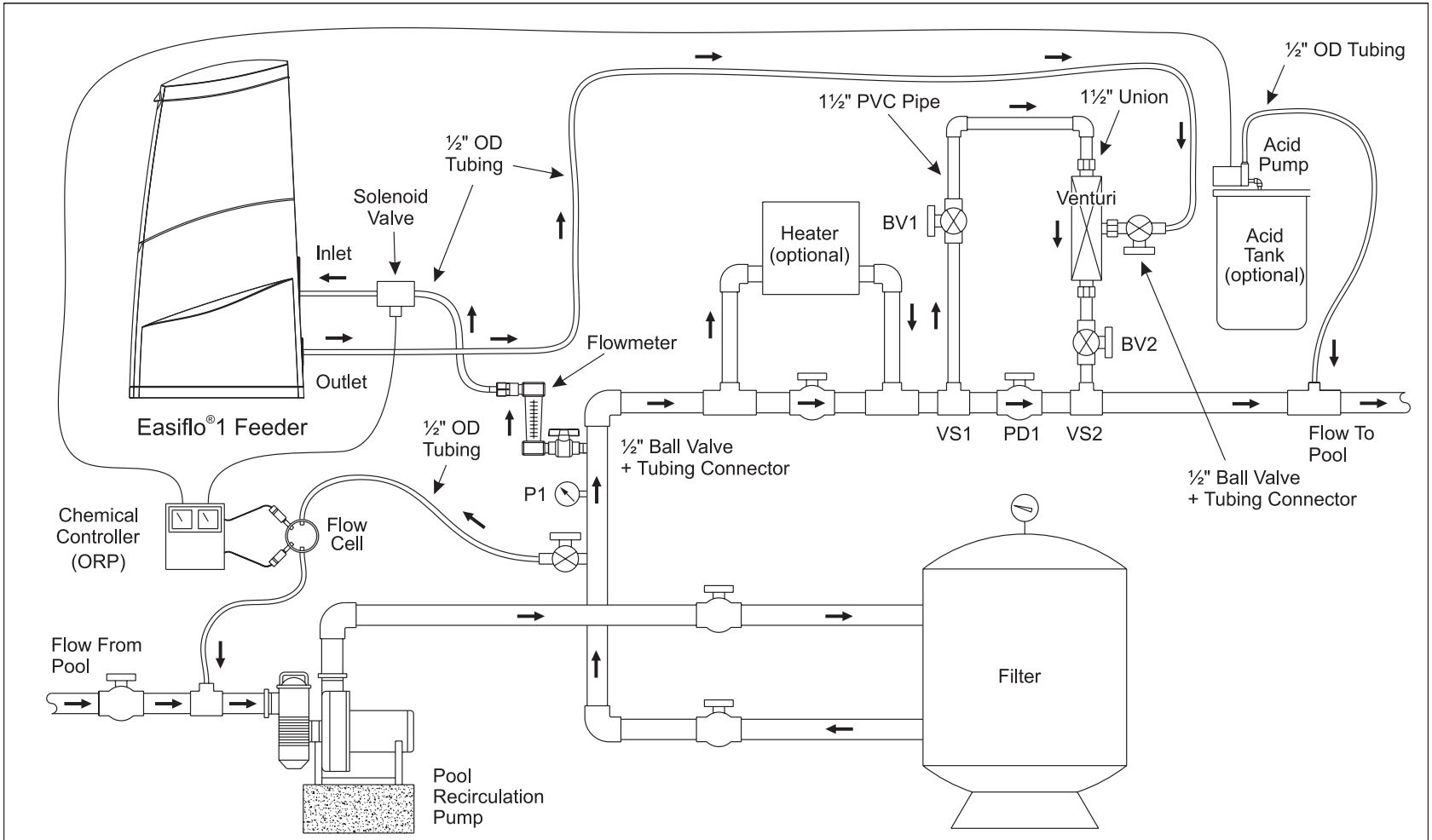


Easiflo®1 Installation Schematic #2AG
Venturi: Above Grade Installation 02-21-05

Arch Chemicals, Inc.

Commercial Pool Products

Easiflo® Installation | EFAG-ORP



Easiflo®1 Installation Schematic #2BG
Venturi: Below Grade Installation 02-21-05

Arch Chemicals, Inc.

Commercial Pool Products

Easiflo® Installation | EFBG-ORP

Venturi System Installation:

Refer to schematic #2AG for either above grade pool system / auto control installation or Schematic #2BG for a below grade pool system installation and follow the steps below.

