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### New Monitor Demonstration

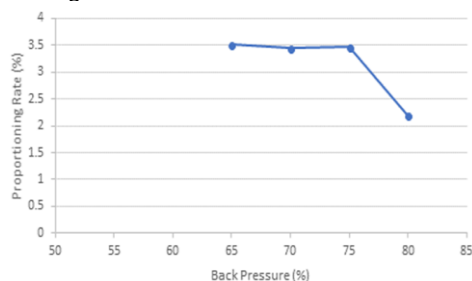
We have been a leader in remote control monitor design for many years, in particular in network control and computerisation. Our Commando 2651 and 3651 are designed to provide a new level of flexibility for both washdown and fire protection applications with their ability to be programmed and trained. There is now an online demonstration of the Commando 2651 available using the link below.

<https://www.orion-fire.com/products/commando-washdown/>

We have limited the access to one person at a time, so if you can't get on immediately try again after a few minutes. We have incorporated an integrated video camera feed to allow you to see the actual monitor being controlled. Users are able to train and store one movement routine, though the monitor is capable of storing many more operations. Have fun, and feel free to let us know your thoughts on it.

### New Line Proportioner Design

For quite a few years we have been testing alternative line proportioner designs. We have long believed there is room to make them more efficient. For the last year we have been using a new design that achieves much better back pressure tolerance than has been historically available. Our new line proportioners will proportion accurately up to 75% back pressure (25% pressure drop). This performance is available for proportioning rates below 4.5% for now.



The proportioning rate drops off rapidly after 75% back pressure is reached so these proportioners can be safely used in system designed for up to 72.5% back pressure (27.5% pressure drop).

### Line Proportioner System Design

Foam proportioning system rules allow for a reasonable range for proportioners to operate. For 3% system it is 3% to 3.9%, and for 6% systems this is 6% to 7%. There is never a good reason for thinking 2.9% is a pass for a 3% system, particularly if it is tested with the tank full, it will fail badly as the tank empties.

Allowance is needed for the accuracy of the proportioning test method when building proportioners. The conductivity method might reach +/- 0.1% in well trained hands, while even the best laboratory instruments will have trouble achieving +/- 0.2% using the refractive index method. Allowance for these errors is needed when designing the foam systems. Our line proportioners are built for a minimum 3.5% proportioning for 3% systems (tank full) so that there is reasonable allowance for the foam tank height and measurement errors.

When we use line proportioners for foam proportioning there are some key points to remember.

1. The line proportioner is controlling the system flow.
2. The foam tank should be no more than 1.5 meters high. The proportioning rate will drop by about 0.3% from tank full to tank empty for a 1.5 M tank (AFFF).
3. The maximum back pressure must not be exceeded.
4. The 5-diameter rule applies. 5 diameters of straight pipe (of the same size as the proportioner) must be installed on either end of the proportioner with no valves, bends, tees etc closer than 5 pipe diameters to the proportioner.
5. It is very good practice to install pressure gauges before and after the proportioner. The downstream gauge should not be closer than 5 pipe diameters from the end of the proportioner or pressure readings will be inaccurate.
6. There is less than 100kPa available to drive the entire foam induction process and most of this is needed for driving the flow through the metering orifice. Foam concentrate piping must be sized correctly.
7. Line proportioners are not recommended for sprinkler systems. Blocked nozzles will cause proportioners not to work, and there are always blocked nozzles.

The reason for some rules might not be obvious, but there are good reasons for them.

Many of these rules are also applicable to high back pressure foam maker installation since the operating principles are very similar.

### High Viscosity Concentrate Issues

Where with 3% AFFF the proportioning rate for a 1.5 meter high foam tank varies by 0.3% from full to empty. With high viscosity concentrates this can be up to 1% variation or more if the foam concentrate piping is undersized, so the foam system would fail a competent commissioning test (with a nearly empty tank).

For portable line proportioners, changing from a 12mm pick up tube to 19mm pick up tube on a 200 lpm proportioner (3%) can result in up to 0.6% proportioning increase with high viscosity concentrates.

The metering rate can change by up to 0.5% when changing to high viscosity foam simply due to lower flow through the metering orifice used in most proportioner.

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Any questions about this email or other Orion products and services?

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