Pollardwater **Item Code(s): POLCP50 / PCPU100**

ChlorPro Series Chemical Injector

The ChlorPro Series Chemical Injector is ideal for new watermain disinfection and dechlorination. Safely chlorinate up to 100 ppm chlorine (model specific) and then dechlorinate using the same device.

Designed to chlorinate using a liquid Sodium Hypochlorite (12.5%) solution. Dechlorinate using liquid CAPTOR (Calcium Thiosulfate). Disinfect your new watermain at the time of filling at flow rates ranging from 100 to 400 gpm. The flow rate device is Bluetooth and will pair with any Android or Apple mobile device. Once the flow rate is identified and the desired chlorine concentration is predetermined one can easily, by push-of-button, select the appropriate pump setting.

FEATURES AND BENEFITS

- Chlorinate and dechlorinate with one device
  - **POLCP50** - For chlorine concentrations 25-75 ppm (under optimal conditions)
  - **PCPU100** - For chlorine concentration 75-175 ppm (under optimal conditions)
- Inlet / Outlet: 2-1/2” FNST x MNST
- Flow Rate: 100-400 gpm (Bluetooth)
- Easy-to-use digital push button settings
- 120 VAC power required
- Includes rolling carry case

REQUIRED ITEMS SOLD SEPARATELY

Item Code	Description
ANAHYPO1255	5-Gal Sodium Hypochlorite
ANAHYPO12555	55-Gal Sodium Hypochlorite
ANAHYPO125TOTE	275-Gal Sodium Hypochlorite

Item Code	Description
PCAPTOR5	5-Gal Captor
TCAPTOR55	55-Gal Captor
ACAPTOR275	275-Gal Captor

ON SIGHT CONSIDERATIONS

- Best to set up on level ground for system and chemical supply stability and safety
- The ChlorPro case is an ideal tabletop to set your pump on - It's visible and durable
- Hose lengths allow for flexibility with every job site.
    - Clear chemical supply hose is 8 foot in length
    - White poly chem feed hose is 25 feet in length
- Secure an AC power source for the ChlorPro pump
- Connection to pipeline should not be less than 2" to maintain 100-400 gpm required flow rates
- Make certain all safety procedures and job site safety precautions have been addressed

QUICK SET UP GUIDE

1) Remove pump, flow meter, injector assembly and fittings from the case

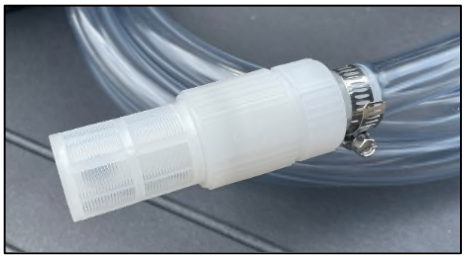
2) Screw together the ShoFlow flow meter and injector assembly

3) Screw in injector head outlet assembly (top). Careful that the (2) check ball cylinders remain inside the fitting with arrows pointing up.

4) Connect the clear chemical supply hose to bottom intake on pump using a stainless-steel hose clamp

QUICK SET UP GUIDE CONTINUED

5) Connect the chemical supply inlet screened fitting to the other end of the clear chemical supply hose and secure with a stainless-steel hose clamp



NOTE: Do not immerse clear chemical supply hose into chemical until ready to prime and start work

6) Screw the white PVC injector into the injector assembly. Careful not to cross thread.
7) Screw the PVC poly hose adapter on the PVC injector and on the outlet (top) of the chem feed pump

8) Insert (stab) white poly chem feed hose into each of these adapters

Tech Note:

Don't overtighten PVC fittings as they can easily crack.

9) Connect feed water supply to inlet on ShoFlow flow meter (2-1/2" FNST)
10) Connect outlet to injection connection on pipeline (2-1/2" MNST). This can be a direct connection on the discharge side of the unit or at the end of a length of hose. Either way, the following conditions must be followed:
    a. Adapters from 2-1/2" MNST to 2" M or F NPT may be used
    b. Do not reduce below 2" as this will have a negative impact on unit function and flow requirements

DETERMINE SCOPE OF CHLORINATION PROJECT

Determine the volume of water to be chlorinated in gallons.

