

CCH Feeder: Operator's Manual

Model #A300N



rev.7 (3/23/16)



Arch Chemicals, Inc.
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Product Stewardship

MAKING THE WORLD A BETTER PLACE

Lonza is committed to maintaining and improving our leadership in the stewardship of our products. One of our initiatives 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.

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 the stewardship of our products, contact your Lonza Representative.

The Major Components - How They Work

General Principles of Operation

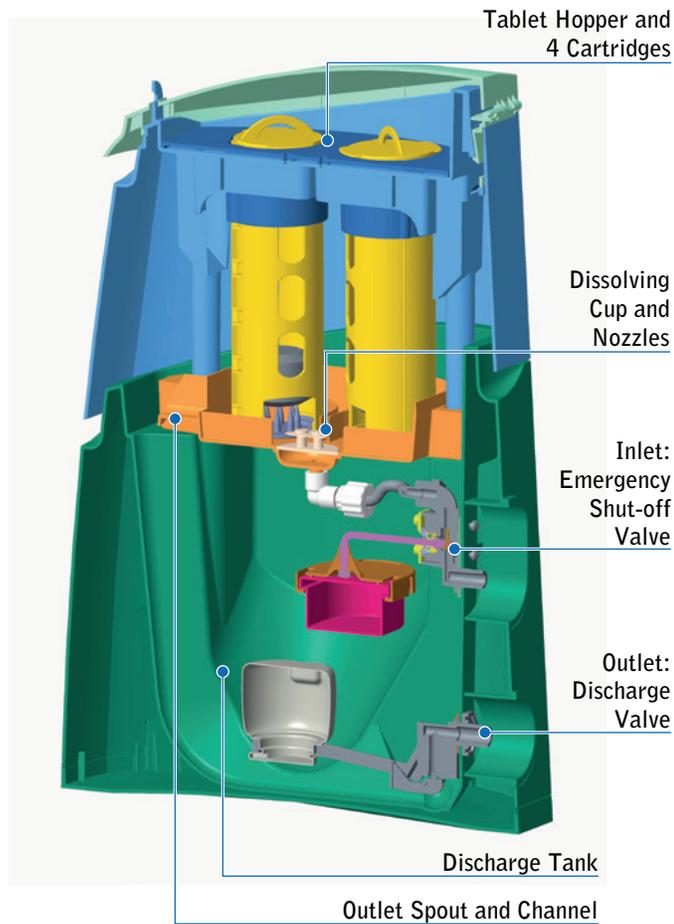
The three main components of the CCH Feeder are (from top to bottom) the Tablet Hopper, the Dissolving Cup section and the discharge tank. The water from the pool enters the CCH Feeder via the emergency shutoff valve. The water then enters the Dissolving Cup where it is distributed to the nozzles for generating the wave to dissolve the Tablets and the solids removal system. The chlorinated solution is directed by a single outlet spout to a channel that directs the solids and chlorinated solution into the discharge tank where it is discharged into the pool recirculation system. The amount of chlorine discharged is determined by three factors:

1. The Grid Type (Normal or High)
2. The # of Cartridges filled with Tablets.
3. The Inlet water flow rate

An ORP controller can be used to regulate Feeder output by installing a solenoid on the inlet flow line.

Inlet water pressure of 10 to 30 psi will provide sufficient flow into the CCH Feeder. These pressures will result in an inlet flow of 0.1-2.0 gallons/minute.

Flow out of the CCH Feeder requires vacuum to properly evacuate the discharge tank. A minimum outlet flowrate of 2.1 gpm ensures that the outlet flow of the CCH Feeder exceeds the inlet flow. Once the CCH Feeder has been installed, the outlet flow is measured by watching the level in the Discharge tank. If the water level is rising as the feeder is running, there is insufficient outlet flow.



Specifications

CCH Feeder	
Operational Requirements	
Inlet Pressure Range	10 to 30 psi
Ideal	18 psi
Outlet vacuum	5-29" Hg.
Operating Temperature	40° to 130° F
Operational Characteristics	
Inlet flow (gpm)	0.1-2.0
Outlet flow (Min)	2.1 gpm
<i>Note: To Maintain NSF approval a flow indicator must be installed.</i>	
Dimensions	
Tubing	1/2" O.D. Polyethylene
Feeder dimensions	W15" x D19" x H29"
Feeder weight (full)	34 lbs
Feeder weight (empty)	18 lbs
Hopper Capacity	13 lbs. CCH Feeder Tablets
Feed Rate	
CCH Feeder Tablets	0.5-18 lbs. of Available Chlorine per day
Recommended Spa/Pool Size¹	
Unstabilized Pool	1,250-45,000 gal
Stabilized Pool	2,500-90,000 gal
Indoor Pool	5,000-180,000 gal
Comm. Spa	500-18,000 gal

¹Subject to local health codes

NOTE: We reserve the right to modify and improve our specifications at any time without notice

Pre-Startup Checklist

Following the procedure outlined below will ensure a smooth startup of the CCH Feeder. For seasonal operation, perform this procedure each spring.

