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CAFE

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Cafe filter fabrication instructions

The Dryden Aqua DA Filter, is a low cost gravity flow filter, automatic back-washing without the use of any valves or control systems. The filter is designed and intended to be constructed by Corporate Social Enterprise engineering companies located as close as possible to the place where the filters will be installed. The engineering companies fabricate the filter for sale and distribution for rural community drinking water.

The Social Enterprise company should be in a position to provide technical support to the village to help them set up the system, and to be on call should they require any advice or support. The village will be required to set up a committee with their own Social Enterprise organisation to maintain, manage and sell the water. The sale from the water should cover the cost of maintaining the system with the support of the supplier.

The filtration system is suitable for any rural community from a village in Scotland to a remote community in Africa. The design remit is based on providing clean water to a community that

does not have access to clean water. The average income of the community is assumed to be in the region of 2 US dollars a day per working person.

Cost estimates.

Capital cost of all the equipment, including installation and commissioning, based on model 1200, supplying 1000 people with drinking water.

10 US dollars per person for Life, 30+ years, 1 to 2 x US dollars a year for power, maintenance and support

Dryden Aqua responsibility.

We are acutely aware of the issues regarding drinking water around the world, this was the reason for developing AFM as an active filter media, and was the reason for designing the rural community drinking water system.

Dryden Aqua will work directly with the filter manufacturing company and provide them with all the information required to construct the filters. Dryden Aqua will also provide key components of the system such as the AFM. There will be other components available from Dryden Aqua. However, the manufacturer is free to locate their own suppliers or source of the key components.

If the equipment manufactured is in compliance with Dryden Aqua design specifications and uses grade 0 AFM, Dryden Aqua will certify the manufacturer and promote the company on a dedicated website. The filter is designed to operate with AFM and it is only AFM that will deliver the full benefits.

Materials of construction

The main component of the DA Filter is the column comprising of the filter in the base and the water storage tank on top. The unit may be constructed as one assembly or as two tanks with the water tank sitting on top of the filter tank.

It is important to sit the water tank on top of the filter, this prevents deflection of the top of the filter and allows the system to be constructed from lighter materials.

The materials of construction should be in compliance to you drinking water regulations, however in most countries the following would be acceptable

- Stainless steel, the best but expensive, minimum 3mm
- Mild steel, minimum 5mm thick and epoxy coated
- Polyethylene or polypropylene, 12mm thick

The tanks are constructed in accordance the drawings.

Nozzles.

The AFM filter media is supported by a Nozzle distribution plate, this plate is supported by pillars underneath the plate to prevent deflection. Even although the system is low pressure, there are still large forces on the base plate. The base plate should therefore be made of the following materials

Applies for filters up to 1200mm in diameter;

- Stainless steel, 5mm thick
- Mild steel 10mm
- Polyethylene or polypropylene 24mm

For filters larger than 1200mm diameter, there is a different engineering solution for the nozzle distribution plate.

The number of nozzles used should be 60 per square meter of surface area supporting the AFM filter bed. The nozzle should have 250 um slots. If Nozzles are not available Dryden Aqua can supply this item.

Pipework

Pipework may be in PVC, ABS, Polyethylene or steel construction, the diameter of the pipework must be in accordance to the drawing.

Backwash water tanks.

The tank should be constructed into the the ground at the height shown in the drawing. If the filter is elevated then the sump tank may remain in the ground, or it can also be elevated. The back-wash flow rate will be dictated by the opposition of the the back wash tank. The water flow for back-wash will need to be calibrated during the set-up procedure.

Model Number	DA.filter 300	DA.filter 600	DA.filter 1200	DA.filter 1800	DA.filter 2200	DA.filter 2400	DA.filter 3000
Filter diameter mm	300	600	1200	1800	2200	2400	3000
Filter height, m	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Water flow rate, litres/hr	150	560	2250	5000	7500	10,000	15,000
AFM grade 0 mass in Kg	100	350	1400	3200	4750	5600	9000
Pump lift from surface, m	5	5	5	5	5	5	5
Flap valve dimension, DNmm	40	50	80	100	150	200	250
	0.05	0.1	0.15	0.3	0.5	0.75	1.1

Pump power kw							
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Components provided by Dryden Aqua

In order for the equipment to be certified and for Dryden Aqua to provide support, it is essential that AFM is used in the system. The manufacturers is free to use what every filter media they choose, but it is only AFM that will provide the material benefits and water security.

