

HPC

Compressed
Air Systems

farm to table - food grade compressed air - food production & processing - customer confidence - health & hygiene



food production & processing - customer confidence - health & hygiene - farm to table - food grade compressed air

A GUARANTEED SOLUTION TO FOOD GRADE COMPRESSED AIR



Food Grade Compressed Air

A code of practice covering the use of compressed air in the food industry has been developed between the British Retail Consortium and the British Compressed Air Society. The code gives minimum quality standards for compressed air and defines allowable levels for dirt, water and total oil in line with quality levels specified in ISO8573.1 the international standard for compressed air quality.

Quality Levels

Section 6 of the code of practice provides air quality standards for compressed air that is either in direct contact with food (specified in section 6.1 as contact) or air that could come in contact with food (specified in section 6.1 as non-contact).

Air Quality Recommendation	Dirt (Solid Particulate) Max Number of Particles per m ³			Humidity (Water Vapour)	Total Oil (Aerosol + Vapour)	ISO8573.1 Equivalent
	0.1-0.5 micron	0.5 - 1 micron	1 - 5 micron			
Contact	100,000	1,000	10	-40°C PDP	< 0.01 mg/m ³	Class 2.2.1
Non - Contact	100,000	1,000	10	+3°C PDP	≤ 0.01 mg/m ³	Class 2.4.1
Non - Contact High Risk	100,000	1,000	10	-40°C PDP	≤ 0.01 mg/m ³	Class 2.2.1

Reference Conditions from ISO8573.1 : Absolute atmospheric pressure 1 bar, Temperature = 20°C.
Humidity is measured at air line pressure.

In addition, section 6.2 gives advice on assessing microbiological contamination.

Lubricants

Section 5.4.4a of the Code of Practice states 'Where lubricated or oil-injected compressors are in use and non-food grade oil is used and the HACCP process identifies a risk, then the oil shall be replaced with food grade oils in line with the procedures identified in the EHEDG Document 23.'

A Guaranteed Solution to Food Grade Compressed Air

Compressed Air and its Purification

General Systems

It is often believed that the compressed air purification equipment required is dependent upon the type of compressor used. In fact, the contamination in a compressed air system (dirt, water and oil) comes from many sources such as, the ambient air, compressor lubricants, corrosion of the distribution piping and microbiological growth in the warm, moist air.

A common misconception is that by installing an 'oil free' compressor there is no need for downstream filtration. However, the term 'oil free' simply means that oil is not used in the compression chamber and therefore does not come into contact with the air being compressed. Even with an oil-free compressor, filtration will be required to remove dirt, condensed water and oil vapour drawn into the compressor intake as well as dirt present from the distribution system.

Coalescing Filters

Aerosols (droplets) of oil and water are removed using coalescing type filters which have the additional benefit of removing solid particulate to very low levels (as small as 0.01micron in size). In a typical oil lubricated compressed air system, up to 99.5% of the liquid removed by coalescing filters is water.

Adsorption Filters

Oil vapour will pass through the coalescing filter just as easily as the compressed air itself. Oil Vapour Removal (OVR) filters provide a large bed of activated carbon adsorbent for the removal of oil vapours and provide final protection against oil contamination.

Refrigerant Dryers

Refrigerant dryers provide water vapour removal with a pressure dewpoint of +3°C. Ideal for general purpose compressed air and air not in direct contact with food.

Adsorption Dryers

Adsorption dryers provide water vapour removal with a pressure dewpoint of -40°C (-70°C optional). A compressed air dewpoint of less than -26°C will inhibit the growth of micro-organisms within the compressed air system.

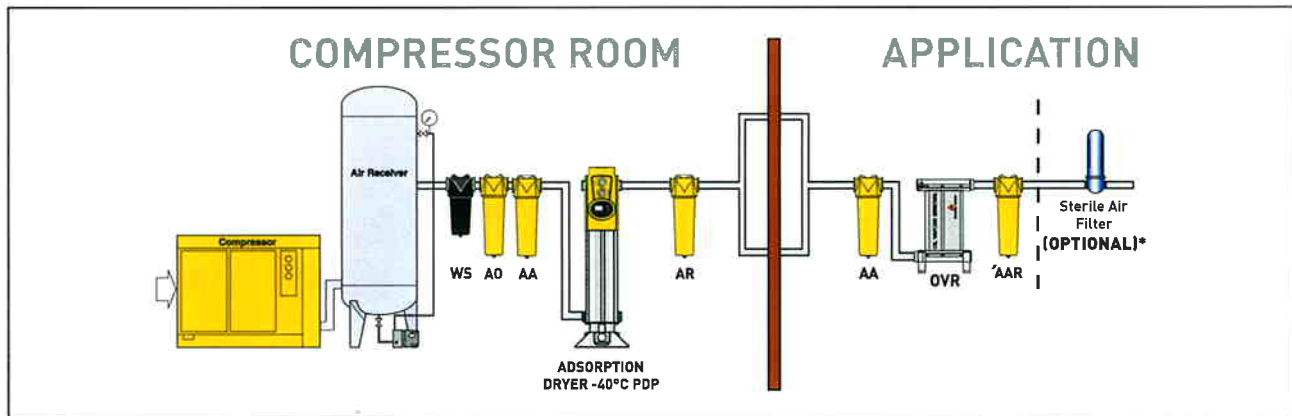
Microbiological Filters

Where HACCP has established a risk, specific filtration is available to provide sterile compressed air. Steam sterilisable filters provide absolute removal of micro-organisms.