Background: The next steps involve creating a bypass loop on the pool return line for installation of a Venturi. This loop can be created by drilling and tapping or splicing into the return line with Tee's. We refer to using the drill and tap method. You may find it preferable to splice in Tee's to make these connections. It will also be necessary to install a ball (or gate) valve in the return line at location "PD1" in the schematic drawing. This valve when partially closed, will force water to flow through the venturi creating the suction needed to evacuate the chlorinator.

Step #1: Drill a $1^{3}/_{4}$″ hole (Fig 1V) at location "VS1" found on the schematic drawing. Tap the $1^{3}/_{4}$″ hole with a $1^{1}/_{2}$″ BSP tap (Fig 2V). Options for this step include the use of saddle clamps instead of drilling and tapping or splice in a tee with 1″ pipe size (Fig 3V) leading to Venturi System loop.

Fig 1V

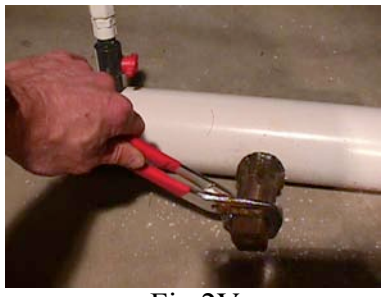


Fig 2V

Fig 3V

Step #2: Install a Ball or Gate valve at location "PD1" in Schematic (Fig 4V).

Step #3: Drill a $1^{3}/_{4}$″ hole (Fig 10) at "VS2" on Schematic. Tap the $1^{3}/_{4}$″ hole with a $1^{1}/_{2}$″ BSP tap (Fig 2V). Options for this step include the use of saddle clamps instead of drilling and tapping or splice in a tee with $1^{1}/_{2}$″ pipe size (Fig 3V) leading to Venturi System loop.

Note: Below grade systems will require the addition of ball valves at locations "BV1 & BV2" in schematic #2BG. This will allow the Venturi System to be isolated for servicing.

Step #4: Take one Union for the Venturi system apart. Note that they have different halves. Glue these two halves of the union onto the Venturi (Fig 5V).

Step #5: Take the other union apart and install on the union halves on the Venturi. (Fig 6V).


Fig 4V


Fig 5V


Fig 6V

Step #6: Apply PTFE tape to both ends of 1/2″ ball valve and install Parker tubing connector (W8FC8) on one end of the 1/2″ ball valve.

Step #7: Install 1/2″ ball valve onto venturi (Fig 7V).

Step #8: Close the valve (Fig 8V).


Fig 7V


Fig 8V

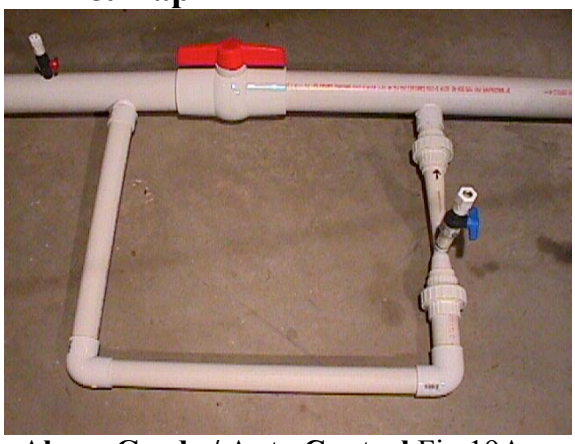
Fig 9V

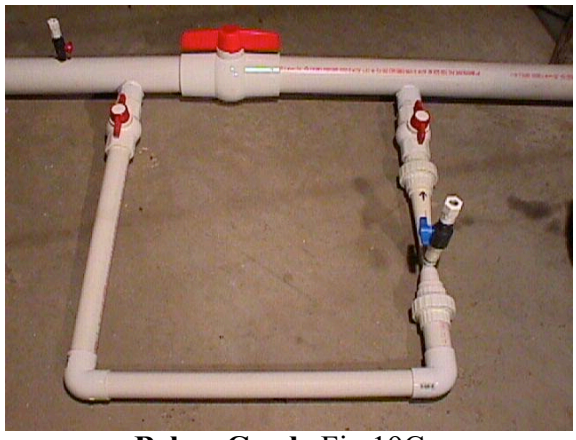
Step #9: Note the Arrow on the venturi indicating the direction of flow (Fig 9V).

Note: When performing step #10, make sure the venturi is installed with correct direction of flow.

