easiflo® IP Series

Chlorine Feeders

Installation and Operation Manual for Models 20, 50, 100

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HOW TO USE THIS MANUAL

Please read this manual carefully before starting the feeder installation, to ensure the safety of users and swimmers, both during installation and use.

The information provided in this document must be followed strictly. The manufacturer will not be held responsible for any accident if the indicated instructions have not been followed.

To help during installation, the following symbols are used:


Risk of injury or accident


Electrical hazard


Risk of equipment malfunctioning or damage


Notes / information


Can be recycled


PPE (Personal Protection Equipment) required

SAFETY AND ENVIRONMENTAL ADVICE

The use and operation of this equipment may modify the chemical composition of water in your pool. It is therefore necessary to read these instructions carefully and ensure that ALL staff is properly trained on the use of the ***hth® easiflo®* IP** feeder.

It is mandatory:
- Carefully read the manual before installing or starting this equipment.
- Perform a complete risk assessment of the installation site.

Failure to follow these procedures can result in serious damages to the operators and the equipment.

Use of the Equipment

The ***hth® easiflo®* IP** feeders have been designed for the chlorination of swimming pool water, using ***hth® easiflo®* Briquettes 7 g**.

Any use not compliant with what specified in this manual or with a different chemical product is not allowed, voids the warranty, and may cause malfunctions or damages, for which the manufacturer declines all responsibility.

Use of the Chemical

The correct functioning of the ***hth® easiflo®* IP** feeders is based on the exclusive use of calcium hypochlorite ***hth® easiflo®* Briquettes 7 g**.
The use of any other product will void the warranty, may cause malfunctions and undesired chemical reactions, even severe.

Warning! NEVER MIX CHEMICALS IN THE FEEDER!
This product should never come into contact or be mixed with any other reagent, anywhere (bucket, feeder, skimmer, tank, etc.).
Its contamination, improper use or storage may cause fire, explosions, or the release of toxic gases.
Carefully read the product labels and relevant safety data sheet before use!

HEALTH AND SAFETY
Product SDS are provided on request, and they should be read and understood by all staff.

Condition of Use

The user undertakes to allow the use and maintenance of the equipment only to staff who:
- is aware of the fundamental prescriptions related to the occupational safety and accident prevention.
- has been trained on the use of the system.
- has read and understood this manual, warnings and rules of use.

Risk Management

The installation and commissioning of the ***hth® easiflo®* IP** feeders must be performed only by qualified technicians.
The installation must comply with all current safety regulations!

Before wiring the device or acting on electrical outputs, make sure that the system is unplugged!
Never open the device when is powered!
Maintenance and repair operations must be performed by qualified technicians!

Choose a suitable installation area!
Install the equipment in a dry and ventilated place, isolated from corrosive vapors and protected from water or chemicals splashes.

Environmental Compliance

Dispose of the recyclable packaging of the ***hth® easiflo®* IP** feeders in accordance with the applicable regulations.

Cardboard, paper, plastic parts, or other recyclable elements must be delivered to the designated collection centers.

In compliance with the European Directive 2002/96/CE, this symbol indicates that, from 12th August 2005, the electrical devices cannot be disposed together with domestic or industrial waste. In compliance with the prescriptions, consumers within the EC are required to dispose of the electrical items marked with this symbol in the appropriate channels or by returning them to the manufacturer, who will be responsible for them.

In compliance with the European Directive 2002/95/CE, this symbol indicates that the ***hth® easiflo®* IP** feeder has been designed in compliance with the RoHS regulation.

In compliance with the Low Voltage Directive 2014/35/EC and the Electromagnetic Compatibility Directive 2004/108/EC, this symbol indicates that the unit has been designed in compliance with this regulation.

GENERAL INFORMATION

Transport and Storage

To prevent any damage, it is recommended to transport and store the ***hth® easiflo®* IP** feeder in its original packaging.

Ambient temperature and humidity for the storage must be within the following ranges:

- Temperature -10 … +70 °C
- Air humidity max 90% no condensing

Warranty

This product is guaranteed for 12 months under the terms of our general conditions of sale and delivery, if the following conditions are met:

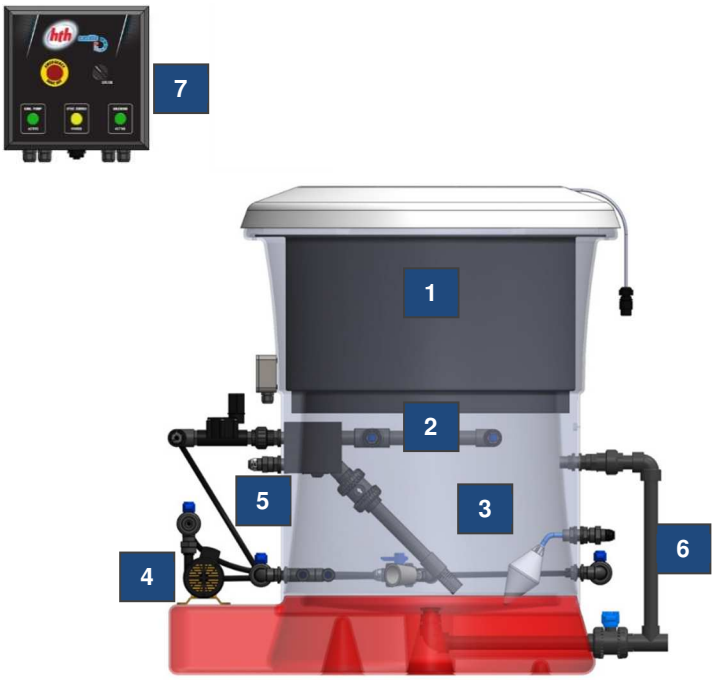
- Use of the equipment according to the instructions provided in this manual.
- No modification or manipulation of the equipment, which could compromise the conformity of the unit and in any case not expressly authorized by the manufacturer.
- Compliance with electrical safety standards.
- Only *hth® easiflo® Briquettes* calcium hypochlorite was loaded in the feeder.

