Models for
BCDMH Briquette Feeders
BCD12
BCD25
BCD100

BCDMH Briquette Feeders

USER MANUAL
May 2010 Version 1.0

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WATER QUALITY CONTROL

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Pressure Rated Feeders for the Controlled Dissolution of BCDMH - Bromine Tablets or Briquettes

- √ **Pressure Rated to 350 kPa.**
- √ **Capacity of 12 Kgs, 25 Kgs. or 100Kgs.**
- √ **Floor Mounting for ease of refilling**
- √ **Wide 225 mm lid for easy refilling**
- √ **Bottom drain valve for ease of refilling**

Warnings

Chemicals in use as part of the treatment program may be hazardous. Please refer to the full Material Safety Data Sheets (MSDS) provided by your chemical supplier and ensure all personnel involved are aware of the handling and safety procedures.

Please read and understand all safety warnings on chemical containers before servicing any dosing equipment.

Wear as a minimum - safety goggles and gloves when servicing the dosing equipment.

Do not mix concentrated acids and oxidising agents as explosion, and/or toxic and lethal gas may be evolved, and/or fire result.

Keep all chemical containers sealed and free from contamination.

Contents

TECHNICAL DESCRIPTION

The Aquarius Models BCD12, BCD25 and BCD100 are pressure rated feeders re-engineered from polyester cartridge or filter housings to provide for automatic dissolution of BCDMH - Bromo-chloro-dimethylhydantoin tablets or briquettes.

When coupled with an ORP controller or, pH & ORP controllers, or Conductivity & ORP controllers, these units allow for the dissolution and automatic proportional dosage of the bromine based biocide, based on demand from the system.

BCDMH bromine based organic briquettes or tablets provide for superior sanitation of cooling systems, swimming pools, spa's, hydrotherapy pools and ornamental fountains and the maintenance of a small residual of oxidant normally provides for excellent protection from Legionnaires Disease Bacteria, or other pathogenic bacteria, in the system.

Maintenance of a low residual by means of a ORP sensor ensures that dosage is automatically carried out to maintain that residual, even under fluctuating load conditions, and without excessive dosage of products which can cause severe corrosion to metals in the system.

All BCDMH models are designed as up flow deep bed leaching devices, which operate under turbulent flow conditions to ensure high dissolution rates of BCDMH product, and are flooded beds to ensure the BCDMH product is always under water and minimises any danger of ignition from damp or partially wet oxidising agent.

Dissolution rate of most types of BCDMH products depend on bed depth, water temperature, and water flow rate through the bed. The specifications later in the bulletin give typical dissolution rates, and usage rates for various size systems.

When coupled with the ORP Controller models - these systems provide for automatic dosage and control.

The feeder capacity should allow for in excess of 30 days supply on cooling systems or fountains, and in excess of 7 days on large swimming pools, before recharging

On very large systems, two off of the BCD100 units can be installed in series to ensure sufficient supply is always at hand.

These feeders are intended for use with Bromo-chloro-dimethylhydantoin based tablets or briquettes ONLY and using the system circulating water ONLY as the dissolving water source for the vessel.

FEATURES

* ***Corrosion Resistant Polyester & PVC***
* ***Large Capacities - 12, 25, or 100 Kgs.***
* ***Floor mounting - Easy to Refill***
* ***Floor mounting - Safety when refilling***
* ***Easy to undo Lock Ring for refilling***
* ***Wide 225 mm lid for ease of refilling***
* ***Pressure Gauge & Rating of 350 & 340 kPa.***
* ***Air Bleed Valve for rapid drain down***
* ***Bottom drain valve to facitate refilling***

SPECIFICATIONS

	BCD100	*BCD25*	*BCD12*
Capacity of BCD - Kgs.	***100***	***25***	***12***
Typical Flow Rate - lts/min	***50***	***10***	***10***
Max Flow Rate - lts/min	***100***	***190***	***280***
Max Pressure Rating - kPa..	***340***	***350***	***350***
Plumbing - BSP inlet & outlet	***50***	***20***	***15***
Plumbing - Pressure hose	***50***	***20***	***15***
Typical Dissolution Rate - kgs/hr	***1.5***	***0.5***	***0.3***

APPLICATIONS

√ ***Cooling Towers***
√ ***Swimming Pools***
√ ***Water Features***
√ ***Hydrotherapy Pools***
√ ***Ornamental Fountains***
√ ***VegetableDisinfection Flumes***
√ ***Vegetable Disinfection Spray Systems***

