

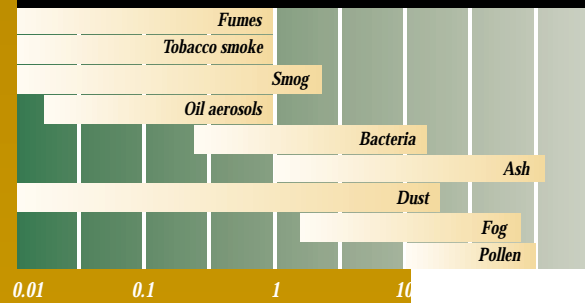
# Oil and Particulate Contamination



***Sullair  
Compressed  
Air Filters  
and Drains  
Solve the  
Problem.***

# problem:

Particle (micron) size of some common substances



## Particles in the air

- Particulates in the atmosphere include hydrocarbons from unburned engine fuel, power plants, oil-burning installations and refineries.
- Particles from steel mills, foundries and related industries are also in the atmosphere.
- Living and dead plants and organisms also add pollutants to the air.
- These particles are invisible, except when they collect and form, for example, puffs of smoke or clouds of dust.
- Over the clean mid-Pacific Ocean, there are approximately 26 million particles per cubic foot.
- In normal air, there are approximately 173 million particles per cubic foot.
- In dirty industrial air, there are nearly 9 billion particles per cubic foot.

## Pollutants in compressed air.

- The earth's atmosphere is transparent, tasteless and odorless, but it contains dust, pollen, water vapor, gaseous hydrocarbons and other pollutants.
- Inlet filters don't stop the pollutants, so they are passed into the compressor.
- Centrifugals, dry screws and "oil-free" reciprocating compressors can condense gaseous hydrocarbons into hydrocarbon aerosols.
- Lubricated compressors add oil aerosols to the airstream.
- All compressors condense water vapor into liquid water and contribute wear particles to the airstream.
- These contaminants can damage your product and foul your air-using devices and systems.
- The extent of potential damage depends upon your application and compressed air piping arrangement.

*A 1.0 micron particle is invisible without magnification. It takes 10 million particles 1.0 micron in diameter to cover a 1/8" dot. ● When you understand the minute size of microns, you can appreciate the complexity of submicron particulate removal.*

● If .01 micron is this big...

then .1 micron is this big...

and this arc is part of a full 1.0 micron.



# *the Sullair solution:*



## Compressed air filters.

- Compressed air filters are needed to remove atmospheric particulate, compressor wear particles, lubricant aerosols, odors and other submicron contaminants.
- Filtration equipment includes pre-filters, lubricant-removal filters and odor-removal filters.
- The type, number and placement of filters depend on the applications and the degree of contaminant removal required.

Sullair filters protect your plant equipment and processes, improve your product quality and reduce your energy costs. Sullair offers filters for general purpose compressed air and for high quality compressed air for instrumentation, food processing and pharmaceutical production. Sullair filters are available from 13 to 7000 scfm, 15 to 290 psig, 35°F to 250°F, ISO 8573.1 quality classes.



**Particulate pre-filters: MPF, PF (MPR, PR reversed-flow afterfilters)** High-efficiency pre-filters (after-filters) remove particles to 1 micron, including coalesced liquid water and lubricants. Maximum remaining aerosol content after filtration is 0.5 ppm @ 70°F.

**High efficiency filtration: MPH, PH** For maximum filtration, Sullair offers compressed air filters to remove particulate, and water and lubricant aerosols to a level of 0.01 ppm @ 70°F, when used with pre-filters.

**Odor removal: MPC, PC** Sullair filters use activated carbon to remove lubricant and hydrocarbon odors. After filtration, remaining vapor content is less than 0.003 ppm (excluding methane). This filter installation should always be preceded by high efficiency filter grades.

**Combination filters: MPHc** This package combines high efficiency and odor-removal type filters in one housing.

**Packaged systems: MPCr, PCR** These systems combine first- and second-stage filtration that provides compressed air that is cleaner than the inlet air to the compressor. Filters are fitted with automatic traps for liquid removal. The system is equipped with monitors for system operation.





# *the inside story*

## the element

### Anti re-entrainment barrier

Highly efficient.  
Prevents fluid and water carryover.  
Compatible with mineral- or synthetic-based fluids.

### Borosilicate glass microfibers

actively repel fluid and water to reduce pressure drop and reduce operating costs to a minimum.

### Positive O-ring seal

Airtight.  
Prevents contamination by-pass.

### 96% voids volume

gives long life with minimum energy costs.