How to Ship the Equipment

To send back the unit for repairing, you need to fill the "*Repair request and decontamination declaration*" form and properly **clean** the equipment from any dangerous residues.

DESCRIPTION OF THE SYSTEM

The ***hth*® *easiflo*® IP** feeder, used with calcium hypochlorite 7g briquettes, provides effective chlorination of water in pipelines or tank, through a metering pump.
The equipment has been designed for ease of use and to allow easy access for routine cleaning and maintenance.



The system includes:

- ***hth*® *easiflo*® IP** feeder consisting of:
  - A loading hopper (1) of calcium hypochlorite briquettes, with different capacity, depending on model:
    ***hth*® *easiflo*® 20 IP** → 20 kg of calcium hypochlorite briquettes 7 g
    ***hth*® *easiflo*® 50 IP** → 50 kg of calcium hypochlorite briquettes 7 g
    ***hth*® *easiflo*® 100 IP** → 100 kg of calcium hypochlorite briquettes 7 g
  - A spray bar (2), which wets the briquettes to obtain the chlorinated solution to be dosed.
  - A collection tank (3) of the chlorinated solution.
  - A circulation pump (4), which ensures the mixing of the solution inside the feeder base.
  - A discharge bar (5), to which you can connect the dosing pump(s).
  - An internal washing kit (6), to reduce incrustation buildup.
- A control panel (7), which controls all electrical functions of the system.

Operation Principle

The water inlet to the feeder is controlled by a solenoid valve, which allows water to enter in the spray bar to wet the calcium hypochlorite briquettes.
As the briquettes are sprayed, a chlorinated solution is generated, falls into the feeder tank, and is then injected into the water to be treated by a dosing pump.

A safety float located low in the feeder tank acts as overflow switch to prevent any leakage of the chlorinated solution.
When the float is in “down position”, it allows the production of the chlorinated solution by opening solenoid valve at the feeder inlet.
When it is in “up position”, the float automatically closes the solenoid valve and stops the production of the chlorinated solution.

The hopper lid is equipped with a safety switch, that automatically stops any operation of the feeder when the lid is open, to avoid any accident or injury of the user.

The chlorinated solution produced by the ***hth® easiflo®* IP** feeder is injected in the pipeline or tank by a dosing pump, to treat the water.

The unit is also equipped with a draining system to prevent incrustation build-up and clogging. It is recommended to use it once a week.
The rinsing can be performed through the draining inlet (connected to the water supply line) and the draining outlet, to be connected to a discharge point near the installation area.

Water Chemistry

- Total alkalinity 60 … 80 ppm $CaCO_3$ (6 … 8 °f)
- Hardness < 250 ppm $CaCO_3$ (< 20 °f)
- pH 7.0 … 7.6

Supply Water

The ***hth® easiflo®* IP** feeders (models 20 / 50 / 100) need that the supply water meets the following conditions:

- Ideal inlet pressure 2 … 3 bar

This pressure will provide enough water to ensure the following flow rates:

- ***hth® easiflo®* 20 IP** 190 … 470 l/h
  ***hth® easiflo®* 50 IP** 250 … 610 l/h
  ***hth® easiflo®* 100 IP** 310 … 750 l/h

The functioning of the ***hth® easiflo®* IP** feeders is based on water jets which spray and wet the calcium hypochlorite briquettes, internally wash the feeder and make the chlorinated solution circulate.

Water jets	**Model**		
	***easiflo®* 20 IP**	***easiflo®* 50 IP**	***easiflo®* 100 IP**
Feeder body	1	1	1
Briquette sprays	2	4	6
Solution circulation	1	1	2

The table here below shows the flow rate of the water jets (in litres/min) according to the different inlet water pressure.

Inlet water pressure (bar)	0.5	1.0	2.0	3.0
Spray flow rate (L/min)				
Feeder body	1.0	1.4	2.0	2.4
Briquette sprays	0.5	0.7	1.0	1.2
Solution circulation	1.2	1.8	2.5	3.0