IMPORTANT!!

Do NOT put tablets in the Feeder during the start-up operation.

INLET WATER FLOW

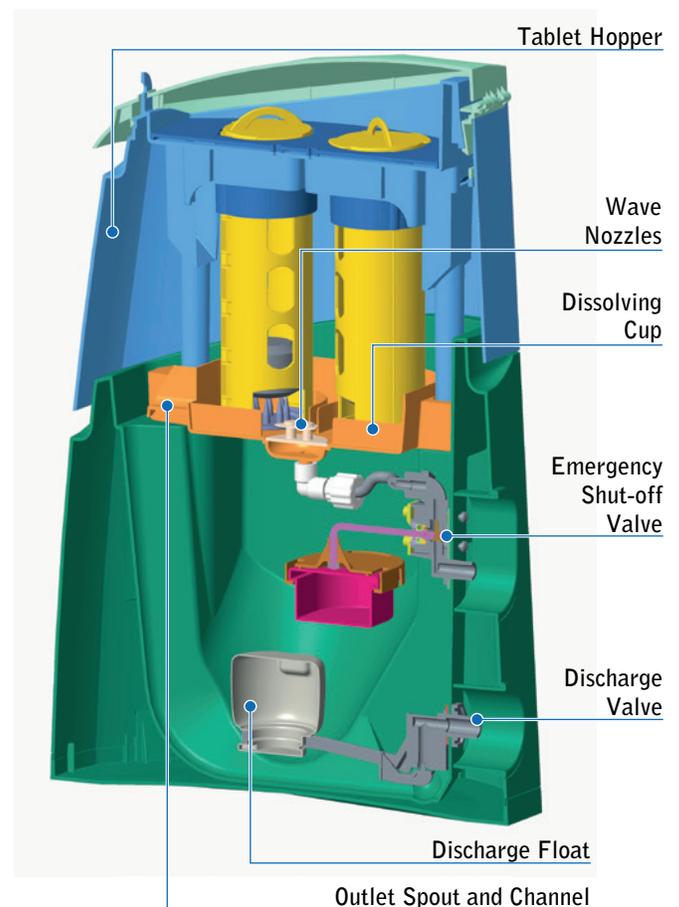
The inlet water flow system is designed to provide a steady sidestream of clean filtered pool water to the Feeder.

1. Switch on the pool recirculation system and open all valves to the Feeder. Leave lid closed.
2. Adjust Inlet flow on flow indicator to 0.3 gpm. Wait 10 seconds or until nozzles are under water .
3. Remove the cartridges. Increase flow to 1.3 gpm and check to see that all four wave nozzles are making a wave that rises into the dissolving cup.
4. Check all lines leading to the Feeder for leaks. Hand tighten all fittings if any leaks are found.

OUTLET WATER FLOW

The float on the Discharge Valve rises with the water level and allows the pool pump/venturi suction to draw the chlorinated water into the pool's recirculation system as the Discharge Tank fills with water. When the water level drops, the float falls, shutting off the valve. The Discharge Valve also contains a check valve to prevent pool water from backing up into the Discharge Tank. Use the following procedure to ensure that the outlet water flow system is operating properly.

1. With the tablet hopper and dissolving cup of the Feeder temporarily out of the way, fill the Discharge Tank with sufficient water to open the Discharge Valve – use a hose or pail.
2. The float should rise, opening the Discharge Valve, allowing water to be drawn out by the pool pump suction or venturi system.
3. Check the system for leaks. If small air bubbles are visibly moving, there may be an air leak. Tighten the connectors and make sure that the tubing was properly installed in the fittings. (NOTE: Air bubbles near the CCH Feeder body that do not move are normal and do not indicate leaks.)
4. Check for air leaks after the Discharge Valve closes.



Startup Procedures

After completing the **PRE-START-UP CHECKLIST**, and establishing that all components of the Feeder are operating properly, your CCH Feeder is ready for start-up.

Routine Maintenance of the CCH Feeder

Feeder maintenance is minimized when proper pool water balance is maintained. Maintain pool water chemistry as follows:

Total Alkalinity	60-80ppm
Calcium Hardness	200-1800ppm
PH	7.2-7.6

Adherence to these recommendations at all times will ensure the most effective and economical performance from the CCH Feeder.

NOTE: The use of CO2 to lower pH will raise Total Alkalinity. High total alkalinity (over 80 ppm) will increase scale and solids buildup in Feeder.