## the housing

### Differential pressure gauge

Direct mounting with remote sensing option.  
Calibrated for accurate running cost measurement.  
Standard on all filter sizes 125 and above.  
Sizes 20-65 have differential pressure indicator.

### Audible warning

from pressure relief hole sounds if any attempt is made to remove bowl while under pressure.

### Corrosion protection

Aluminum is treated inside and out with Alocrom.  
Baked-on epoxy paint provides extra-long life.

### Automatic drain valve

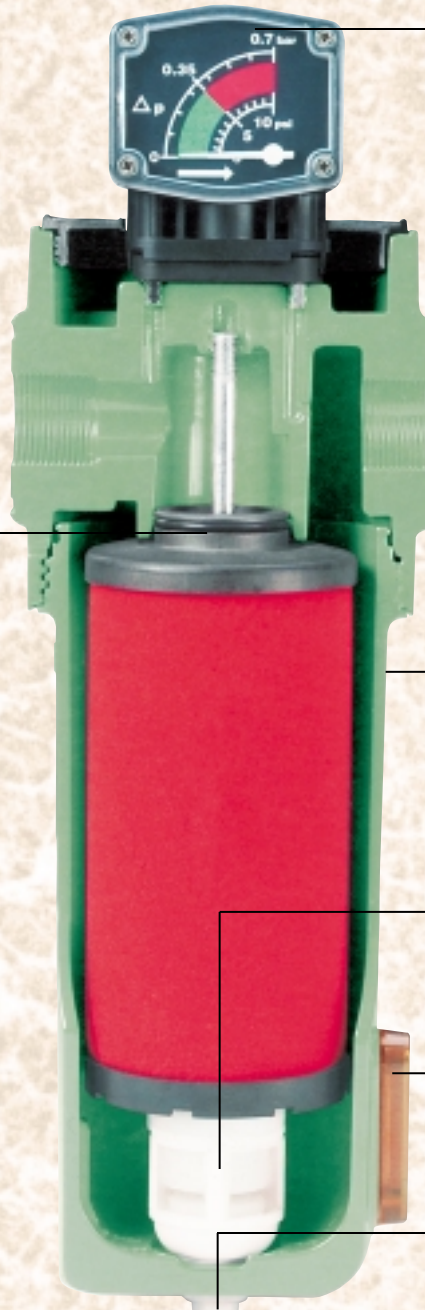
Collected condensate is always removed.

### Sight glass

provides a visual check of liquid collection and drain function.

### Bleed valve

Provides rapid depressurization.  
Automatic drain function.