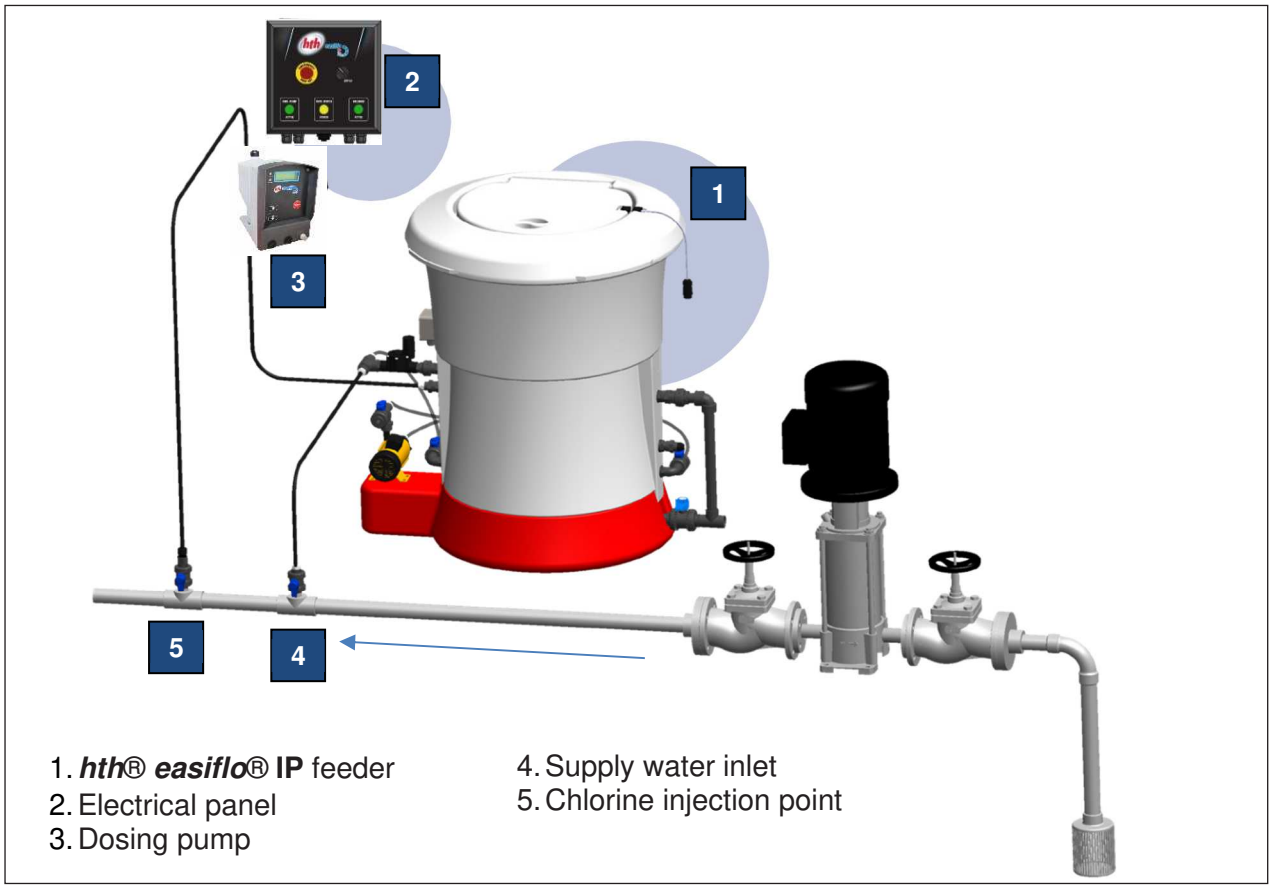
HYDRAULIC INSTALLATION

Feeder Location

Ensure that the feeder is installed in a suitable area of the technical room, easy to access for filling the feeder hopper and any maintenance.

The electrical control panel should be installed in a well-ventilated area, far from any splashes of water or chemical products.

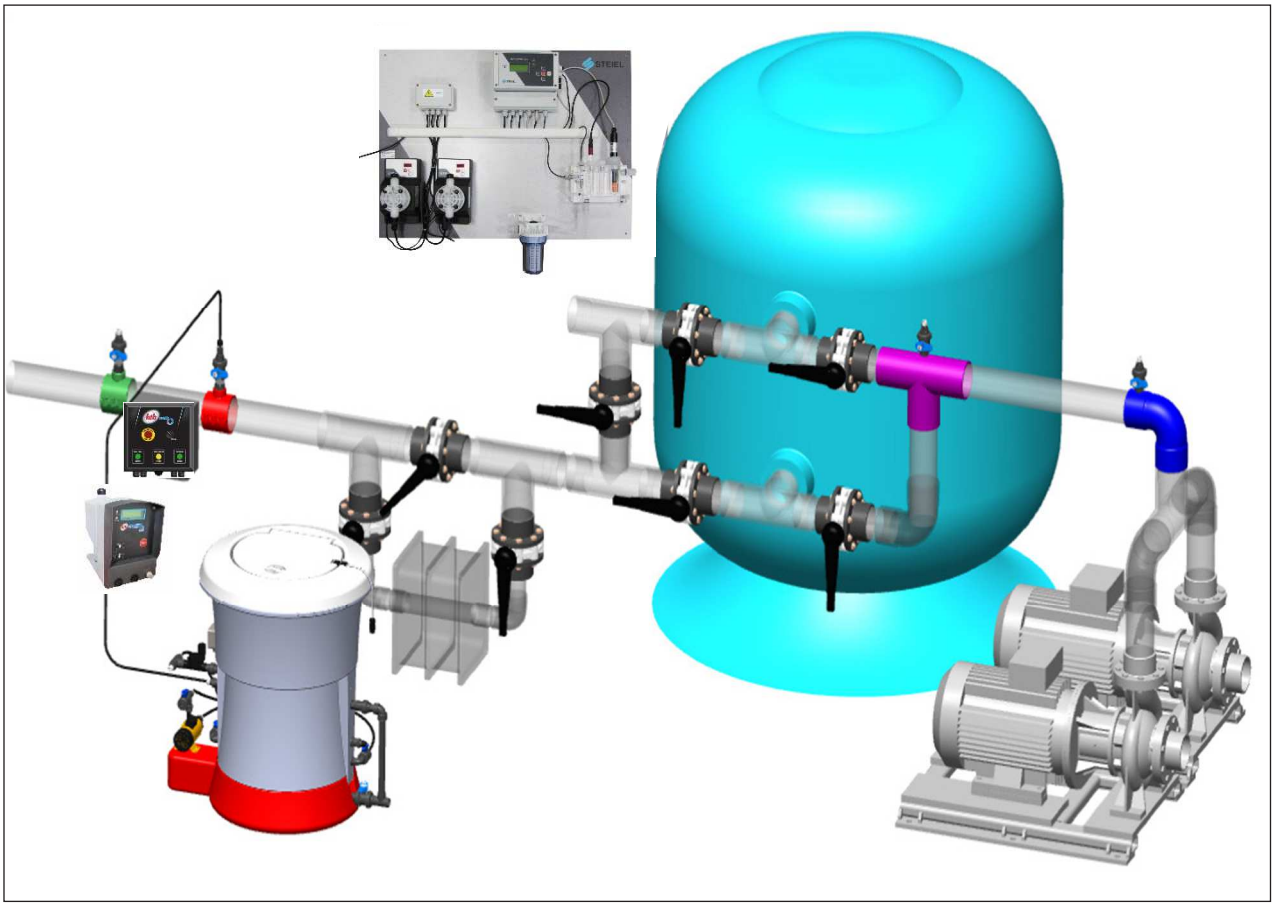
Industrial Installation, to Treat Water in Pipeline or Tank