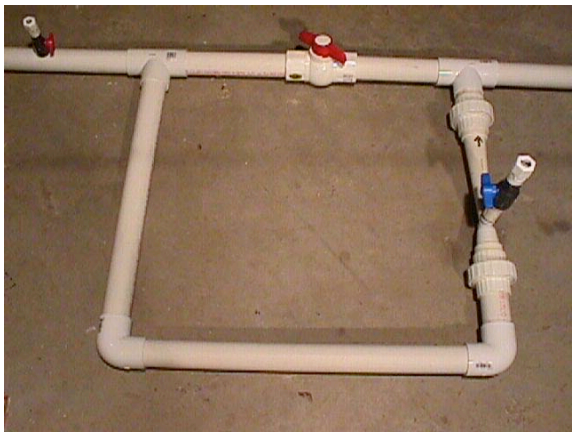
Step #10: Complete installation of venturi bypass loop using 1 1/2″ PVC pipe and fittings. There are four methods profiled in the following figures.

Drill & Tap

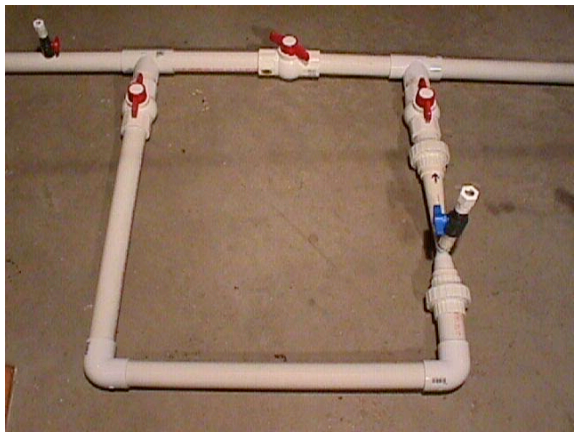

Above Grade / Auto Control Fig 19A


Below Grade Fig 19C

Tees



Above Grade / Auto Control Fig 19B



Below Grade Fig 19D

Allow at least 30 minutes for glue to set before restarting the pool pump.

Note: Perform the following procedure while the glue is drying.

Connecting the Easiflo 1 to the Pool Recirculation System

Step #1: Place the Easiflo 1 chlorinator in the pump room following the recommendations in the section '*Selecting a location for the Easiflo 1'*.

Step #2: Drill & Tap ½″ BSP hole in effluent pipe @ "P1" in Plumbing Schematic.

Step #3: Install nipple and W8MC8 on ½″ ball valve and install ball valve in threaded hole.

Step #4: Loosen the nut on the Parker tubing connector on the inlet to the Easiflo 1 and push the ½″ OD polyethylene tubing into the connector and hand tighten.

Step #5: Run the tubing to the inlet ball valve installed in step 3 and cut to desired length. Loosen the nut on the Parker tubing connector on the inlet ball valve and push the ½″ OD polyethylene tubing into the connector and hand tighten.

Step #6: Loosen the nut on the Parker tubing connector on the discharge valve of the Easiflo 1 and push the ½″ OD polyethylene tubing into the connector and hand tighten.

Step #7: Run the tubing to the outlet ball valve on venturi and cut to desired length. Loosen the nut on the Parker tubing connector on the outlet ball valve and push the ½″ OD polyethylene tubing into the connector and hand tighten.

Flow Indicator Installation

A flow indicator is provided with the Easiflo®1 and has a scale from 0 to 4 lt / min. Follow the instructions below to install a flow indicator.

Step #1: Close the inlet and the outlet shutoff valves to the Easiflo®1 chlorinator.

Step #2: Mount flow indicator where it is easily read.

Step #3: Splice into inlet tubing and connect inlet flow to bottom port of flow indicator.

Step #4: Connect tubing from chlorinator inlet to top outlet port of flow indicator.

Adjusting and Testing the Outlet Flow Rate

Install vacuum gauge with 1″ MBSP x 1″ FBSP fitting into coupling and install on the Venturi.

Start pool system and open all valves on the venturi loop.

Slowly close "PD1" until the vacuum gauge reads 13″ Hg.

Put "**Do Not Adjust**" tag on "PD1".

Remove vacuum gauge and install outlet ball valve with fitting.

Close the outlet ball valve.

Connect $^1/_2$″ tubing to fitting on outlet ball valve.

Check outlet flow with following procedure.

Fill a 4 litre bottle with water.

Place near Easiflo®1 Discharge valve.