WARNING

Use **ONLY EPA Registration Number 1258-1233 Tablets in the Feeder. The use of any other treatment chemicals will void the warranty. DANGER: Under no circumstances mix calcium hypochlorite with other forms of concentrated chlorine or other chemicals. Fire and/or explosion may result. Caution must be used when refilling dispenser.**

KEEP OUT OF REACH OF CHILDREN

Output Rate Vs Inlet Flow Rates and # of Cartridges filled with Tablets

1. Refer to Charts on pages 7 and 8 to determine the # cartridges recommended to be filled with CCH Feeder Tablets and grid type according to pool size and type.
Note: Always use the minimum number of cartridges possible to maintain the desired chlorine residual. This will promote greater flow through the Feeder to improve solids removal and lessen maintenance.
2. Open all valves to the pool and the outlet ball valve of the Feeder.
3. Refer to the charts on page 7 and 8 to determine an approximate start-up Inlet Flow setting for your pool (or be certain that the ORP Controller is calibrated and the set-points are correct). Set the Flow Indicator (top of float) at the recommended setting using the inlet ball valve. Note: For best Feeder performance with an ORP controller, set the flow indicator for a pool 30% larger than the one at your facility. This will assist in maintaining desired Free Available chlorine level in pool without overshooting ORP set point.
4. Monitor the water flow to the Feeder daily to ensure that a proper flow is being maintained.
5. During the first few days of operation, check chlorine level in the pool frequently to establish the best Inlet Flow setting (or ORP Controller setting) for your pool. Adjust the chlorine output either up or down to maintain desired chlorine residual or adjust the ORP set point.

Start-up settings are based on historical data for average chlorine consumption in Public Pools according to pool or spa type. Outdoor Pools and Spas consume considerably more chlorine than Pool and Spas that are indoors. Weather, Stabilizer level and Bather load all have a major impact on chlorine consumption.

Important: Always attempt to increase feed rate by first increasing the inlet flow rate to attain the desired free chlorine residual. If the desired free chlorine residual can't be attained by increasing the inlet flow rate, add tablets to an additional cartridge.

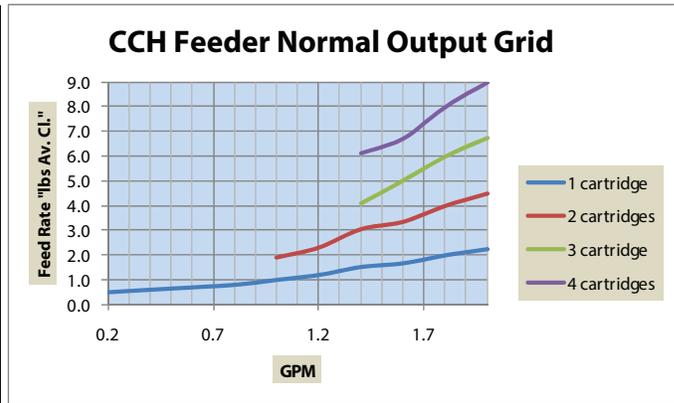
Note: Remove unused cartridges from the Hopper prior to start-up and store for future use.

Below are the feed rates for the CCH Feeder with the different grids, flow rates and # of cartridges filled with tablets. If the current feed rate is known from using either liquid chlorine (Bleach) or trichlor, set the CCH Feeder to produce that feed rate. If the feed rate is unknown, use either the chart or the graph to determine the appropriate Start-up setting for the pool/spa type and size.

Note: 1 lb of Trichlor has the equivalent of 0.9 lbs of Av. Cl. 1 gallon of 10-12% bleach has the equivalent of 1 lb of Av. Cl.

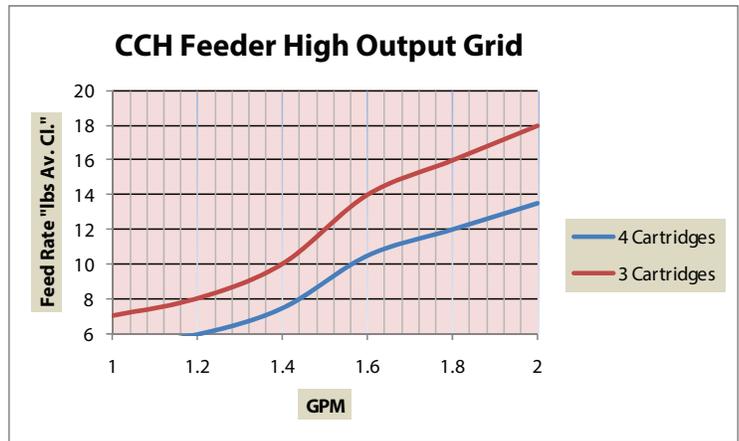
Feed Rates: Normal Output Grid (1" Spikes)

Inlet Flow Rate GPM	lbs Av. Cl./Day			
	1 Cartridge	2 Cartridges	3 Cartridges	4 Cartridges
0.2	0.5			
0.4	0.6			
0.6	0.7			
0.8	0.8			
1.0	1.0	1.9		
1.2	1.2	2.3		
1.4	1.5	3.1	4.1	6.1
1.6	1.7	3.4	5.0	6.7
1.8	2.0	4.0	6.0	8.0
2.0	2.3	4.5	6.8	9.0



Feed Rates: High Output Grid (1/2" Long Spikes)

Inlet Flow Rate GPM	lbs Av. Cl./Day	
	3 Cartridges	4 Cartridges
1	5.25	7
1.2	6	8
1.4	7.5	10
1.6	10.5	14
1.8	12	16
2	13.5	18



The CCH Feeder is NSF listed for an output rate of 18#’s of Av. Cl./day. State and local health codes will determine the maximum pool/spa size that can be treated with a single CCH Feeder. Some states may allow the use of multiple feeders to treat larger pools.