1. ***hth*® *easiflo*® IP** feeder
2. Electrical panel
3. Dosing pump
4. Supply water inlet
5. Chlorine injection point

Support clamps, pumps, dosing and plant isolation valves are not provided with the feeder.

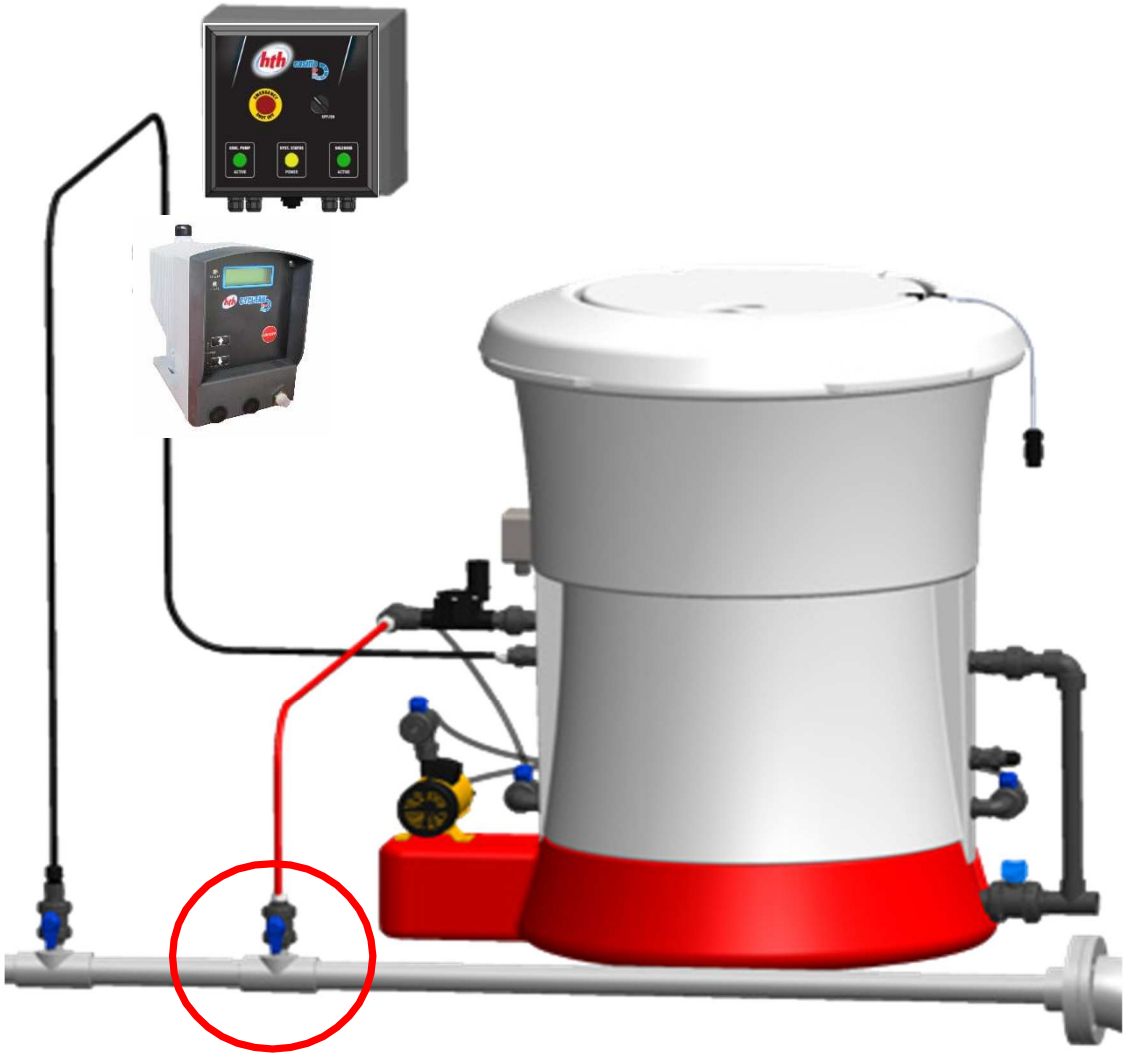
Installation in Swimming Pool Plants



Support clamps, pumps, dosing and plant isolation valves are not provided with the feeder.

