



Management of Bulk Medical Oxygen Systems

Introduction



- BOC is receiving high volumes of requests to increase the flow capacity of customers' Bulk oxygen systems.
- Some of the suggestions/requests that have come through would not be advisable and could impact the capacity of the supply or result in supply interference.

We have therefore put together the following slides to clarify some of the issues in making these changes and put together recommendations and advise for you to follow.

Pipework Pressure Increase



The maximum pressure you can achieve within the pipework is 4.5 barg by using the primary regulators

- Attempting to exceed this could result in regulator failure or regulators creeping to a higher level which would in turn increase the pipework pressure. Thus initiating the common pressure fault alarm or worst case lifting the pipework pressure safety valve and diverting oxygen from the hospital.
 - On request BOC will send a technician to increase the primary regulators to 4.5 barg, leaving the secondary regulators at 3.7barg.
 - If in the future the requests overload our capacity or we have too many technicians in self isolation, we can remotely talk engineers through this on site.

Increase of Vaporisation



**Most systems are designed with two Starfin vaporisers for the primary supply
These are designed for an 8 hour duty cycle either manual or timed changeover**

- These must be sequenced every 8 hours so that one has a defrost cycle. Due to increased demand, de-icing with warm water may be necessary.
- Please note, if both vaporisers are put on-line, this does NOT double the flow capacity, it actually **REDUCES** it.
 - If customers' are unsure of their set up or type of vaporisation system, they can send photographs to email: cescsc@boc.com or call 0800 222 888. We can then check this against our records and advise accordingly.

Increase of Vaporisation



- The System Back Up Tank usually only has a single vaporiser
- This is sized for 24 to 48 hours at the Hospitals AVERAGE flow
- The back up system CANNOT achieve 3000LPM
- Therefore emergency cylinder supply manifolds or 3rd sources of supply in Intensive Care will be required via cylinders to ensure oxygen can be maintained should a fault occur with the Primary Supply.

Icing on Cryogenic systems.

A guidance note on equipment de-icing.



It is VERY IMPORTANT that vessel pipe work and vaporisers are defrosted. It is the responsibility of the CUSTOMER to routinely de-ice equipment.

Do:

- ✓ Use hot water or steam.
- ✓ Work from the top of the equipment downwards
- ✓ Ensure the run-off is appropriately managed (e.g. adequately drained).
- ✓ Ensure you provide safe access arrangements when working on larger vaporisers, specialist access
- ✓ equipment may be needed to reach the top of the unit, for example a Mobile Elevated Working Platform (MEWP) or scaffold tower.

Do Not:

- ✓ Use cold water, especially where vaporisers are in use, as it can increase the volume of ice build-up.
- ✓ Use naked flames or de-icing compounds.
- ✓ Use metal hammers, picks and other mechanical items.
- ✓ Remove ice from the bottom of the vaporiser until the ice above it is cleared. If the ice from the bottom is removed first, ice may fall from the higher parts of the equipment, risking operator injury and damage to the equipment.

Note. A suitable and sufficient risk assessment should be conducted to identify hazards and minimise any risks to personnel carrying out de-icing operations; the outputs of which may require the use of suitable personal protective equipment.

For further de-icing guidance refer to CES/TD 109/604186/0113

Ad hoc advice



Review of Ad hoc requests

- Any ad hoc requests should be directed to the Healthcare co-Ordinator: Paul Shorter (paul.shorter@boc.com)
- Alternatively, email cescsc@boc.com or call 0800 222 888 and we will pass on your request for review. e.g.
 - Requests for vaporisation rate of the system
 - Excessive icing of the vaporisers due to increase in demand etc.