Calculations:

The first calculation is for a state code that requires a specific weight of Av. Cl./10,000 gallons per day.

Example 1: The state health code requires 3 lbs Av. Cl./10,000 gallons per day.

With an output rate of 18 lbs. Av. Cl./day the CCH Feeder will treat a pool up to 60,000 gallons per the health code. The calculation is as follows:

$$18/3 \times 10,000 = 60,000 \text{ gallons}$$

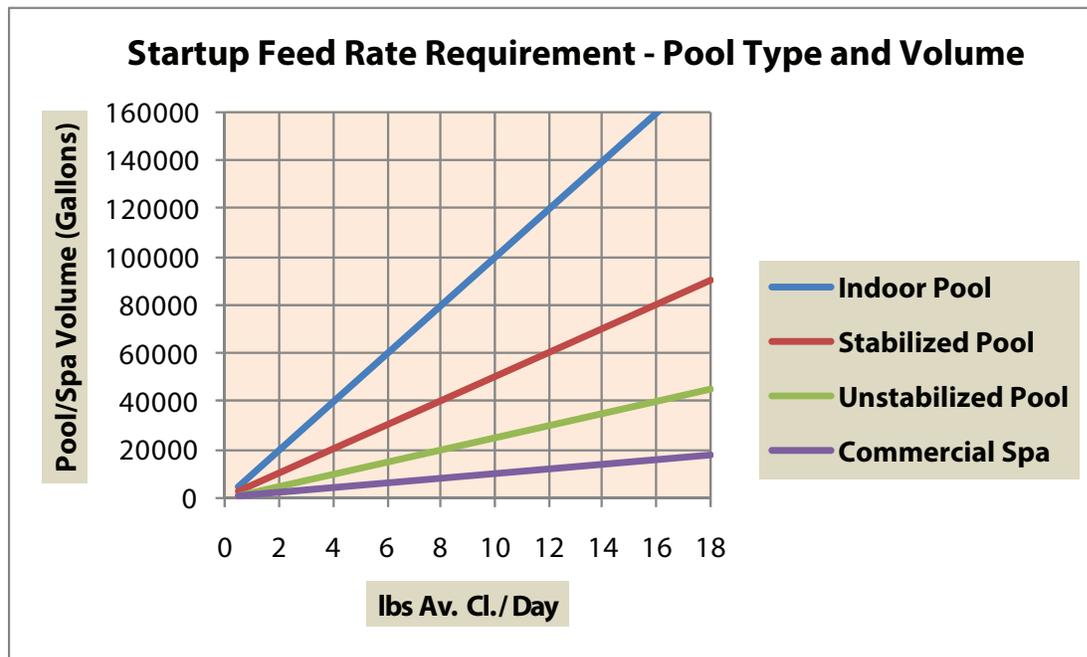
The second calculation is for a state code that requires a specific chlorine dosage per turnover (6 hrs).

Example 2: The state health code requires 10ppm (mg/l) Av. Cl. per 6 hr turnover.

$24/6 = 4$ turnovers per day. Therefore $10\text{ppm} \times 4 = 40\text{ppm}$ per day chlorine dosage required.

$18 \text{ lbs Av. Cl.} / 0.000040 = 450,000 \text{ lbs water per day at } 40\text{ppm}$ or $450,000/8.34 = 53,956 \text{ gallons}$.

Pool Startup Setting: "lbs Av. Cl./Day"				
lbs Av. Cl	Indoor Pool	Stabilized Pool	Un-Stabilized Pool	Commercial Spa
0.5	5000	2500	1250	500
1	10000	5000	2500	1000
2	20000	10000	5000	2000
4	40000	20000	10000	4000
6	60000	30000	15000	6000
8	80000	40000	20000	8000
10	100000	50000	25000	10000
12	120000	60000	30000	12000
14	140000	70000	35000	14000
16	160000	80000	40000	16000
18	180000	90000	45000	18000



CCH Feeder Inspection and Maintenance

Calcium Hypochlorite by the nature of its manufacture, contains a small amount of calcium carbonate. Proper water balance will minimize the buildup of calcium carbonate solids in the CCH Feeder, however, periodic cleaning of Feeder components is normal and recommended. The following is a list of the parts to be cleaned and the proper procedures to do so.

Table of Contents		
Suggested Inspection Frequency	Section	Contents
As Needed	Section A	Use of Muriatic Acid to remove solids and scale from the CCH Feeder
As Needed	Section B	Troubleshooting Guide

SECTION A. Cleaning The CCH Feeder with Muriatic Acid

Inspection: The solids build-up and cleaning frequency required for the unit will depend on the amount of tablets used and the pool water chemistry. Described below is the easiest way to remove solids and minor scale buildup using dilute Muriatic Acid.