Connection of the Water Supply Line

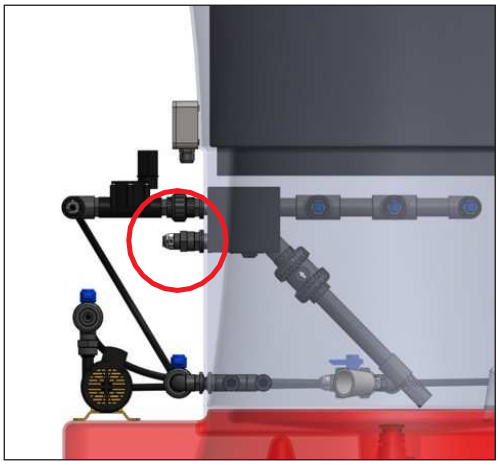
Three hydraulic lines are required. If the supplied tubing (10 m) is not enough for your installation, order more PE tube ½".

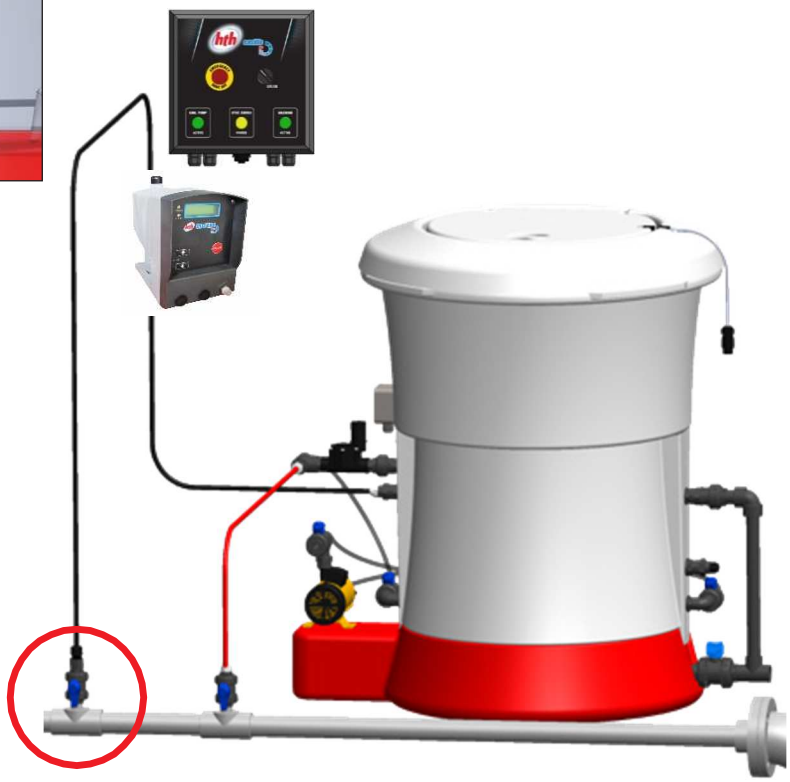


To prevent any malfunctions of the feeder, you need to follow the guidelines for the installation of the supply water line!

All connection must be tight and secure to deal with the inlet pressure coming from the main supply line. This line will provide water to the feeder, both for briquette sprays and washing jets.
Make sure the inlet pressure is adjusted at 2-3 bar.
Install a ball valve which allows to isolate the feeder from the water supply line.

Connection of the Dosing Pump



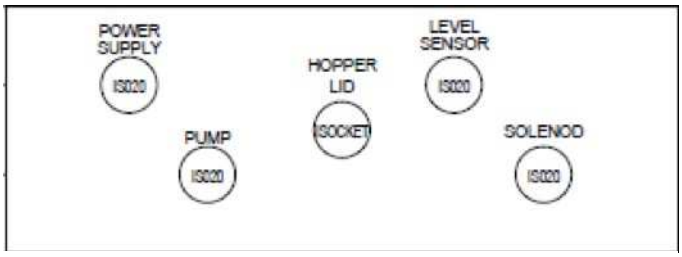


Carefully read the pump instruction manual before installing it!

The suction hose of the dosing pump must be connected to the feeder outlet fitting, as shown in the above figure. For this purpose, use tubing of ½".
The delivery hose of the dosing pump must be connected to the injection point of the chlorinated solution into the plant. It is recommended to install a valve to isolate the piping during cleaning or maintenance operations.

ELECTRICAL PANEL

All electrical connections are controlled by the panel described here below.
You need to wire the panel to mains and perform four connections to the feeder, each one through a specific cable-gland of the electrical panel.



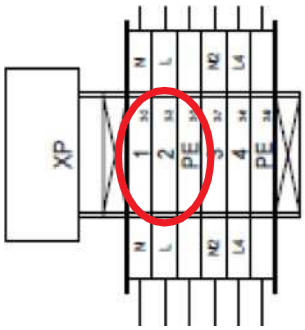
Bottom view, cable-glands

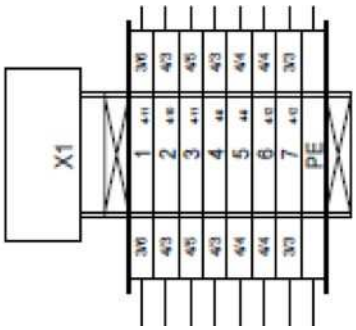
The full wiring diagram of the control panel is provided inside the control box.

