# eNewsletter

## March 2019

Fire Engineering Pty Limited

Please share our newsletters with your colleagues and we welcome any feedback to news@orion-fire.com.au.

AOG AUSTRALASIAN OIL & GAS EXHIBITION & CONFERENCE

Orion will be exhibiting at AOG in Perth next week (13th to 15th March 2019). Come and visit us on Stand L27.

## Balanced Pressure Proportioning

With many people moving rapidly to change to Fluorine Free Foams (F3) we are seeing some major mistakes being made with some proportioning systems (bladder tanks, and foam pump systems).

The proportioning range for the proportioners changes with viscosity of the foam concentrate. Some F3 foams have extremely high viscosity that results in very restricted proportioning ranges for balanced pressure systems.

The graph below summarises the proportioning response curves for a typical 150mm balanced pressure proportioner for a range of different foam concentrates.

The foam concentrate viscosity increases as you go from 3% AFFF to 1%, to 3/6 ARAFFF and then to a well known F3 foam. As the viscosity increases the minimum flow required for 3% foam proportioning increases. For the high viscosity F3 foam this minimum flow is very high and the usable flow range is quite narrow.

There seems to be a misconception in the industry that proportioning problems with F3 foams can be rectified by modifying the metering orifice in the proportioner. This is a dangerous practice as there can be major consequences from doing this without understanding the proportioning system in more detail than is generally available.

Opening up the metering orifice will not fix this problem without creating greater problems. Increasing the metering orifice effectively pushes the performance curve up (increasing the proportioning rate over the entire flow range), but does not change the curve shape. If you do this, the proportioner will over proportion at higher flows, which will seriously compromise the foam system. It is also very bad design practice to operate the proportioner on the steeply sloped section of the curve as it is very sensitive to small flow changes.

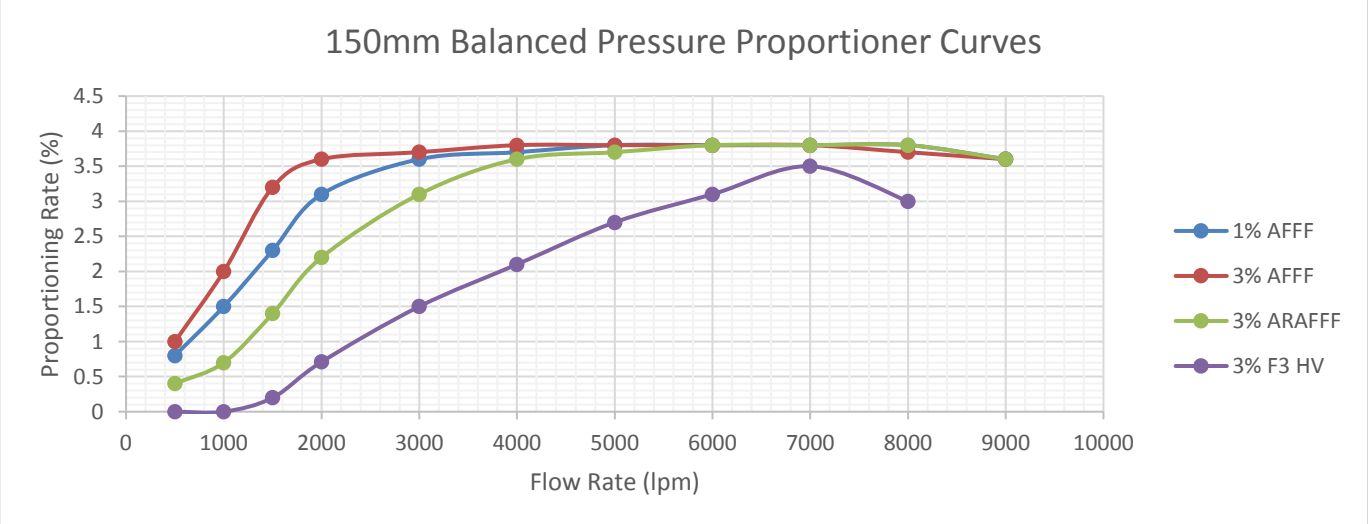
For very high viscosity foam concentrates conventional balanced pressure proportioning may not offer a practical solution if a wide proportioning range is required.

Very high viscosity foam concentrates can also cause problems with some balance valves and with some surplus/pressure sustaining valves.

Re-engineering balanced pressure systems requires detailed understanding of the operation of the systems and the system components that is not normally available.

We have also heard reports that people are adjusting the metering orifices in wide range proportioners. Since these devices don't normally have a conventional metering orifice, we are not sure what adjustment is actually being made. Wide range proportioners cannot be field modified.

On a more positive note, Orion has 30 years of experience manufacturing foam proportioning equipment and has the expertise to manufacture proportioners for a wide range of foam concentrates and systems. We can make custom proportioners to solve specific problems.

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

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