WARNING

Perform cleaning operation in a well ventilated area. Chlorine gas may evolve causing serious injury or possible death. Use proper protective equipment per MSDS when handling chemicals. Use caution handling feeder parts and solution as they contain chlorine that can bleach clothing or cause injury.

Maintenance Procedure Steps

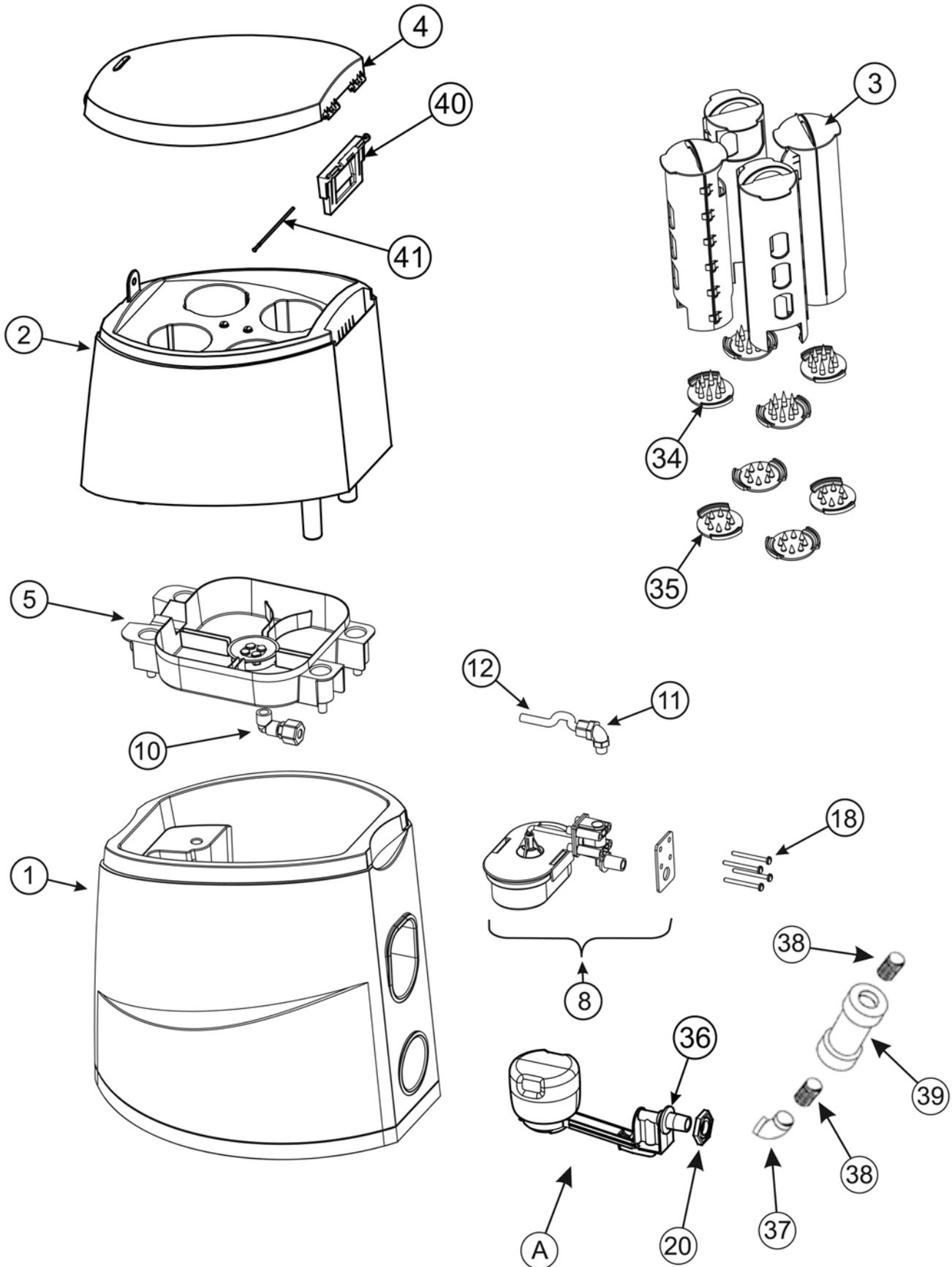
1. Note the inlet flow setting. Close the inlet and outlet shutoff valves to the Feeder.
2. Remove tablet cartridges from the hopper and empty tablets into a clean dry bucket. Be sure to remove all pieces of tablets. If necessary, rinse any heavy solids buildup from the cartridges into a clean bucket before proceeding. Remove hopper from base and place on a clean surface.

