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Required Filtration for Parker Membrane Modules

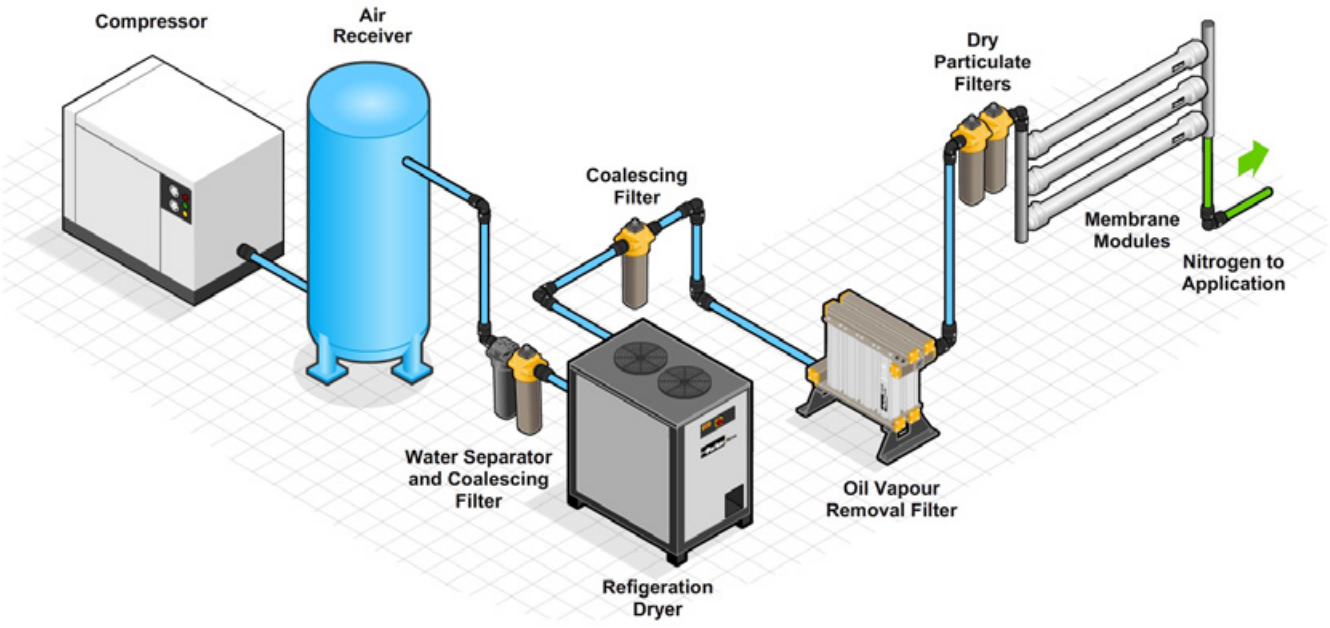
Technical Bulletin

To ensure a long life for Parker membranes modules, feed-air needs to comply with the following specifications:

Particles:	filtered at 0.01 µm cut off ISO8573-1:2010 Solid Particulate class 1
Residual oil content:	<0.01 mg/m^3 ISO8573-1:2010 Oil class 1
Relative humidity:	< 100% (non condensing)
Air quality:	clean air treated by an active carbon bed type absorber to remove solvents, hydrocarbons, ozone etc.

Generally to ISO8573.1:2010 class 1.4.1. If ambient temperature is below 8°C then a desiccant dryer is recommended.

To reach this feed-air quality the following system set-up is advised:



Compressor

Due to varying nitrogen or oxygen enriched-air demands, the feed-air requirements will also vary. Parker advises to use a variable speed screw compressor to get the highest efficiency and best working conditions for the compressor. At pressures of 7 to 8 barg, standard industrial screw compressors have their highest efficiency which is also the most optimal pressure with the lowest energy use for the Parker membranes modules.

Air receiver

In case a variable speed screw compressor is used, it is not necessary to use an air receiver. When a non-variable speed compressor is used with an air receiver, the receiver must be of such a size that the compressor will not switch on and off at a high frequency as this will cause increased oil carryover.

Water separator

A water separator is recommended when it is unsure whether liquid water can be carried over. The downstream coalescing filters are not designed to remove bulk water. In case that pipework between air receiver - dryer is short and pipework is indoors a water separator can be void.

Refrigerant dryer

A refrigerant dryer is sufficient to lower the dew point to an acceptable level. When a nitrogen or oxygen enriched-air system is located in an environment where the temperature cannot drop below 8°C a refrigerant dryer that creates a dew point of 3°C is sufficient. Should the feed-air temperature drop below 8°C, another drying method is required, for example an adsorption dryer. The refrigerant dryer should be sized correctly and should be equipped with sufficient condensate removal.

Filtration

To filter the feed-air to the specified quality the following filters are needed:

Coarse coalescing filter
A coarse coalescing filter for 1 Micron particles.

This filter is normally located before the refrigerant dryer or the fine coalescing filter.

Fine coalescing filter
A fine coalescing filter for 0.01 Micron particles. This filter is normally located after the refrigerant dryer or the coarse coalescing filter.

Carbon absorber, bed-type
An activated carbon absorber, bed-type filled with carbon granulates.

Filters with an active carbon element are not sufficient for the protection of nitrogen membrane modules.

Dust filter
Because a carbon bed can cause dust, particulate filtration is needed. Dependent of the dust carry-over of the bed, one fine filter, or coarse and fine filter are needed, whichever is appropriate to meet the requirements.

General
All filters should be sized correctly for the application.

Maintenance and filter element change must be carried out following the applicable instructions and in line with the application.

Depending on the system requirements Parker has a wide range of compressed air pre-filtration products to select from.

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