Disconnect the tubing from the discharge valve and place end of tubing at bottom of 4 litre bottle.

Open outlet ball valve and record time it takes to empty the bottle.

It should take 1 minute or less to empty the bottle.

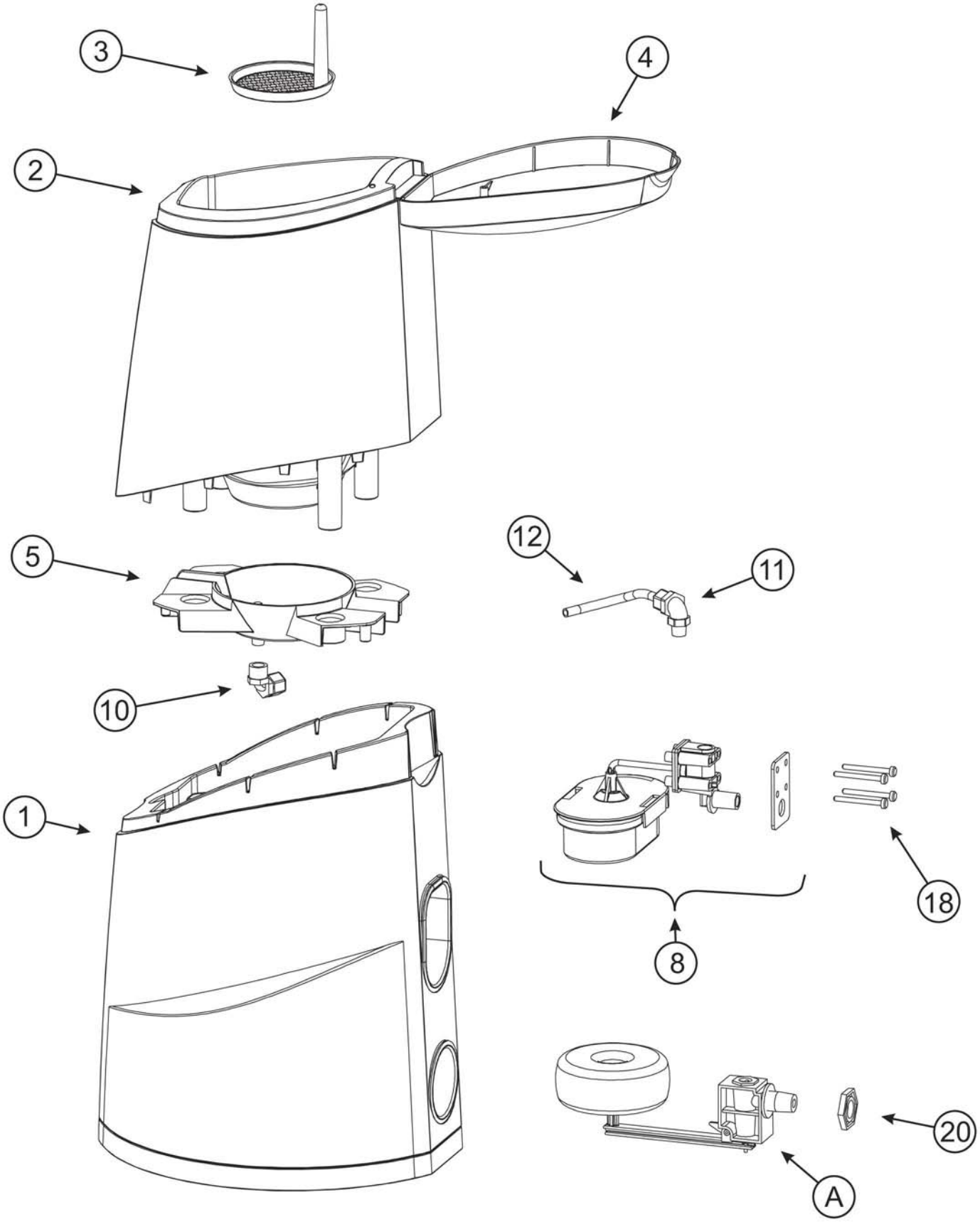
This corresponds to an outlet flow rate of 4 lt / min or greater.