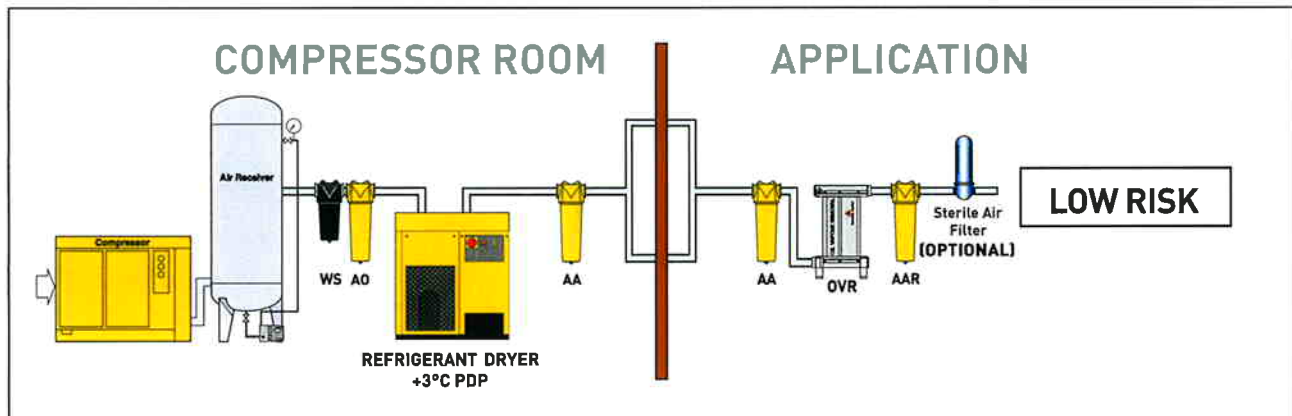
System Design

To achieve the stringent air quality levels required for food manufacture, a careful approach to system design, commissioning and operation must be employed. It is highly recommended that the compressed air is treated prior to entry into the distribution system as well as at each usage point or application. This approach to system design provides the most cost effective solutions to food grade compressed air as shown in the examples below.

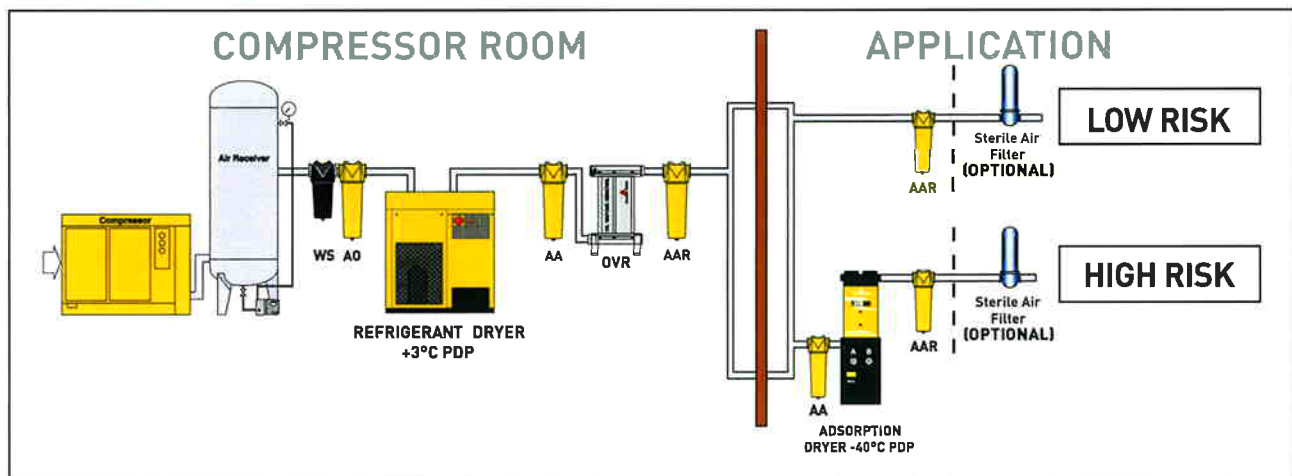
CONTACT



NON-CONTACT



NON-CONTACT



Air Quality Recommendation	Dirt (Solid Particulate)	Humidity (Water Vapour)	Total Oil (Aerosol & Vapour)
Contact	HPC EVOLUTION GRADE AO + AA	Adsorption Dryer -40°C PDP	HPC EVOLUTION GRADE AO + AA + OVR
Non - Contact Low Risk	or HPC EVOLUTION GRADE AR + AAR	Refrigerant Dryer +3°C PDP	
Non - Contact High Risk	For dry particulate	Adsorption Dryer -40°C PDP	