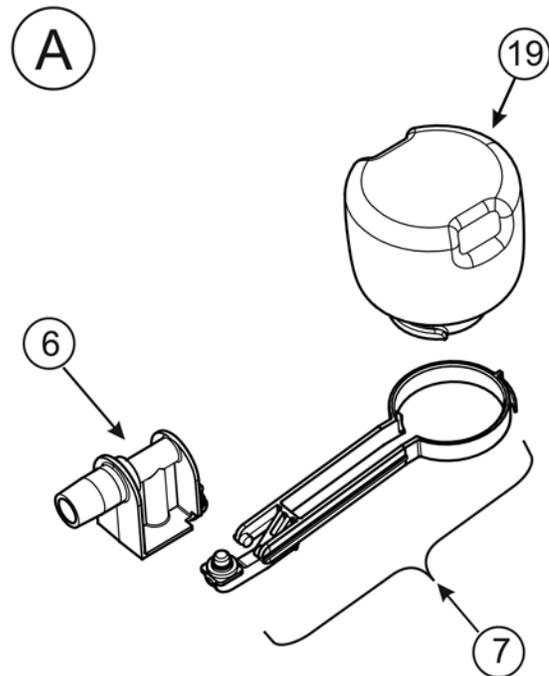
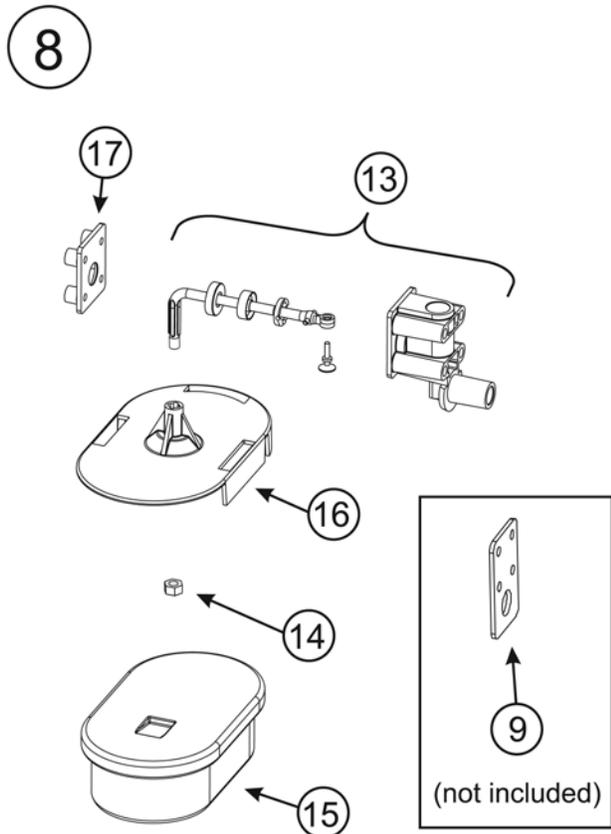
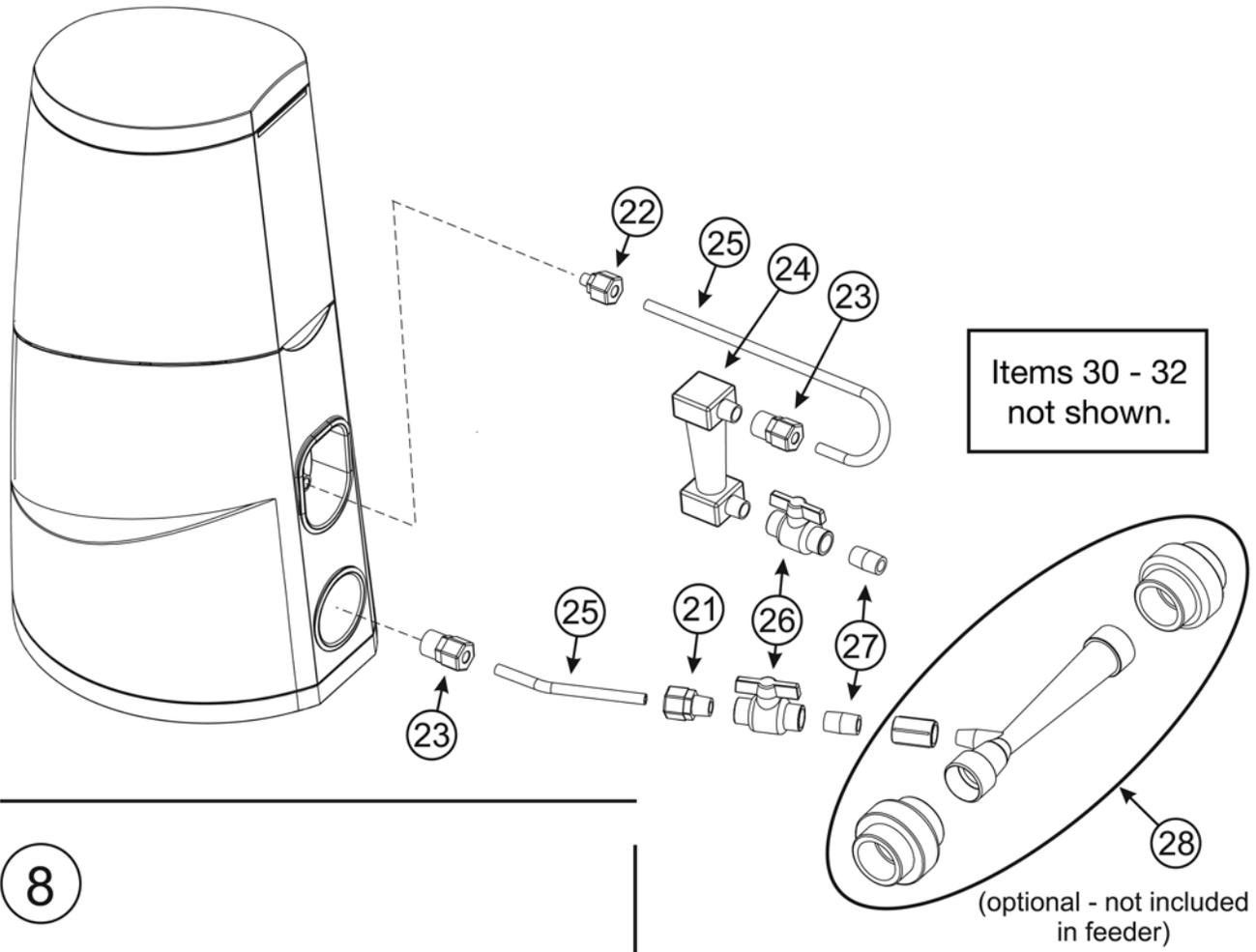
Note: Always add acid to water. Never add water to acid as splattering will occur resulting in possible injury.
3. Fill a small plastic bucket (4-6" diameter) with 1 pint of water. Slowly pour 3 ounces of Muriatic acid into the bucket. Place one cartridge (grid down) at a time in the bucket to dissolve scale on the cartridge grid. Remove when the scale on the grid is gone and rinse with water. Repeat procedure for all scaled cartridges using the same acid solution.
4. Lift the dissolving cup out of the way pouring the contents into the base carefully. Rinse off and soak in dilute acid solution in a bucket if necessary to remove scale.
5. Pour the solution from the discharge tank slowly into the bucket used in step 2 for rinsing the cartridges and add 1 gallon of fresh water to discharge tank.
6. Add 1 cup of Muriatic acid to the discharge tank to dissolve the scale. Let sit until scale is gone.
7. Pour the solution from bucket used in Step 3 into the discharge tank. Rinse out bucket with water and store for future use.
8. Place the Tablet cartridges back into the hopper. The solution from the Discharge tank will clean the discharge valve, tubing and venturi (if present) when system is restarted.
9. Replace the dissolving cup and put the hopper back on the base.
10. Open inlet and outlet shut off valves to the Feeder.
11. Place the tablets from the bucket back into Cartridge(s). **Adjust inlet flow to desired setting.**
12. Dispose of chlorinated solution from steps 2 & 5 in skimmer, gutter or pool (when not in use).