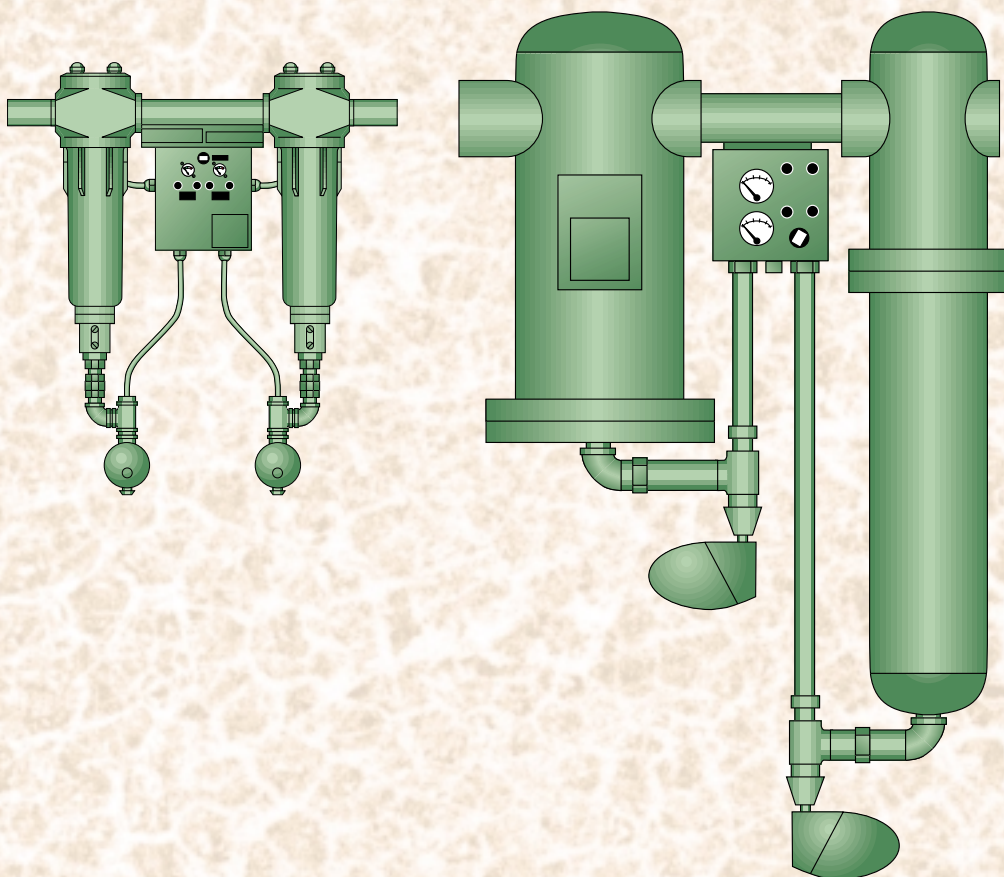


# *packaged systems*

## **MPCR and PCR contaminant-removal systems.**

The MPCR and PCR combine a first-stage MPF or PF grade filter and a MPH or PH grade filter into a complete packaged system that provides compressed air cleaner than the inlet air to the compressor. Both systems are fitted with automatic traps for liquid removal. This unique Sullair system is equipped with monitoring and indicating devices.

These devices include a first- and second-stage filter differential pressure gauge for analyzing the system's operation; first- and second-stage filter high differential pressure warning lights; first- and second-stage clogged trap warning lights with an audible alarm; and power-on light.



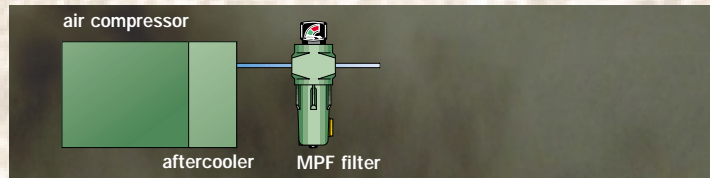


# air quality standards ISO 8573.1 classes

quality class	dirt Particle size in microns	water Pressure dew point °F @ 100 psig (ppm vol.)	oil (Including vapor) ppm	quality class	dirt Particle size in microns	water Pressure dew point °F @ 100 psig (ppm vol.)	oil (Including vapor) ppm
1	0.1	-94 (0.3)	0.01	4	15	37 (940)	5
2	1	-40 (16)	0.1	5	40	45 (1240)	25
3	5	-04 (128)	1.0	6	—	50 (1500)	—

## General purpose protection

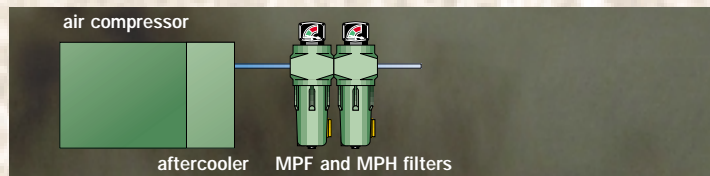
Air quality to ISO 8573.1  
Class 2 (dirt), 3 (oil)  
Particles <1 micron  
Oil content <0.5 ppm



Bulk liquid and solid removal  
Particle removal only

## Oil-Free air

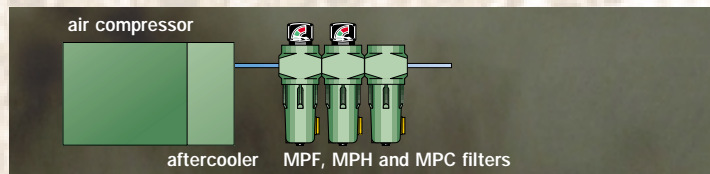
Air quality to ISO 8573.1  
Class 1 (dirt), 1 (oil)  
Particles <0.01 micron  
Oil content <0.01 ppm



High quality compressed air  
Pre-filter for adsorption type dryers  
Pr-filter to sterilization filters  
MPF is pre-filter for MPH

## Critical applications

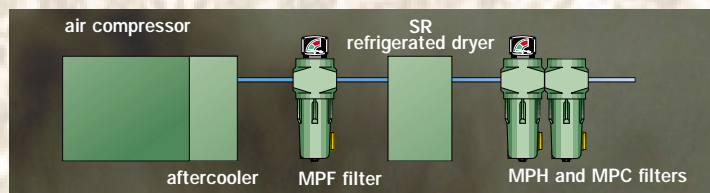
Air quality to ISO 8573.1  
Class 1 (dirt), 1 (oil)  
Particles <0.01 micron  
Oil content <0.003 ppm