Volume in Gallons = 3.14* x (radius of pipe in feet squared)* x Length of Pipeline in feet x 7.48

For example: 5000 feet of 8" ductile iron pipe
3.14 x (.333 x .333) x 5000 x 7.48 = 13,023 gallons to be treated **rounded up*

VOLUME OF WATER IN A PIPELINE

Nominal Pipe Size	Gallons Per Foot	Gallons Per Pipeline Length					
		100	200	300	400	500	1000
4	0.65	65	130	196	261	326	652
6	1.47	147	294	440	587	734	1,468
8	2.61	261	522	783	1,044	1,305	2,610
10	4.08	408	816	1,223	1,631	2,039	4,078
12	5.87	587	1,174	1,762	2,349	2,936	5,872
14	7.99	799	1,598	2,398	3,197	3,996	7,992
16	10.44	1,044	2,088	3,132	4,176	5,219	10,439
18	13.21	1,321	2,642	3,963	5,285	6,606	13,212
20	16.31	1,631	3,262	4,893	6,524	8,155	16,311
24	23.49	2,349	4,697	7,046	9,395	11,744	23,487

DETERMINE AMOUNT OF SODIUM HYPOCHLORITE (12.5%) NEEDED

Identify the target chlorine concentration in Parts Per Million (ppm or mg/l).

Given the known volume of water to be treated and the chlorination level desired you can calculate how much Sodium Hypochlorite is needed for this pipeline project.

Continuing with our example above and at a desired chlorine concentration of 100 ppm…

Gallons of Sodium Hypochlorite = Volume of Water (gallons) x Target Chlorine Level (ppm) / 125,000
Gallons of Sodium Hypochlorite = 13,023 x 100 ppm / 125,000
Gallons of Sodium Hypochlorite = 10.4 gallons

This project requires 10.4 gallons of Sodium Hypochlorite 12.5%

Tech Note:

Always allow for loss from priming and spillage. Best to round up for available chemical on hand.

DETERMINE FEED RATE & PUMP SETTING FOR SODIUM HYPOCHLORITE (12.5%)

Feed rate is determined by using the total amount of chemical needed in gallons, divided by the total amount of flow time based on your desired or set flow rate in GPM.

Part 1
13,023 Gallons Water / 300 GPM (flow rate)
43.4 Minutes

Part 2
10.4 Gallons Captor / 43.4 Minutes
0.24 GPM

Feed rate would be 0.24 GPM or 14.4 GPH or **345.6 GPD**

Tech Note:

Chem feed pumps are typically sized by gallons per day (GPD).

To identify the appropriate pump setting, divide the above feed rate in GPD by the pumps max output in GPD. For the POLCP50 ChlorPro unit, this pump has a max of 396 GPD (PCPU100 has a max of 974.4 GPD).

Part 3
345.6 GPD/396.0 GPD = .87 or 87%

The pump setting required for this project would be 87% (see page 10). As an alternate option, the below charts can be used as an easy go-to reference with given flow and dosage set points.

CHLORPRO PUMP SETTING CHARTS FOR SODIUM HYPOCHLORITE (12.5%)

POLCP50 (Pump Max @ 396.00 GPD)

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	25	29	7%
150	25	43	11%
200	25	58	15%
250	25	72	18%
300	25	86	22%
350	25	101	25%
400	25	115	29%

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	50	58	15%
150	50	86	22%
200	50	115	29%
250	50	144	36%
300	50	173	44%
350	50	202	51%
400	50	230	58%

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	75	86	22%
150	75	130	33%
200	75	173	44%
250	75	216	55%
300	75	259	65%
350	75	302	76%
400	75	346	87%

PCPU100 (Pump Max @ 974.4 GPD)

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	75	86	9%
150	75	130	13%
200	75	173	18%
250	75	216	22%
300	75	259	27%
350	75	302	31%
400	75	346	35%

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	100	115	12%
150	100	173	18%
200	100	230	24%
250	100	288	30%
300	100	346	35%
350	100	403	41%
400	100	461	47%

SODIUM HYPOCHLORITE 12.5%			
FILL FLOW GPM	DOSAGE PPM	PUMP GPD	PUMP % SETTING
100	125	144	15%
150	125	216	22%
200	125	288	30%
250	125	360	37%
300	125	432	44%
350	125	504	52%
400	125	576	59%

DETERMINE SCOPE OF DECHLORINATION PROJECT

Determine the volume of water to be chlorinated in gallons.