SECTION B. Troubleshooter's Guide

Problem	Cause	Solution
Insufficient water flow to Feeder	Check water flow through nozzles. If there is scale build-up perform solution at right	Rinse out dissolving cup, add 6 oz. of water and 1oz. of Muriatic acid. Let sit until scale dissolves
	Inlet Shutoff Valve closed	Open Inlet Shutoff Valve
	Emergency Shut Off Valve in closed position	If ESV Valve is stuck, lift and lower gently to reset
	Solenoid Valve not operating (ORP system only)	Check with Dealer
Insufficient chlorine in pool	Feed rate/output too low	Increase feed rate by increasing inlet flow
	Feeder empty	Refill Tablet Cartridges with CCH Feeder Tablets
	No inlet water flow	See insufficient water flow section
	Outlet/Shutoff Valve closed	Open Outlet Shutoff Valve
	Clogged Discharge Tubing	Refer to Section A or Replace discharge tubing
	Tablets stuck in cartridge	Tap side of Tablet Cartridge to loosen
	Clogged Tablet cartridge grid	Refer to Section A
	Clogged Venturi System or ball valve on outlet line	Remove venturi /ball valve – soak in tub with 5:1 mixture of water and Muriatic acid
Excess chlorine in pool	Closed valves in venturi system	Open venturi system valves
	Automatic Controller Problem	Refer to automatic controller manual
Air leaks	Feed rate/output too high	Decrease feed rate by reducing inlet flow
	Discharge Tubing not properly installed in fittings	Reinstall Discharge Tubing
	Discharge Valve seat failure	Replace Discharge Valve Arm
	Scale prevents Discharge Valve from properly seating	Remove Discharge Valve Assembly and soak in dilute Muriatic Acid to remove scale
Feeder overflow	Pinched O-rings in Tubing Connectors	Fix pinched O-rings on discharge side of feeder
	Discharge Tubing clogged	Refer to Section A or Replace Discharge tubing
	Clogged venturi system	See clogged venturi system solution above
	Insufficient outlet suction	Check with Dealer
	Emergency shutoff valve failure	Check with Dealer