Power Supply

- Cable-gland POWER SUPPLY

Use a standard power cable (230V~ 50Hz), compliant with local regulations, to be connected to the XP block, terminals 1-2-PE (see the wiring diagram inside the control box).



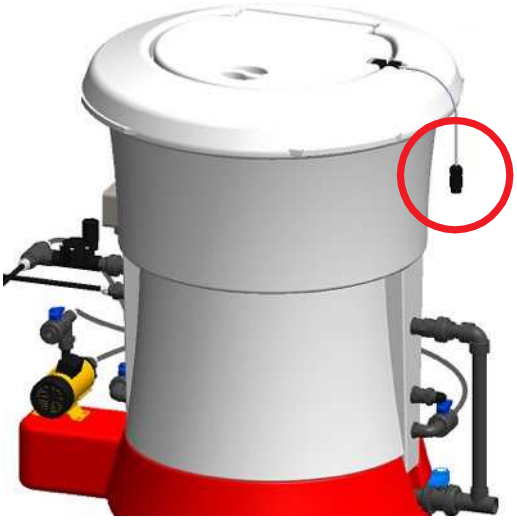


Terminal 1: Neutral
Terminal 2: Phase
Terminal PE: Earth

Hopper Lid Safety Switch

- Connector HOPPER LID

The safety switch on the hopper lid stops feeder operations when the lid is open and, therefore, allows safe interventions.
Connect the male connector of the switch cable to the special input located on the electrical box bottom side (see drawing), by rotating it of ¼ turn and checking for correct alignment.

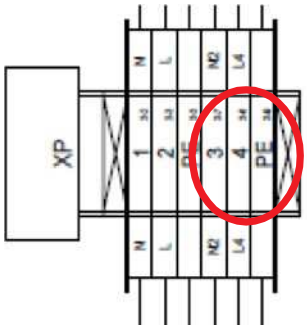


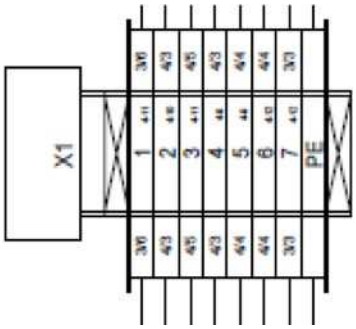
Circulation Pump

- Cable-gland PUMP

This connection allows to control the circulation pump from the electrical panel.
Connect the three-wire power cable of the pump to the XP block, terminals 3-4-PE (see the wiring diagram inside the control box).

Terminal 3: Neutral
Terminal 4: Phase
Terminal PE: Earth



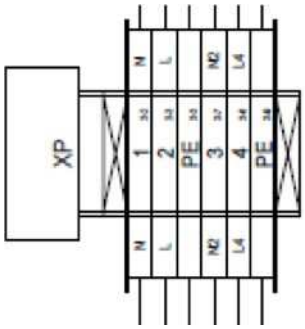


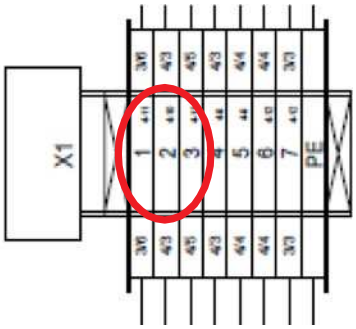
Level Float Sensor

- Cable-gland LEVEL SENSOR

This connection is used to control the solution level inside the feeder base.
Connect the three-wire to the X1 block, terminals 1-2-3 (see the wiring diagram inside the control box).

Terminal 1: brown wire
Terminal 2: blue wire
Terminal 3: black wire



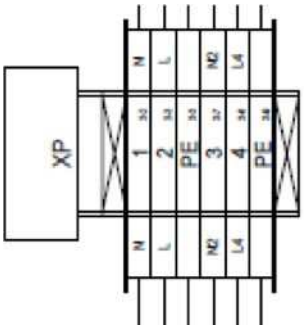


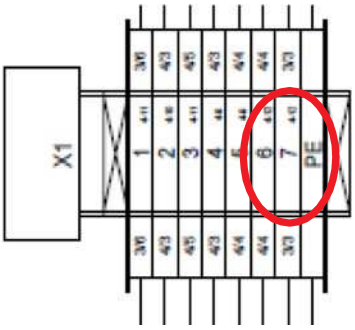
Solenoid Valve

- Cable-gland SOLENOID

This connection is used to control the solenoid valve which commands the water sprays to the briquettes.
Connect the three-wire to the X1 block, terminals 6-7-PE (see the wiring diagram inside the control box).

Terminal 6: Phase
Terminal 7: Neutral
Terminal PE: Earth





START-UP PROCEDURE

Use ONLY calcium hypochlorite ***hth***® briquettes 7 g !

Never load other chlorinating product in the feeder, because this could result in undesired reactions or even explosions.
NEVER mix chemicals inside the feeder!