Dryden Aqua could supply the completed filter; this may be an option for the first few filters until the social enterprise engineering company is in a position to fabricate the complete system. There may however be some difficulty in opting some of the item, such as the magnetic non return flap valve

Components from Dryden Aqua		
AFM		
Non return flap valve		
Water pump, 12v dc brushless		
Solar panel		
Float switch interlock		
Back-wash manual valve		

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The CAFE Filter is perfect solution for Rural Community drinking water in any country, for the provision of water in

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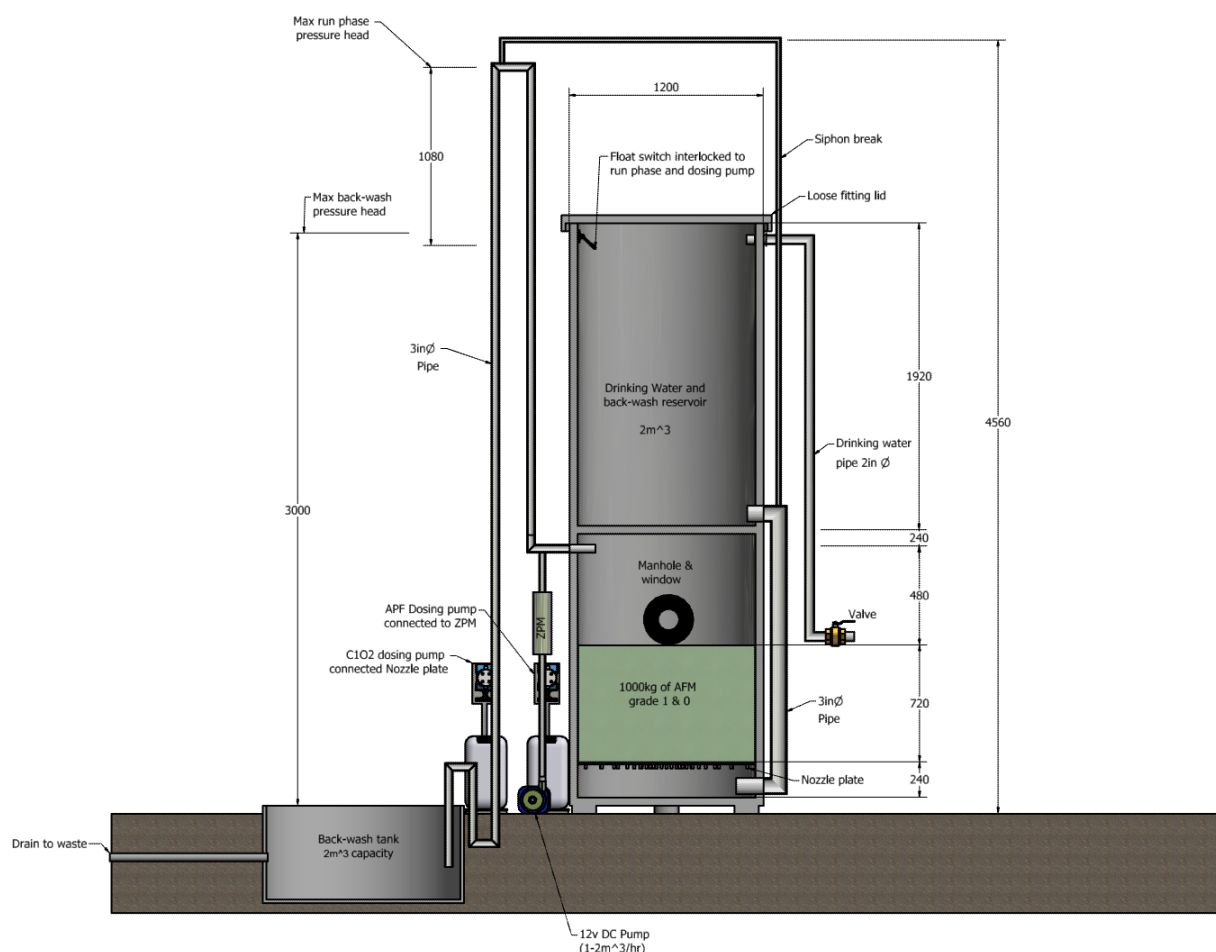
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automatic back-washing without the use of any valves

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[Cafe filter model 1200 \(/index.php/cafe-filters-design/drawings/66-cafe-filter-model-1200\)](/index.php/cafe-filters-design/drawings/66-cafe-filter-model-1200)



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Cafe / DA membership organisations & certification



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WATER STEWARDSHIP

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Reg 31
UK drinking water

DRINKING WATER INSPECTORATE



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