SIZING of the BCD FEEDER for Cooling Towers

A typical usage rate of BCDMH on cooling towers is approximately 20 gms. per hour per 1000 kWR, system capacity and the capacity of the feeder required can be calculated from the following formula:-

$$\textit{Capacity in Kgs.} = \frac{\textit{kWR x hrs./day x days supply}}{\textit{50000}}$$

e.g. a 2000 kWR total capacity, plant operates 12 hrs./day and 40 days supply (between service visits - and allowing for maximum load in summer) equals:-

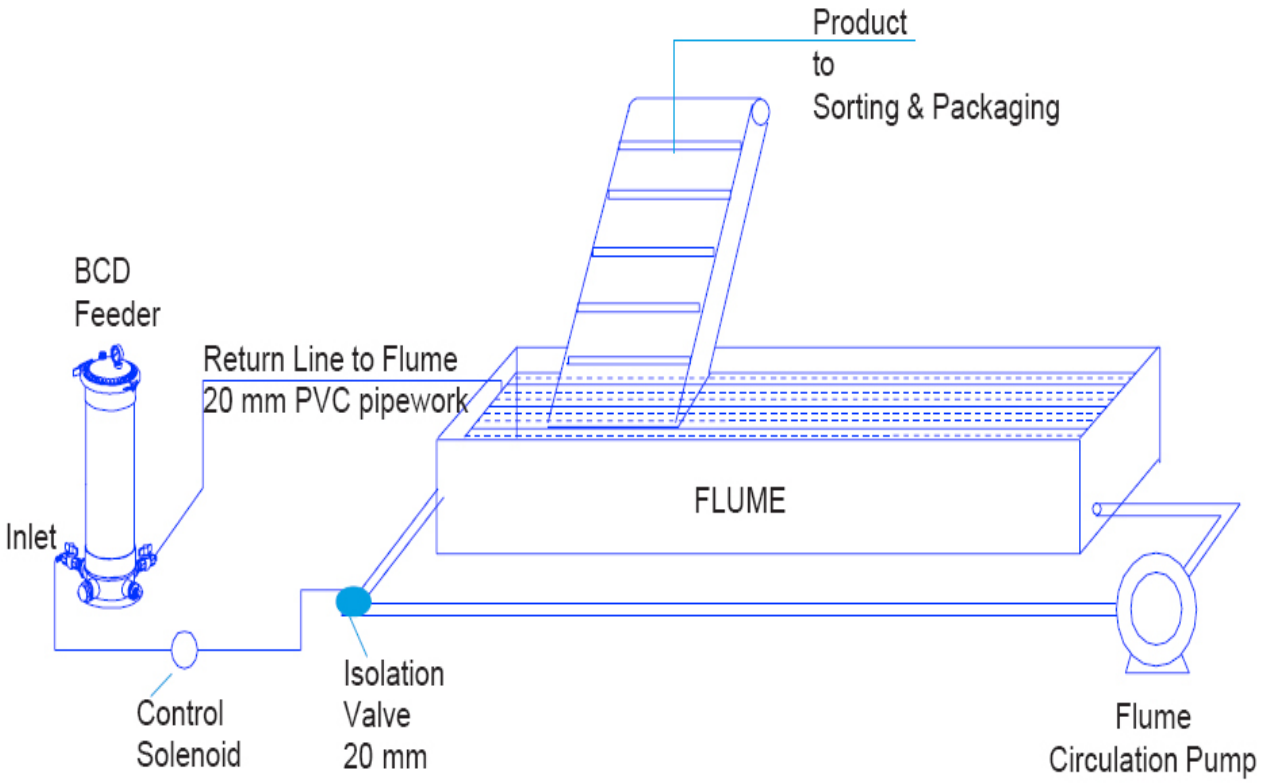
$$\frac{\textit{2000 x 12 x 40}}{\textit{50000}} = \textit{19.2 Kgs.}$$

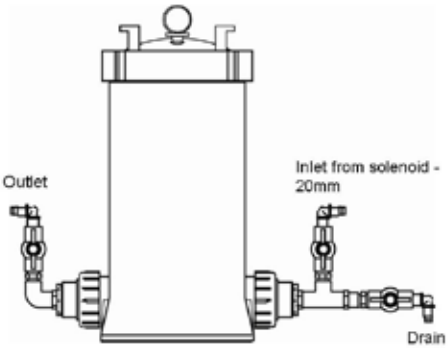
= min. capacity for 40 days supply - select the BCD25 unit (25 Kgs. which should give approx. 40 days supply at maximum load.)

NOTE that the average consumption or chemical usage per year will usually be much less than that above which is sized to allow for maximum load.