Start-up:

1. Check that all hydraulic and electrical connections have been performed correctly.
2. Load the hopper with calcium hypochlorite ***hth***® briquettes 7 g.
3. Close the hopper lid and make sure that the safety switch is functioning and connected to the electrical panel.
4. Check that the inlet water pressure is correctly adjusted, then open the supply line water tap (ball valve).
5. Check that all electrical switch of the control panel are properly functioning.
6. Check that the red button for the emergency stop is not pushed, then put the ON/OFF knob in ON position.

7. Now the POWER yellow light should turn ON.
8. The SOLENOID green light turn ON when the inlet solenoid valve opens, to advise that the unit is spraying water to the briquettes and, therefore, the chlorinated solution production is in progress.
9. When the tank is full, the SOLENOID green light turns OFF (to advise that the water inlet solenoid valve is closed) and the CIRC PUMP green light turns ON to signal the activation of the circulation pump for the chlorinated solution mixing.
10. Once completed these operations, the system is ready to start the chlorinated solution dosing. The metering pump activates and starts the injection of the solution in the water to be treated.

MAINTENANCE

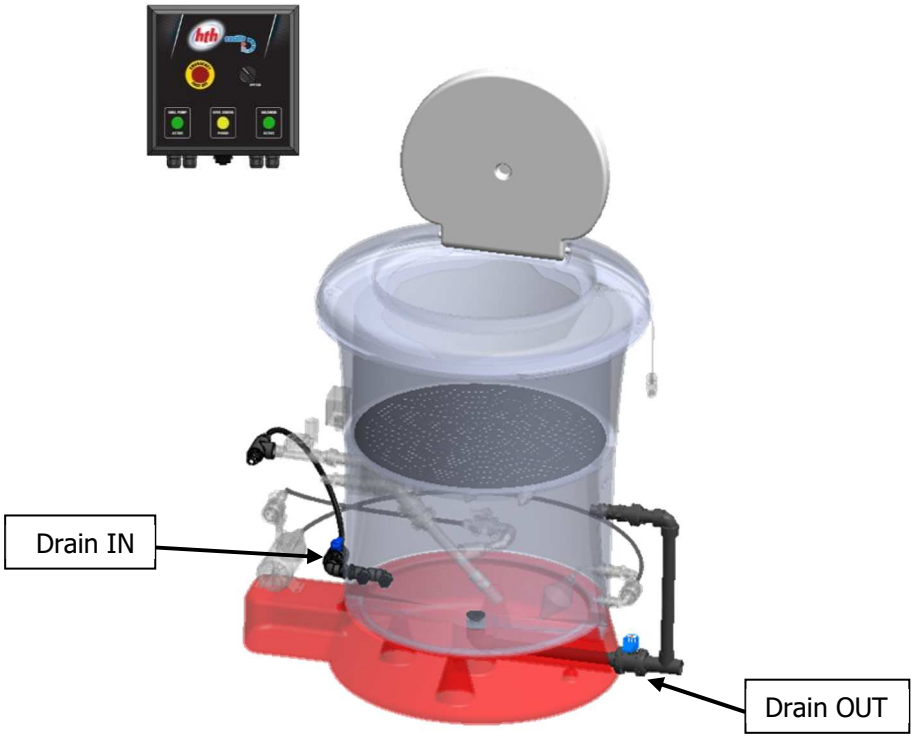
Before starting any maintenance operation, wear all required PPE to work with calcium hypochlorite solutions!

Washing Operation

It is recommended to activate the internal washing system once a week, to minimize the build-up of deposits and incrustations which could damage or block the dosing pump.

Ensure that the rinsing tube of the feeder base is connected to a discharge point in the technical room, then proceed as follows:

1. Check that the chlorinated solution has been completely removed from the feeder, as the calcium hypochlorite solution is dangerous for the environment and has never to enter sewages.
2. Cut off power to the solenoid valve through the switch on the electrical panel.
3. Empty the hopper from any residual briquettes and put them in a clean and dry container.



4. Fully open the “Drain IN” inlet valve to make washing water enter the tank base.
5. Fully open the “Drain OUT” discharge valve. A vortex will form at the tank bottom and eliminate insoluble residues through the discharge valve.
6. Clean the hopper grid, by rinsing it thoroughly with water and brushing out any deposits.
7. Rinse all internal parts of the feeder and base.
8. Fully close the “Drain IN” inlet valve.
9. Let the tank empty through the “Drain OUT” discharge valve, then close it.
10. Reload the hopper with the briquettes previously removed (see step 3) and, if necessary, add some more.
11. Restart the system by switching it ON from the electrical panel.

Cleaning Procedure with Acid

Incrustation build-up and maintenance frequency depends on the quantity of product used and from the chemical composition of the supply water.
It is recommended to perform this maintenance monthly.

This is the easier procedure to remove incrustations and scale build-ups.