Volume in Gallons = 3.14* x (radius of pipe in feet squared)* x Length of Pipeline in feet x 7.48

For example: 5000 feet of 8" ductile iron pipe
3.14 x (.333 x .333) x 5000 x 7.48 = 13,023 gallons to be treated **rounded up*

VOLUME OF WATER IN A PIPELINE

Nominal Pipe Size	Gallons Per Foot	Gallons Per Pipeline Length					
		100	200	300	400	500	1000
4	0.65	65	130	196	261	326	652
6	1.47	147	294	440	587	734	1,468
8	2.61	261	522	783	1,044	1,305	2,610
10	4.08	408	816	1,223	1,631	2,039	4,078
12	5.87	587	1,174	1,762	2,349	2,936	5,872
14	7.99	799	1,598	2,398	3,197	3,996	7,992
16	10.44	1,044	2,088	3,132	4,176	5,219	10,439
18	13.21	1,321	2,642	3,963	5,285	6,606	13,212
20	16.31	1,631	3,262	4,893	6,524	8,155	16,311
24	23.49	2,349	4,697	7,046	9,395	11,744	23,487

DETERMINE AMOUNT OF CALCIUM THIOSULFATE (CAPTOR) NEEDED

Identify the chlorine concentration in Parts Per Million (ppm or mg/l)

Given the known volume of water to be treated and the current chlorine level to be neutralized you can calculate how much Captor is needed to dechlorinate this pipeline.

Gallons of Captor = Volume of Water (gallons) x Chlorine Concentration (ppm) / 200,000
Gallons of Captor = 13,023 x 75 ppm / 200,000
Gallons of Captor = 4.8 gallons

DETERMINE FEED RATE & PUMP SETTING FOR CAPTOR

Identify the feed rate of Captor that will ensure even dechlorination into your discharged flow.

Feed rate is determined by using the total amount of chemical needed in gallons, divided by the total amount of flow time based on your desired or set flow rate in GPM.

Part 1
13,023 Gallons Water / 300 GPM (flow rate)
43.4 Minutes

Part 2
4.8 Gallons Captor / 43.4 Minutes
0.11 GPM

Feed rate would be 0.11 GPM or 6.6 GPH or **158.4 GPD**

Tech Note:

Chem feed pumps are typically sized by gallons per day (GPD).

To identify the appropriate pump setting, divide the above feed rate in GPD by the pumps max output in GPD. For the POLCP50 ChlorPro unit, this pump has a max of 396 GPD (PCPU100 has a max of 974.4 GPD).

Part 3
158.4 GPD/396.0 GPD = .40 or 40%

The pump setting required for this project would be 40% (see page 10). As an alternate option, the below charts can be used as an easy go-to reference with given flow and dosage set points.

CHLORPRO PUMP SETTING CHARTS FOR CALCIUM THIOSULFATE (CAPTOR)

POLCP50 (Pump Max @ 396.00 GPD)

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL(PPM)	PUMP GPD	PUMP % SETTING
100	25	18	5%
150	25	27	7%
200	25	36	9%
250	25	45	11%
300	25	54	14%
350	25	63	16%
400	25	72	18%

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL(PPM)	PUMP GPD	PUMP % SETTING
100	50	36	9%
150	50	54	14%
200	50	72	18%
250	50	90	23%
300	50	108	27%
350	50	126	32%
400	50	144	36%

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL(PPM)	PUMP GPD	PUMP % SETTING
100	75	54	14%
150	75	81	20%
200	75	108	27%
250	75	135	34%
300	75	162	41%
350	75	189	48%
400	75	216	55%

PCPU100 (Pump Max @ 974.4 GPD)

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL (PPM)	PUMP GPD	PUMP % SETTING
100	75	54	6%
150	75	81	8%
200	75	108	11%
250	75	135	14%
300	75	162	17%
350	75	189	19%
400	75	216	22%

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL (PPM)	PUMP GPD	PUMP % SETTING
100	100	72	7%
150	100	108	11%
200	100	144	15%
250	100	180	18%
300	100	216	22%
350	100	252	26%
400	100	288	30%

CAPTOR (CALCIUM THIOSULFATE)			
FLOW GPM	Cl2 RESIDUAL (PPM)	PUMP GPD	PUMP % SETTING
100	125	90	9%
150	125	135	14%
200	125	180	18%
250	125	225	23%
300	125	270	28%
350	125	315	32%
400	125	360	37%

CHLORINE TESTING – TEST STRIPS

For chlorine testing with both low and high concentrations test strips are an easy and commonly used means to identify chlorine levels. Test strips measure either Free or Total chlorine. Always test the water before dechlorination as Cl_2 levels may have changed. Test strips sold separately.