	Feeder	System Capacity	Storage Capacity
Cooling Water Systems	BCD12	1000 kWR -Continuous Load	30 days
Cooling Water Systems	BCD25	3000 kWR - Continuous Load	30 days
Cooling Water Systems	BCD100	10,000 kWR - Continuous Load	30 days
Swimming Pool or Water Features	BCD12	300 m3 - System Volume	7 days
Swimming Pool or Water Features	BCD25	1000 m3 - System Volume	7 days
Swimming Pool or Water Features	BCD100	3000 m3 - System Volume	7 days
Ornamental Fountains	BCD12	50 m3 - System Volume	30 days
Ornamental Fountains	BCD25	150 m3 - System Volume	30 days
Ornamental Fountains	BCD100	500 m3 - System Volume	30 days
Vegetable Flumes	BCD12	10 m3 - System Volume	24 hours
Vegetable Flumes	BCD25	30 m3 - System Volume	24 hours
Vegetable Flumes	BCD100	100 m3 - System Volume	24 hours
Vegetable Spray Systems Recirclating	BCD12	5000 lts/hr - Spray Volume	24 hours
Vegetable Spray Systems Recirculating	BCD25	15000 lts/hr - Spray Volume	24 hours
Vegetable Spray Systems Recirculating	BCD100	50000 lts/hr - Spray Volume	24 hours