Highest quality compressed air  
Food processing and packaging  
Beverage production  
Pharmaceutical production

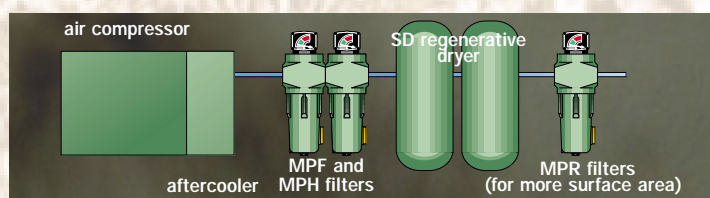
## Low dew point

Air quality to ISO 8573.1  
Class 1 (dirt), 4 (water) 1 (oil)  
Highest quality compressed air  
clean, oil-free and odor-free  
Pressure dew point +6°F (+35°C)



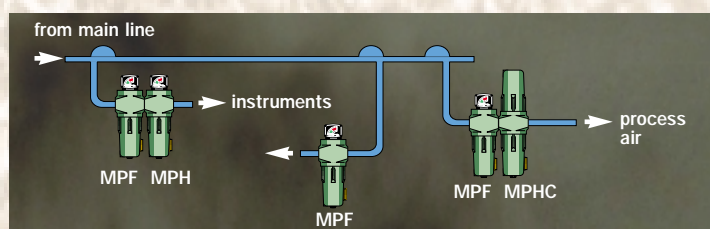
## Extremely low dew point

Air quality to ISO 8573.1  
Class 1 (dirt), 2 (water) 1 (oil)  
Pressure dew point -40°F (-40°C)



## Point-of-use filtration

Where no mainline filters are installed upstream.



MPC and MPH or MPH  
Combination for Process Air  
MPH for Instrumentation  
MPF for Hand Tools and Spray Painting

# *Sullair SCD* condensate drains

## Standard features

- Intelligent sensing system operates with all levels of condensate.
- Maximum corrosion protection; suitable for all compressor types.
- IP65/NEMA 4 Ingress Protection Rating.
- Large inlet connections minimize blockage and air locks.
- Remote alarm indicates blockage, overflow and power loss.



## Reliable and energy efficient.

Because they have no mechanical sensor parts, Sullair SCD condensate drains are extremely reliable. They are economical as well, because they do not release valuable compressed air.

## For all types of condensate.

Intelligent capacitive sensing works with all types of compressed air condensates such as 100% oil, 100% water or any level of emulsification, including corrosive oil-free condensates.

## SCD benefits.

- Removes liquid condensate efficiently.
- Intelligent Sensing System (ISS) knows when the unit has failed to drain. After ten pulses, remote alarm indicates blockage, overflow and power loss. (Not available on SCD-100.)
- Removes risk of condensate carryover.
- Protects downstream equipment and processes.
- Long service intervals with safe, easy maintenance.

## Wide range.

SCD-100 and SCD-200 compact drains complement Sullair filters, water separators and small refrigeration dryers. SCD-300, SCD-400 and SCD-500 are designed for higher condensate volumes, as in compressor intercoolers, aftercoolers, air receivers, refrigeration dryers and large separators.

# Sullair oil-free guarantee

Sullair Compressor  
+ Sullair Dryer  
+ Sullair Filters  
= Oil-Free Air.

Sullair guarantees it.

## Responding to your needs

To meet the increasingly stringent air quality requirements for instrumentation, process equipment and other sophisticated applications, Sullair developed a compressed air system that is virtually contaminant-free.

## The Sullair Oil-Free System.

The Sullair Oil-Free System matches a Sullair compressor, a Sullair dryer and Sullair filters. Dry air is filtered to remove atmospheric particulate, aerosols and other pollutants to provide compressed air for the most critical application. The System delivers air that contains particulates no larger than 0.01 micron with a maximum remaining oil aerosol content of 0.003 Parts per Million by Weight (PPM/W), including oil vapor.



## Instrument quality air.

The air from the Sullair Oil-Free System meets the most stringent ISO standard (ISO 8573.1) for air quality. The system is not intended to remove carbon monoxide, methyl isocyanate or other noxious, corrosive or toxic gases, vapors or fumes. The system does not provide breathing air.

## The Sullair Oil-free Guarantee.

Sullair assures that this Oil-Free System will meet specific performance levels throughout its operational life. We offer a one-year test/review period—backed by a purchase refund guarantee—to verify performance of the Sullair Oil-Free System.



Member



[www.sullairsolutions.com](http://www.sullairsolutions.com)

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