Free Chlorine:

This refers to the amount of chlorine available in the water that is still active and can effectively disinfect. Free chlorine is what kills bacteria and other pathogens.

Total Chlorine:

This is the sum of free chlorine and combined chlorine. Combined chlorine consists of chlorine that has already reacted with organic and is less effective as a disinfectant. Total chlorine gives a broader picture of the chlorine levels in the water.

SKU	# of Tests	Steps
Free		
I480002	50	Method A 0, 1, 2, 3, 4, 5, 6, 7 ppm; Method B 0, 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.2 ppm
I481126	30	0, 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.2, 1.5, 2.0, 2.6, 4.0, 6.0 ppm
I481026	50	0, 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.2, 1.5, 2.0, 2.6, 4.0, >6.0 ppm
I480023	50	0, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8. 9, 11, 15. 20, 25 ppm
PL1000230	50	0, 1, 2, 5, 10, 20, 30, 40, 80, 120
I480024	50	0, 25, 50, 100, 200, 300, 400, 500, 750 ppm
Total		
I481110	30	0, 0.05, 0.1, 0.15, 0.2, 0.5, 0.8, 1.0, 4.0, 10.0 ppm
I480010	50	0, 0.05, 0.1, 0.15, 0.2, 0.5, 0.8, 1.0, 4.0, 10.0 ppm
PL1000930	50	0, 5, 10, 20, 30, 40, 60, 80 ppm
Free & Total		
I480655	30	0, 0.1, 0.2, 0.5, 1.0, 2.5, 5.0 ppm

CHLORINE TESTING – COLORIMETERS

For dechlorinated water, colorimeters are most commonly used to verify CL_2 levels are untraceable or below required limits. They are very accurate down to hundredths of parts per million (0.01-2.0 / 0.1-8.0 ppm). Always test the water before dechlorination as Cl_2 levels may have changed. Colorimeters sold separately.

Recommended Items Sold Separately

TSC45010	Lovibond Cl_2 Colorimeter 0.01-2.0 / 0.1-8.0 ppm
K34155	Kimtech Kimwipes, 280 wipers per box

CHLORINATION EQUIPMENT RECOMMENDATIONS

Item Code	Description
AAA137212NH2NPT	Aluminum Adapter, 2-1/2” FNST x 2” MNPT
A2160250010NSTALRL	Fire Hose, Nitrile Rub 2-1/2” M x FNST x 10 Ft
A2160250025NSTALRL	Fire Hose, Nitrile Rub 2-1/2” M x FNST x 25 Ft
HHHGV25NH25NH	Gate Valve, 2-1/2” FNST x MNST
P50N140Gx (S, M, L, XL)	Chemical-Resistant Gloves
RLPG113D	LPX™ IQUITY Safety Goggles

DISCHARGE EQUIPMENT RECOMMENDATIONS

For dechlorination applications, it is highly recommended that you attach, at a minimum, a 15’ hose and diffuser to help manage the discharge flow and prevent erosion issues. Not only will this provide further chemical contact time, but you can direct and control the discharge location.

Item Code	Description
A2160250010NSTALRL	Fire Hose, Nitrile Rub 2-1/2” M x FNST x 10 Ft
A2160250025NSTALRL	Fire Hose, Nitrile Rub 2-1/2” M x FNST x 25 Ft
PPFLUSHPRO	2-1/2 FlushPro Flushing Diffuser
HHHGV25NH25NH	Gate Valve, 2-1/2” FNST x MNST
P50N140G(S,M,L,XL)	Chemical-Resistant Gloves
RLPG113D	LPX™ IQUITY Safety Goggles

BLUE WHITE CHEM-FEED DIAPHRAGM METERING PUMP BASIC SET UP & OPERATION

Note: This is just a basic set up and operation of this pump. It is advised that you read the provided instruction manual included with your pump (USB Drive) to fully understand all the functions and capabilities of this pump. Cleaning and maintenance are critical since you will be using this pump on corrosive chemicals.

Step 1

Press and release
To prime pump (60 seconds) --See page 27

Step 2

Press and release
Press UP arrow to increase pump speed (output) in Manual Operation.
To increase value while in programming mode.