CCH Feeder Detailed View





CCH Feeder Diagram Descriptions

Diagram Number	Part Number	Qty/Unit	Description
0	79531	1	CCH Feeder
1	74712	1	CCH Feeder Base
2	74713	1	CCH Feeder Hopper
3	74714	4	Tablet Cartridge (priced as each)
4	35113	1	CCH Feeder Lid
5	74716	1	CCH Feeder Dissolving Cup - ASM
6	79806	1	Discharge Valve Body
7	79805	1	Discharge Valve Arm with EPDM Washer
8	71496	0	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"
12	71618	1	3/8" PE Tubing (2 ft)
13	71535	1	Emergency Shut Off Valve with Arm Only
14	71538	1	Emergency Shut Off Float Plate PVC 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	pkg of 4	Emergency Shut Off Mounting PVC Screws (1/4-20 X 2 1/4)
19	79810	1	Discharge Valve Float
20	71583	1	Discharge Valve Lock Nut
21	71890	2	Parker Fitting, W8MC8 (also for solenoid)
22	71614	1	Tube Connector (P8MC4)
23	71588	2	(5008) 1/2" X 1/2" Female Connector (W8FC8)
24	74719	1	Flow Indicator 0-2 gpm
25	71626	1	20' 1/2" O.D. PE Tubing
26	74061	2	1/2" FNPT X 1/2" FNPT PVC Ball Valve
27	71611	2	1/2" X close PVC Nipple
28	71974	0	ORP/Below Grade Installation Kit for Small Feeder
30	71923	0	24V AC Transformer/Plug US
31	71894	0	Solenoid (24 Volt) Pulsar Line
32	72329	0	15 ft Pre-Molded Cable (24V AC Transformer to Solenoid)
34	79037	4	Tablet Cartridge Grid – 1" Spike (Normal Output)
35	79038	4	Tablet Cartridge Grid – 1/2" Spike (High Output)
36	71576	1	Discharge Valve Gasket
37	79222	0	45° PVC 1/2" FNPT Threaded Elbow
38	71916	0	1/2" MNPT PVC Closed Nipple
39	79218	0	1/2" FNPT PVC True Union Check Valve
40	79040	1	Lid Hinge
41	79039	1	Hinge Pin

Warranty Policy

CCH Feeder Commercial Pool Chlorinator

Arch Chemicals, Inc. ("Arch") warrants equipment of its manufacture and bearing its identification to be free of defects in workmanship and material. Arch's liability under this warranty extends for a period of two (2) years (excluding electrical components which carry a 1 year warranty) from the date of installation as performed by an Authorized Commercial Dealer Representative and registered with Arch Water Chemicals via the Arch Commercial Chlorinator Warranty Registration Card. Systems for which there is no Warranty Registration Card on file carry no warranty of any kind, expressed or implied.

In addition, each system is covered by a sixty (60) day, 100% buy-back guarantee. If the original purchaser ("owner") is dissatisfied with the CCH Feeder Commercial Pool Chlorinator's performance for any reason, they can return it to the Authorized Commercial Pool Dealer for a full refund. The equipment must have received normal use and care, and Arch must be notified in writing before the sixty (60) days have expired. There is no reimbursement for chemicals used during the sixty (60) days.

Arch disclaims all liability for damage during transportation, for consequential damage of whatever nature, for damage due to handling, installation or improper operation, and for determined suitability for the use intended by purchaser ("owner"). Arch makes no warranties, either expressed or implied, other than those stated above. No Arch Representative or Authorized Commercial Dealer Representative has authority to change or modify this warranty in any respect.

CCH Feeder Parts

Arch warrants equipment parts of its manufacture and bearing its identification to be free of defects in workmanship and material. Arch's liability under this warranty extends for a period of ninety (90) days from the date of installation as performed by an Authorized Commercial Dealer Representative. This warranty is restricted to CCH Feeder Commercial Pool Chlorinator System Parts purchased on a replacement basis.



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Lonza Emergency Action Network (LEAN)

The Lonza Emergency Action Network ("LEAN") is Arch's emergency action system. Call the LEAN system at 1-800-654-6911 in North America, and at (Country Code for the United States) 423-780-2970 elsewhere in the world. The LEAN system is available 24 hours a day, 7 days a week for assistance with spills, injuries and emergencies of any kind. It uses computers and other systems to make Arch's environmental, technical transportation, toxicological and other expertise about its products readily available to anyone needing assistance. The LEAN system also includes emergency response teams capable of providing on-site support throughout North America.

(800) 654-6911

(From outside North America, call after the country code for the US, 423-780-2970)

Material Safety Data Sheets (MSDS) can be obtained by contacting (800)-511-MSDS.

