Gas Applications Statement
Air Preparation Units

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To: Our Valued Customers

Subject: **IMI Precision Engineering Air Preparation Units and Gas Applications using Nitrogen, Carbon Dioxide and Argon**

IMI Precision Engineering manufactures air preparation units' series Olympian 64 and 68 which are generally designed and tested for usage with air. The units can be also used with nitrogen, carbon dioxide and argon.

However, since these products are not leak free and some working principles requires gas relieving function, the products must be used in a vented or outdoor area. The products can only be used within the specifications printed on the product label for pressure and temperature.

It is the solely responsibility of the user to determine if the specific application is compatible with the product's materials of construction. It is the responsibility of the user to apply the product in a safe environment and within the specifications for the products. IMI Precision Engineering is not responsible for any injury or damage caused by the user's failure to do so.

Note: For further information see Appendix 1 of the document.

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APPENDIX 1:

Usage of FRL units' series 64, 68 with Nitrogen, Carbon Dioxide and Argon

USAGE WITH ASPHYXIANT GASES:

Gases like Nitrogen, Argon, CO2 and others are potentially asphyxiants – If a significant volume of either gas builds up in a confined space, they can displace the air/oxygen, and this can be dangerous if a person enters the space. Argon and CO2 are particularly a concern since it is heavier than air – It will tend to pool in low lying areas such as basements and it does not disperse into the atmosphere as readily as Nitrogen.
It is possible that a volume of Argon/Nitrogen/CO2 could build up during normal operation (because of leakage or failure of the unit or standard function of the unit), so if it is to be used in an enclosed space, suitable ventilation and/or gas alarms should be considered.
Generally, the FRL units can be used with inert gases without damaging the product.
There are however a few things that should be taken into consideration when FRL units are used with gases:

EFFECTS ON FUNCTION:

Nitrogen is slightly less dense than air (by about 3.5%), so any external or internal leakage rates will be slightly higher than when the product was tested with air. On the other hand, Argon and CO2 are denser than air (Argon by about 33%, CO2 by about 53%) so would leak less than when tested with air.
The increased density of Argon or CO2 will also affect the flow rates through the unit and so it should be confirmed that the unit can deliver the flow required by the application (both forward flow and when exhausting) when used with Argon or CO2.

Specifically, for pressure regulators R64, R68: Part of the regulator function is obviously the "pressure relieve" which is designed to exhaust the downstream system. The relieve is realised under regulating knob, so it is not possible to pipe away the relieve gas to a safe area. It is suggested to use of non-relieving version of pressure regulators.

Specifically, for soft-start valve P64, P68 series: The "Switch" point (pressure) of the soft-start valve will not be affected by the different gases but the charge rate/ramp up will be so the flow adjuster may need to be set for the individual gases. For example, if the flow adjuster was set to

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give a charge time/ramp up of 10 seconds when using Nitrogen, switching to Argon in the same unit at the same setting would result in a slower charge rate.

Part of the soft-start function is obviously the “dump” valve which is designed to rapidly exhaust the downstream system. If it is necessary to pipe the exhaust gas away to a safe area and if the length of piping required to do this creates a restriction or excessive back pressure, then it may affect the exhaust flow rate or even the function of the dump valve if the back pressure is too high. The proper function needs to be verified by the customer in the application.

SPECIFIC USAGE:

Other concern is to understand what the gas is being used for. The standard FRL units are an “industrial” product and as such are not assembled under clean conditions and uses a variety of elastomers, greases and adhesives in its construction and assembly. If the gas is being used for a medical application or for sensitive analytical instrumentation, then IMI Precision Engineering cannot guarantee that the units would not contaminate the gas flow to an unacceptable level.
Some of the units (regulators) can use neoprene, which is not compatible with Argon.

USAGE WITH FLAMMABLE OR NOXIOUS GASES:

Compressed air units should never be used with flammable or noxious gases e.g., LPG, Hydrogen etc.

GENERAL:

Above you can find points which shall be considered when is FRL unit suggested for usage with gases.

Final decision about usage and ensuring of safety and proper function of the units is always solely under responsibility of customer.