KEY:

WS - BULK LIQUID REMOVAL / HPC EVOLUTION Grade AO - GENERAL PURPOSE COALESCING FILTER / HPC EVOLUTION Grade AA - HIGH EFFICIENCY COALESCING FILTER / HPC EVOLUTION Grade AR - GENERAL PURPOSE DUST REMOVAL FILTER / HPC EVOLUTION Grade AAR - HIGH EFFICIENCY DUST REMOVAL FILTER / OVR - OIL VAPOUR REMOVAL FILTER / STERILE AIR FILTER (OPTIONAL)

*Steam sterilisable absolute particle retention filter (optional when specified by user).

Guaranteed Air Quality

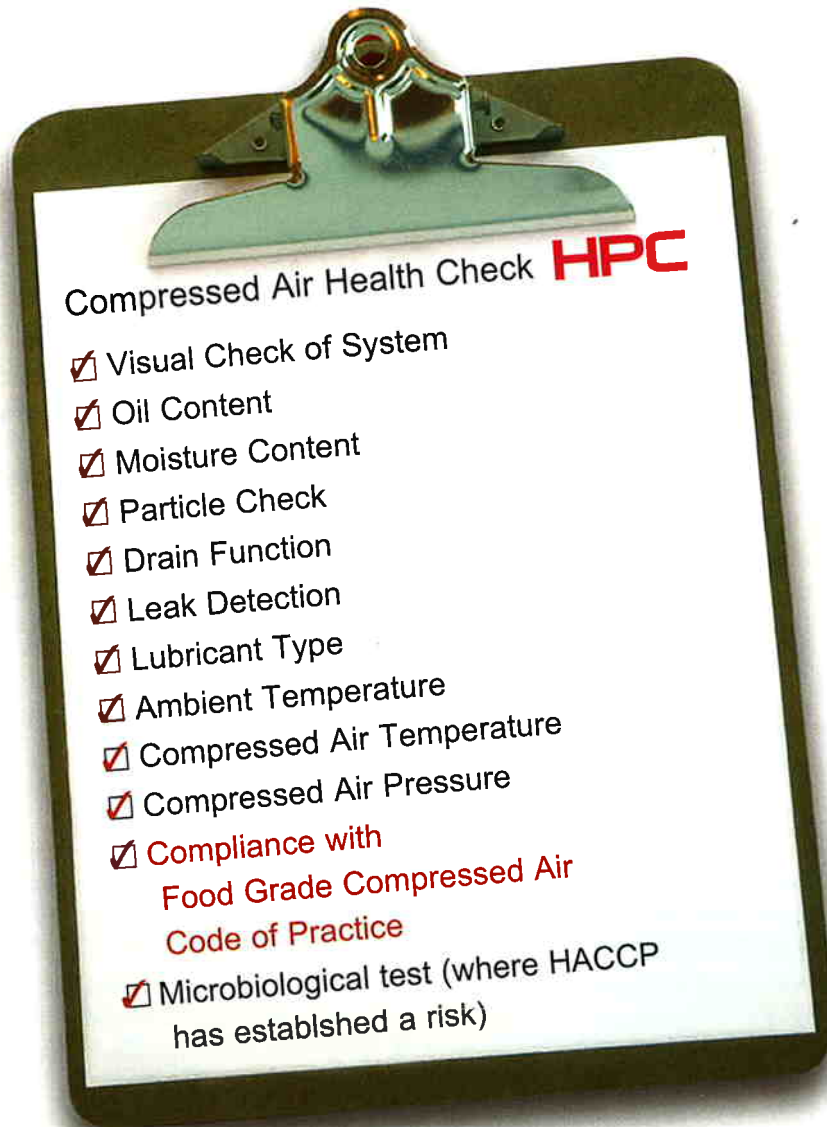
All air treatment products are supplied with a one year compressed air quality guarantee, when sized, installed and maintained in accordance with HPC recommendations.

Measurement and Testing

Section 7 of the code of practice requires systems to be tested twice per year by qualified personnel with specialised equipment. As a full customer service organisation, HPC can carry out a complete compressed air system health check and provide a full range of cost effective, tailored maintenance programmes which will satisfy the testing requirements of the code.

Compressed Air Health Check

For a complete system health check and details of maintenance programmes available, contact HPC or an HPC Authorised Distributor.



www.hpccompressors.co.uk

For further details or advice relating to this summary leaflet, to the 'Food Grade Compressed Air - A Code of Practice' document that this leaflet refers to or for any other assistance involving compressed air and equipment, please contact HPC on

0845 430 0472

HPC

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Air Systems

HPC Compressed Air Systems

Victoria Gardens, Burgess Hill, West Sussex RH15 9RQ

Tel: +44 (0)1444 241671 • Fax: +44 (0)1444 247304

info@hpcplc.co.uk • www.hpccompressors.co.uk



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