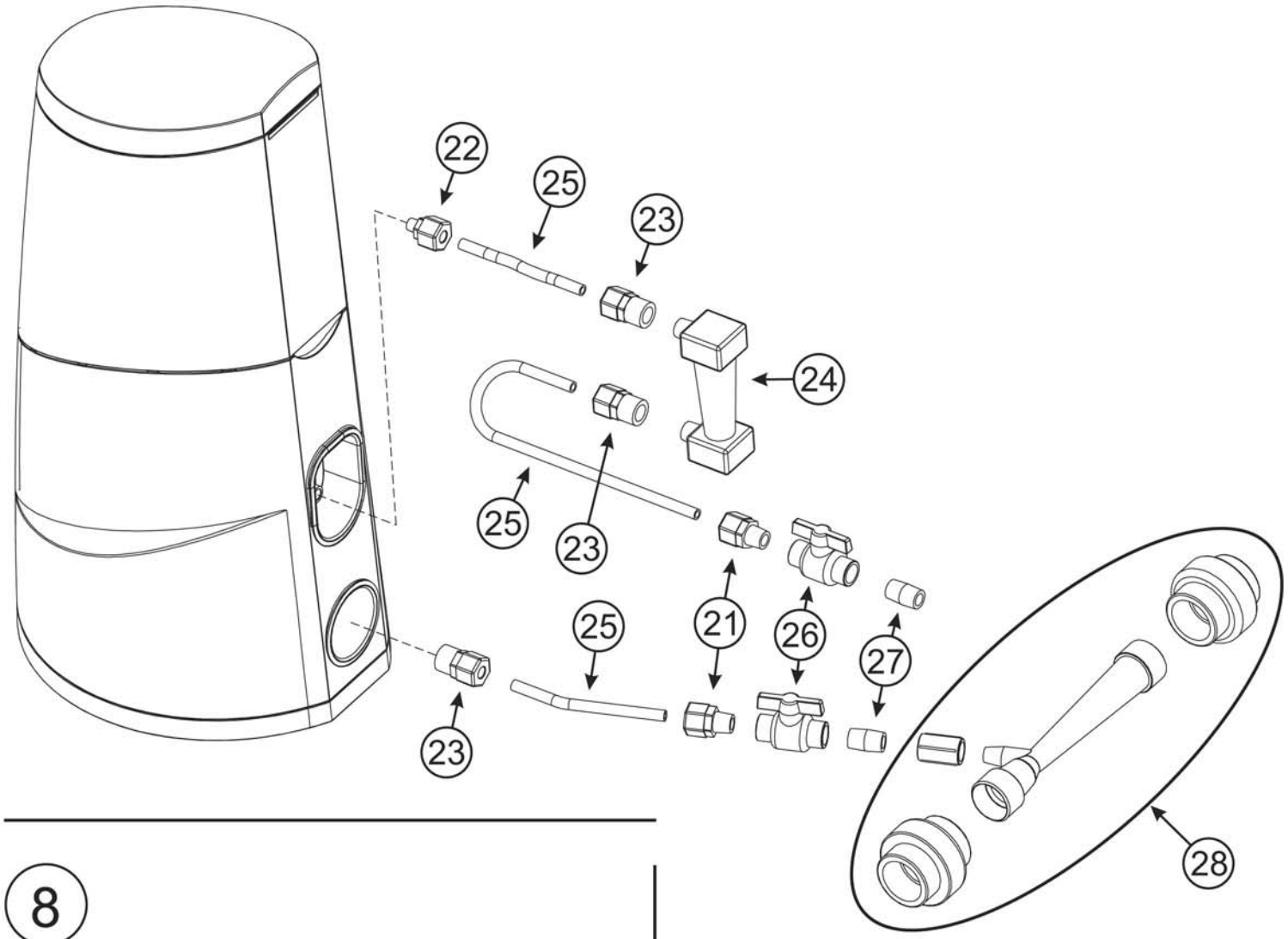
Close outlet ball valve and connect tubing to the discharge valve.

WARRANTY POLICY

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.

