

Mixed to perfection

A volunteer fire department in an archipelago in the Baltic Sea is the latest brigade to purchase and install a unique foam proportioner that requires no additional power to operate and is simple to use, writes Jose Maria Sanchez de Muniain.



The Jomala Fire Department is based in the small municipality of Jomala on the Åland Islands, a region that is officially a part of Finland but where the vast majority of the population speaks Swedish. Jomala has a population of around 5,000 and covers an area of 687km² of which 79% is water.

Jomala's new foam equipment is configured to proportion at 0.3%, 0.6% and 1% and can simultaneously supply a fixed monitor flowing at 1,300 l/m and two hand-held nozzles flowing at 200 l/m.

In 2015 the Jomala Fire Department was searching for a foam proportioner suitable for a 35-tonne water tender that had been designed in-house to assist in operations at the local airport as well as to act as a feeding unit for large fires on the island.

The new tender, which includes a 24-tonne multi-lift system, carries a tank containing 15,000 litres of water plus two 200-litre foam concentrate tanks. Interestingly, the tender has an open 'pool' area on top of the tank, which creates a further 7,000 litres of water reservoir capacity.

After seeing an advertisement in the *Fire Trade Europe* directory for Firemiks foam proportioners, Jomala Fire Department contacted its sales director Per Aredal.

'Jomala had quite unique requirements with the huge open-topped water tank on the truck, and they wanted to be able to choose two different foam solutions and at three different concentrations,' commented Aredal. 'As it was a municipal firefighting department we got directly involved with them and it was a great pleasure to see the result. We discussed how to install the proportioner and I went over to test it with them.'

The solution came in the shape of a Firemiks FM 1800 remote-controlled foam proportioner configured to proportion foam at 0.3%, 0.6% and 1% rates, and which could simultaneously supply a fixed water monitor flowing at 1,300 l/m and two hand-held nozzles flowing at 200 l/m. 'They were very pleased that they could also use the system at a low proportioning rate for wetting agents,' adds Aredal.

Another plus point for the volunteers at Jomala Fire Brigade is the simplicity of the new system, which is unusual in that it requires no supplemental energy to work – it only needs the pressure from the water to mix and discharge the foam/water mixture.

As water is pumped into the proportioner, the power of the water flow turns a rotor that is connected to the foam concentrate pump. The foam concentrate pump pushes the foam concentrate using the water's own power, and creates the water/foam solution. Because the foam pump is driven by the force of the water motor, the dosing rate automatically adjusts to the amount of water going into the proportioner. The more water that goes in, the faster the drive coupling rotates and the more concentrate is pumped through to mix with the water. And since the foam concentrate is stored in regular atmospheric containers, the firefighter can fill up or switch tanks during operation, thus providing an increased safety margin should the fire extinguishing take longer than anticipated.

The concept of water-powered foam proportioning originally came from the industrial fire protection sector but it is beginning to transfer over to municipal firefighting, as Aredal says: 'People like that the proportioner is water-driven and easy to handle.'

'The industrial sector doesn't like bladder tanks because they have too many problems and because it is often very expensive to replace the bladder inside the tank. In fact sometimes it could be cheaper to buy a new Firemiks unit than repair a bladder tank.'





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