Schematic Installation of a BCDMH Feeder on a Flume

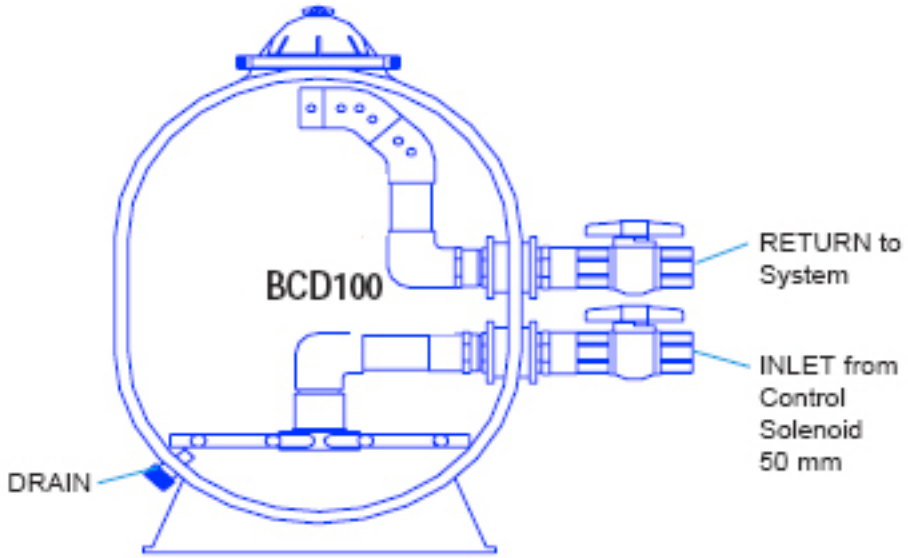




BCD12 & BCD25 ASSEMBLY GUIDELINES

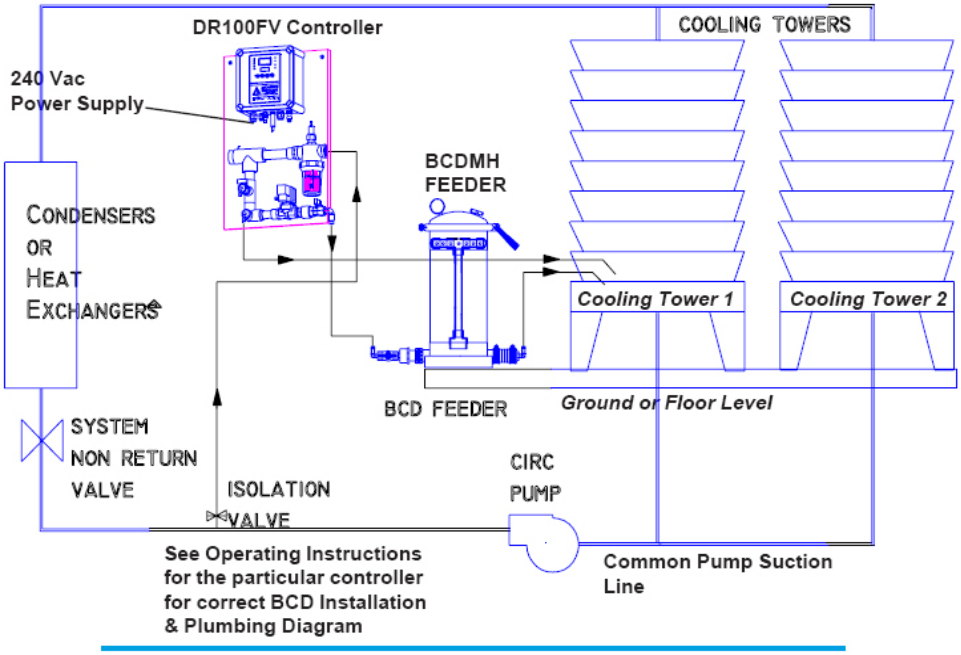
1. The feeders should preferably be installed in an area to ensure adequate ventilation from any fumes when refilling.
2. The feeder should be installed on a concrete slab or concrete tile minimum 300 x 300 mm and at floor or ground level for ease of refilling.
3. Screw the inlet and drain valve sections into the **IN** ports of the feeder and the outlet hose tail to the **OUT** port of the feeder. The drain valve should point to the back of the feeder and be parallel with the floor when fixed.
4. Seat the large "O" ring around the lid groove, screw the pressure gauge into the lid, seat the lid on top of unit ensuring the large "O' ring is in place.
5. The unit is now ready for locating on concrete slab or tile prior to commencement of plumbing in & out of vessel.
6. Ensure that there is approx. 500 mm of free space above the lid to allow for ease of refilling the vessel.
7. Ensure that there is approx. 100 mm clearance all around the vessel to facilitate removal of the lid and the lock ring when refilling the unit.
8. Refer to page 13 for plumbing guidelines, and commissioning instructions.

ON SITE ASSEMBLY OF BCD100 FEEDER



1. Attach the 50 mm valves supplied as shown in the diagram above.
2. Plumb to and fro the unit in 50 mm PVC pipework utilising a 50 mm control solenoid.
3. Secure the O-ring on top opening and attach the lid.
4. Fill system with water and check for leaks.
5. Drain down the vessel and proceed to fill unit with BCDMH tablets up to level with the top internal offtake pipe.
6. Clean around the opening and the O-ring and replace the lid, and return unit to serrvice.

Schematic Installation of a BCDMH Feeder on Cooling Towers



1. The pH and ORP controllers house sensitive electronics and preferably should be installed internally in the plant room, or if external should be installed in shade and protected from direct sunlight and temperature extremes.
2. The BCDMH feeders should preferably be installed outside in close proximity to the cooling towers or in large well ventilated plant rooms.
3. Plumbing as in diagram above can be in uPVC pipe utilising the 20 mm. BSP threads after removal of any hose tails.
4. Plumbing can also be carried out using braided pressure 19 mm hose and utilising the hose tails supplied.
5. The outlet of the BCD feeder will contain high levels of oxidising agent which would be corrosive to copper, S/S, and mild steel pipework. Plumbing from the feeder should be in corrosion resistant pipe or hose and directed to an area of good mixing in the cooling tower basin. e.g. vicinity of make up water to tower basin.
6. Care should be taken that the take off point to the Controller is before the system Non - Return valve to avoid short circuiting the non-return and overflowing the system on plant shutdowns.
7. Refer to the actual Controller operating instructions for commissioning instructions for the controller.

Recharging the BCD Feeders

Refer to safety instructions for the particular brand of BCDMH chemical, Read and understand the MSDS sheet supplied with the chemical, Wear the appropriate safety gear. Refer to the safety guidelines printed on the feeder. BCDMH chemicals are strong oxidising agents and can cause fire or explosion if mixed with other chemicals !! Ideally your feeder should be recharged by a trained water treatment specialist as follows :-

1. Isolate the inlet valve to the BCD feeder.
2. Open the drain valve to drain down feeder.
3. Open the air bleed valve to assist drain down.
4. When pressure gauge registers zero undo the lock ring and remove lid.
5. Refill container with BCDMH tablets or briquettes up to the Tee take off only. Do NOT OVERFILL
6. Clean off the "O' ring and lid seat, and replace lid.
7. Fit the lock ring and clamp the lid in place.
8. Shut the drain valve, and open the isolation valve and allow the vessel to fill with water.
9. Shut the air bleed valve when vessel is full and water exits at the air bleed.
10. Activate the solenoid, and check that there is sufficient flow through the feeders to the towers.