Feeder Detailed View





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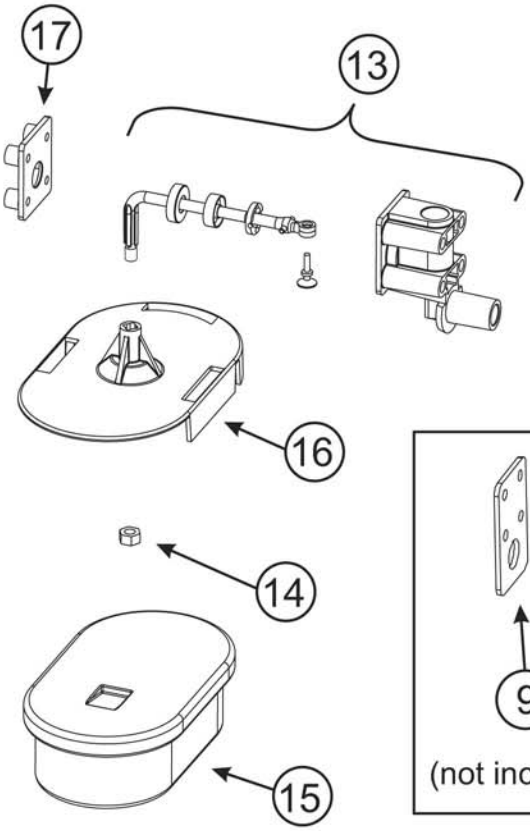

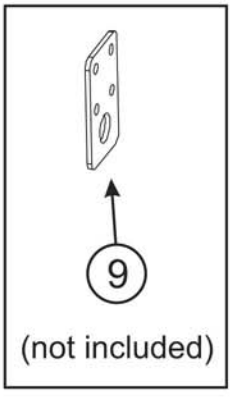

No.29 Cleaning Pan not shown

A

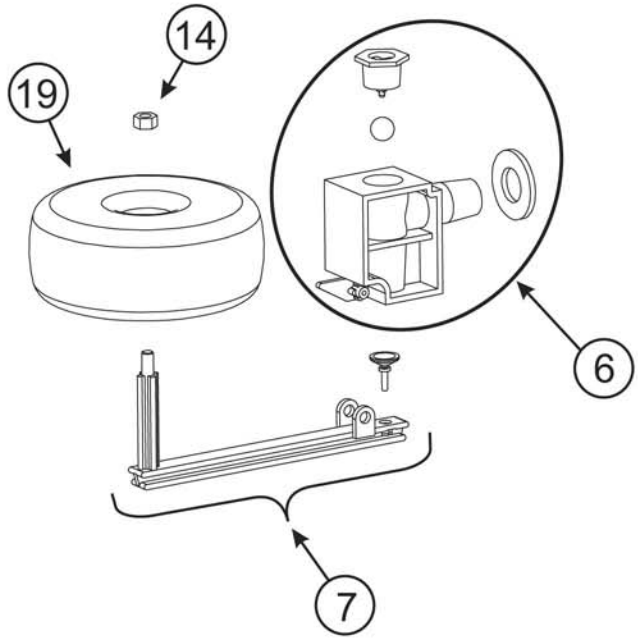

Diagram Number	Part Number	Qty	Description
0	75876	1	Easiflo 1 Feeder
1	74066	1	E1 Base
2	74065	1	E1 Hopper
3	74068	2	E1 Grid
4	75872	1	E1 Lid
5	74062	1	E1 Dissolving Cup with Nozzles Assembly
6	71615	1	Discharge Valve Body with Plug, Ball & Gasket
7	71584	1	Discharge Valve Arm with Suction Cup
8	71496	1	Emergency Shut Off Valve Assembly - Part 71910 Not Included
9	71910	1	Rubber Gasket for Emergency Shut Off Valve
10	74059	1	Parker Fitting W6FE4
11	71619	1	Elbow (W6ME6) 3/8" For Feeders 30991 & P3, P1
12	71618	1	3/8" PE Tubing (2 ft)
13	71535	1	Emergency Shut Off Valve with Arm Only
14	71538	2	Emergency Shut Off Float Plate PVC Nut/Discharge Arm Nut
15	71540	1	Emergency Shut Off Overflow Float
16	71539	1	Emergency Shut Off Float Plate
17	71536	1	Emergency Shut Off Mounting Plate
18	71537	1	Emergency Shut Off Mounting PVC Screws(1/4x20x2 1/4)
19	71585	1	Discharge Valve Float
20	71583	1	Discharge Valve Locknut
21	71890	2	Parker Fitting, W8MC8 (also for solenoid)
22	71614	1	Tube Connector (P8MC4) for P3
23	71588	3	(5008) 1/2" X 1/2" Female Connector (P8FC8)
24	74060	1	Flow Indicator - P1
25	71626	1	20' 1/2" O.D. PE Tubing(P4 only need 3 inch piece)
26	74061	2	1/2" FNPT x 1/2" FNPT PVC Ball Valve
27	71611	2	1/2" X close PVC Nipple
28	71974	1	ORP/Below Grade Installation Kit for Small Feeder
29	74145	1	E1 Cleaning Pan

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).**