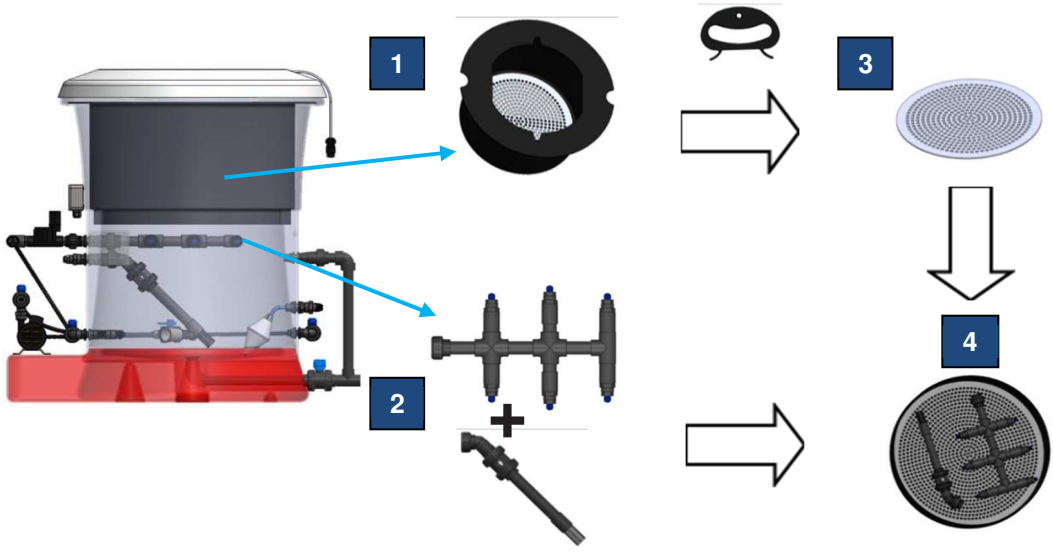
It is recommended to use the ***hth***® BANISOL® EXTRA cleaning solution and the ***hth***® NEUTRALISATOR neutralizing solution which contains sodium thiosulfate.

NEVER use hydrochloric acid to clean the feeder, as toxic gas may develop, with consequent serious damages for the operator.

Use chemicals safely! Before use, carefully read labels and product SDS, which should be always available and updated! Wear all needed PPE!

Isolate the feeder system by closing the inlet and outlet valves, then proceed as follows:

1. Empty the hopper from any residual briquettes and put them in a clean and dry container, then remove the hopper from the feeder body.
2. Remove the spray manifold and the dosing pump suction kit, by unscrewing the related plastic unions.
3. Remove hopper grid with the supplied black tool.
4. Put all disassembled parts in the cleaning pan supplied with the feeder.

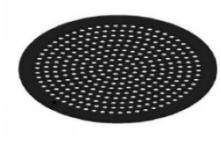
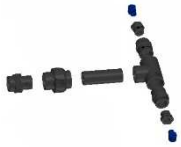
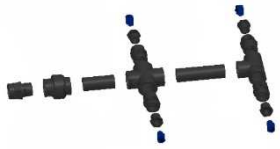


5. Put 5 litres of water in the cleaning pan, add 150 grams of ***hth***® NEUTRALISATOR dechlorinating product and let all disassemble parts in this solution for at least 10 minutes, to eliminate all chlorine residues prior to washing.
6. Rinse with fresh water and dispose of the solution safely.

7. Refill the cleaning pan with 5 litres of water and add slowly 1 litre of ***hth®*** BANISOL® EXTRA descaling product. Let act for at least 20 minutes.
8. Check that incrustations and scale have been fully removed, otherwise empty safely the pan and repeat step 7.
9. Wash all disassembled parts with water, to fully rinse out the acid cleaning solution.
10. Proceed in the same way to clean the ***easiflo®*** feeder tank: pour up to 150 mm of water and add 150 grams of ***hth®*** NEUTRALISATOR dechlorinating product. Mix gently to obtain an homogeneous solution, then let act for 10 minutes.
11. Dispose of the solution safety, then rinse the tank several times to remove all traces of the sodium thiosulfate solution.
12. Pour up to 150 mm of water in the ***easiflo®*** feeder tank, then add slowly 1 litre of ***hth®*** BANISOL® EXTRA descaling product. Let act for at least 20 minutes.
13. Check that incrustations and scale have been fully removed, otherwise empty safely the tank and repeat step 12.
14. Wash the tank several times to fully rinse out the acid cleaning solution.
15. Reassemble all components and allow the feeder to operate without any briquettes for approx. 15 minutes.
16. Reload the hopper with the briquettes previously removed at the beginning of the cleaning procedure and, if necessary, add some more.
17. If necessary, clean the inlet filter.

If necessary, replace any broken or wear parts. See the list of spare parts on next page.

LIST OF SPARE PARTS

Item	Description	Part No.
	GRID for *easiflo*® 20 IP & FIRST	AM4000021
	GRID for *easiflo*® 50 IP & FIRST	AM4000022
	GRID for *easiflo*® 100 IP & FIRST	AM4000023
	SPRAY MANIFOLD INLET KIT for *easiflo*® IP	AM4000190
	SPRAY MANIFOLD OUTLET KIT for *easiflo*® 20 IP	AM4000191
	SPRAY MANIFOLD OUTLET KIT for *easiflo*® 50 IP	AM4000192
	SPRAY MANIFOLD OUTLET KIT for *easiflo*® 100 IP	AM4000193
	SPRAY NOZZLE *easiflo*® (3 PC.)	AM4000138
	INLET KIT for *easiflo*® IP	AM4000183
	WASHDOWN SPRAY NOZZLE for *easiflo*®	AM4000032
	LEVEL FLOAT for *easiflo*® 20/50/100 IP	AM4000126
	LID SAFETY KIT for easiflo® IP	AM4000135
	CIRCULATION PUMP for *easiflo*® IP	AM4000194

Item	Description	Part No.
	VENTURI KIT for *easiflo*® IP	AM4000195
	NON-RETURN BALL VALVE D32 EPDM	AM4000038
	PVC BALL VALVE	AM4000039
	FEMALE BALL VALVE ½”	AM4000125