

Cafe filter data sheet

The CAFE Filter is perfect solution for Rural Community drinking water in any country, for the provision of water in compliance to WHO and European standards.

The filters use Dryden Aqua AFM activated filter media, and are fully automatic with no moving parts, controls or valves. They are a perfect solution to resolve drinking water issues in countries such as Africa and India as well as remote communities in Scotland and through-out Europe. The equipment will work for decades, with no maintenance except for cleaning and occasional attention.

The great simplicity of the DA.filter also means they are a low cost. Indeed, Dryden Aqua offer the filter design free of charge under a no cost License agreement. The License agreement provides security to the client that the manufacturer is working with Dryden Aqua and the equipment has been manufactured and operated in accordance to Dryden Aqua's specifications with AFM activated filter media. Local manufacture means lower capital costs, lower transport costs and local technical support.

- Rural community drinking water in compliance to WHO from almost any water source
- Pretreatment prior to membranes
- Tertiary treatment of wastewater
- Industrial process water
- Industrial wastewater

Performance factors

80% of disease in many tropical countries is caused from the consumption of drinking water. Water supplied by the Municipal Water

companies may also be contaminated because it is difficult to prevent transient channeling of unfiltered water into the network. This is the same situation in Europe and North America. However, the warmer the water, and the more pollution there is in the water, the greater the problem.

Parasitic infections such as *Cryptosporidium* is responsible for up to 50% of all water related disease. The DA filter is a chemical free solution, that eliminates *Crypto*. If flocculants and chlorine are available, then they will further improve the performance of the filter, but they are not essential. AFM also removes many herbicides, pesticides and chemicals from solution such as arsenic, ferric, manganese and fluoride.

	No flocculants or chlorine	Flocculent, no chlorine	No flocculent, but with chlorine	Flocculent and chlorine
<i>Particle size, log 3 reduction</i>	1 micron	0.1 micron	1 micron	0.1 micron
<i>Turbidity reduction</i>	>95%	>99%	>95%	>99%
<i>Cryptosporidium</i>	> log 3 reduction	> log 4 reduction	> log 3 reduction	>log 4 reduction
<i>Bacterium</i>	>log 2 reduction	>log 3 reduction	> log 4 reduction	>log 5 reduction

Why is the performance better than other systems?

1. Most RGF Rapid Gravity filters operate at a flow velocity of 6m/hr, the DA.filter runs at 2m/hr. Filtration performance is inversely proportional to filtration velocity, so the flow is slowed down.
2. All RGF filters for municipal supplies of drinking water use sand media close to 16 x 30 grade (0.5 to 1.0mm). The sand is not certified

and varies greatly in quality as well as performance. The CAFE filter uses grade 0 AFM (0.25 to 0.50), which provides for a much better performance than sand. AFM also adsorbs small sub-micron particles and is manufactured under controlled conditions to an exact specification. AFM was verified by IFTS to be an order of magnitude better than sand for the removal of suspended solids under 5 microns.

3. All RGF filters suffer from bio-dynamic instability leading to transient channeling of unfiltered water into the product water. In countries with ambient water temperatures are under 20 deg C, sand filter performance is usually better than 99.5%. In countries over 20 deg C, filtration performance is typically over 98%. It only takes a filter to fail 0.1% of the time to cause disease among people supplied by the network. Our DA.filter may be used, or AFM may be retrofitted to replace the sand used in RGF or pressure filters supplying cities, there is no limit to the scale of the system.

4. AFM media never needs to be changed. This is important because the filter is designed to last for 20+ years, so the filter media must last for the same duration.

5. Better than UF ultra filtration? Yes, because AFM will not only filters down to 0.1 micron but will remove many particles below 0.01 microns as well as chemicals from solution, which is impossible for UF. Performance is better than UF, much lower cost with a system that is self-running and really easy to maintain.

Operating criteria for DA.filter

Model Number	DA.filter 300	DA.filter 600	DA.filter 1200	DA.filter 1800	DA.filter 2200	DA.filter 2400	I
Filter diameter mm	300	600	1200	1800	2200	2400	

Filter height, m	4.5	4.5	4.5	4.5	4.5	4.5	
Water flow rate, litres/hr	10 to 150	560	2250	5000	7500	10,000	
Inlet pipe, and product water pipe diameter	25mm	25mm	25mm	32mm	50mm	50mm	5
Back-wash pipe diameter	50mm	50mm	90mm	90mm	125mm	125mm	1
AFM grade 0 mass in Kg	100	350	1400	3200	4750	5600	
Pump lift from surface, m	5	5	5	5	5	5	
Pump power kw	0.05	0.1	0.15	0.3	0.5	0.75	

Material of construction Stainless steel, polyethylene or polypropylene plastic or food grade epoxy coated steel.

Other applications

The DA.filter with AFM is a perfect solution for rural community drinking water as well as any application that requires water treatment to a high standard. Dryden Aqua are marine biologists, we have been filtering

seawater for marine aquaria and high end aquaculture systems for 30 years. AFM is also used as a pretreatment media for desalination systems in the Gulf and around the world. An important application is the tertiary treatment of municipal waste water for direct second use as class 1 irrigation water, or as a pretreatment prior to RO membranes. The DA.Filter can cope with grossly polluted water, up to a concentration of 200mg/l suspended solids, or even with oil in water up to 100mg/l from Palm oil processing, fracking and oil industry waste water.

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