AQUARIUS TECHNOLOGIES PTY LTD

Manufacturer's Product Warranty Definitions

"Aquarius" means Aquarius Technologies Pty Ltd ABN 94 010 393 254

"Product" means:-

(i) goods purchased from Aquarius that have been manufactured in whole by Aquarius; and

(ii) the Aquarius manufactured components in third party goods.

"Buyer" means

any person or entity who buys product for consideration from Aquarius.

"The Law"

means and includes the Trade Practices Act (Commonwealth) 1974 and relevant State and Territory fair trading or other consumer protection legislation and includes any statute amending, consolidating or replacing the same from time to time.

Warranty

1. Aquarius warrants that:-

(i) all Product is produced under a Quality Assurance System to ISO9001:2001 standards;

(ii) the Product conforms to the written description in the purchase order quotation and related purchase documentation accepted by Aquarius in writing except for such defects that are normally regarded as being commercially acceptable;

(iii) the Product will be reasonably fit for the purpose of use described by Aquarius, however Aquarius accepts no responsibility for third party misrepresentation;

(iv) the Product will be of merchantable quality and free from defects in material and workmanship.

2. If within twelve (12) months (from either the date of purchase by the Buyer or the date of installation, whichever is the earliest) the Buyer gives to Aquarius written notice that the Product does not correspond with the description or is defective (and such defect could not have been detected at the time of delivery) and Aquarius agrees then, PROVIDED:-

(i) that Aquarius, via its customer service department, is contacted promptly;

(ii) that the Buyer supplies to Aquarius sufficient proof of purchase, the model number and serial number of the Product;

(iii) that if necessary, the Product is returned by prepaid freight to Aquarius Technologies P/L factory headquarters:-

(a) within fourteen (14) days of detection of the alleged fault; and

(b) in the same order and condition as that in which it was delivered

(c) packaged to prevent any damage in transit;

(d) that the product contains the return authorisation number, customer identification number, and return delivery details

AND

(iv) if any alleged defect or failure to correspond with description has not arisen from:

- alleged defect or failure to correspond with description
- improper or incorrect installation or site preparation;
- improper maintenance, adjustment, modification or contamination caused or induced by the Buyer;
- the Product being used or attempted to be used in a manner which is beyond normal commercial capacity and application of the Product;
- any abuse or misuse of the Product including operation of the Product in circumstances where there may be subject to irregular electrical supply;

then, Aquarius will at its option either:-

(v) repair any part of the Product which is proven to be defective in material or workmanship upon the Aquarius' examination. The repairs will be carried out by Aquarius personnel or persons appointed by Aquarius at Aquarius premises or at the site or premises of the supplier to Aquarius. This warranty does not include removal, installation costs, or liability exceeding the selling price of the Product. Aquarius warrants that all repairs on returned Product will be free from defects in materials and workmanship for a period of sixty (60) days; or

(vi) replace the Product.

3. The Buyer will be liable to Aquarius for all reasonable costs incurred by Aquarius in relation to the investigation, analysis and testing of a Product which are not defective in the reasonable opinion of Aquarius.

4. In no circumstances will Aquarius:-

(i) incur liability in respect of, or arising out of, or in connection with harm or injury suffered or incurred by the Buyer;

(ii) incur liability in respect of any special consequential direct or indirect loss or damage;

(iii) accept liability for the cost of any repair or attempted repair by the Buyer by any unauthorised third party.

Commissioning & Warranty Registration

This form should be completed by the Equipment OWNER promptly after installation & commissioning. When signed is should be faxed to Aquarius Technologies Pty Ltd on +617 3274 4736. This will ensure the equipment details are logged to our confidential Warranty Database to activate your warranty registration and assist our ability to process any future service inquiries.

Please print all details except for signatures

Model: ..... Serial No: .....

Date of Installation: .....

The above equipment was satisfactorily commissioned for:

Owner (Company Name): .....

Address 1: .....

Address 2: .....

State: ..... Country:.....

Signed for and on behalf of the Equipment OWNER

Name: .....

Date: ..... Signature: .....

Commissioning Company Name: .....

Address: .....

State: ..... Country:.....

Technician Name .....

Date: ..... Signature:.....

Thank you for your very valuable support, purchase and installation

Aquarius Technologies Pty Ltd

Faxing Instructions for Registration

Fax this form immediately to

Aquarius Technologies Pty Ltd
+617 3274 4736

Upon receipt your controller will be registered in our equipment database. This will provide a ready confirmation of the actual equipment installed, and the configuration characteristics at your specific installation. This information will assist greatly with our treatment of technical and service inquiries in the future.

AQUARIUS
TECHNOLOGIES PTY LTD
WATER QUALITY CONTROL