Press and release
Press DOWN arrow to decrease pump speed (output) in Manual Operation.
To decrease value while in programming mode.

Step 3

Press and release
To Stop pump at any time.

Press and release
To Start pump.
To begin listening (reacting) to external signal, such as Remote Start/Stop.

Press and hold
To enter programming mode.
- Remote Start/Stop setup
- FVS (flow verification sensor) setup

Press and release
To save setting while in programming mode.
To move to **next** selection while in programming mode.

SHOFLOW FLOW METER BASIC SET UP & OPERATION

Download and install the “SHOW-FLOW” app, which is available on the Google Play Store or the Apple App Store.

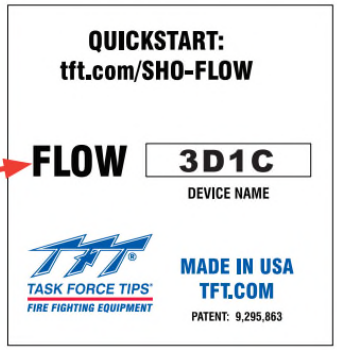
1. Read manual (included)
2. Connect SHO-FLOW to hoses/device with the water flow in the direction of the arrows
3. Start app & ensure Bluetooth connection
4. Flow at least 50 GPM to start Bluetooth transfer and connect the smartphone app
5. Personalize settings in app as needed

Establishing A Bluetooth Connection

1) Ensure the SHO-FLOW is flowing at least 50gpm to turn on the device and start transmitting the Bluetooth signal.

2) Press button with the matching device name to connect

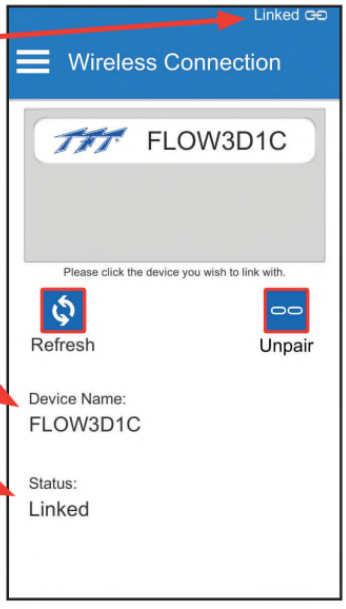
(The name on the SHO-FLOW will match the listed device on the screen.)



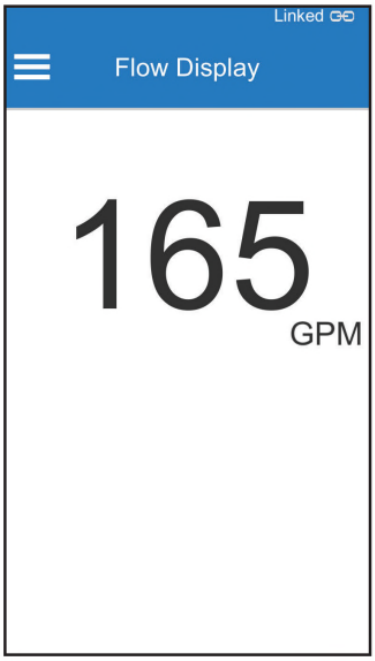
3) Once communication has been checked for proper data transfer:

- Top bar shall display “Linked”
- The Device Name will update to the connected device
- The Status will update to linked in all locations

Note: The app will remember this device name. At start up or any time it is disconnected it will automatically search and connect to that device if it is available.



A smartphone app is required to view the flow rate of the SHO-FLOW.



1. Create a flow greater than or equal to 50 gpm through the Sho-Flow to turn on the device and start transmitting the Bluetooth signal.

2. If the app is not already open, find and press the SHO-FLOW app icon from your list of apps, which will launch the app. (The TFT logo is displayed while opening and the app will bring you to the main Flow Display screen.)
    a. (FOR ANDROID ONLY) If the app is not already on the home screen you can choose to place it on the home screen if desired by holding down on the icon until the phone gives you the ability to drag it onto the screen.

3. Allow app to use location if prompted.

4. If a Bluetooth connection has not already been set up refer to user manual section 5.2.

5. Once a connection is established the flow rate will be displayed on the Flow Display screen

Complete instruction manuals, online videos, product brochures and technical specification can be found online at https://tft.com/Product-Series/SHO-FLOW-Series