

SULLAIR AIR TREATMENT

Filtration, Mist Elimination, Oil/Water Separators, Drains



SULLAIR[®]

Always air. Always there.[®]

ABOUT SULLAIR

For more than 50 years, Sullair has been on the leading edge of compressed air solutions. We were one of the first to execute rotary screw technology in our air compressors. And our machines are famous all over the world for their legendary durability. As the industry moves forward, Sullair will always be at the forefront with quality people, innovative solutions, and air compressors that are built to last.

Sullair was founded in Michigan City, Indiana in 1965, and has since expanded with a broad international network to serve customers in every corner of the globe. Sullair has offices in Chicago and manufacturing facilities in the United States and China — all ISO 9001 certified to assure the highest quality standards in manufacturing.

We have centered our operations around three key pillars: innovation, durability and people.

INNOVATION

Sullair has a long history of breakthrough solutions, from cutting-edge rotary screw technology in our air compressors to premium lubricants including the 10,000-hour Sullube®. We continuously explore new ideas and technologies to find better, more energy efficient compressed air solutions. Our customers recognize this innovative history and look for more to come.

DURABILITY

Our customers describe Sullair air compressors as bulletproof — and the proof can be viewed on roadsides. Do you ever see well-used Sullair compressors on construction sites? That's because they are still running! We have profiled a number of our customers including a factory owner in Rockford, Illinois, who has used the same Sullair compressor since 1979, and we know there are others out there operating even older units.

PEOPLE

At the end of the day, the people are what tie all of this together. We are proud to say that Sullair employees, our experienced distributors and our loyal customers are Always There.

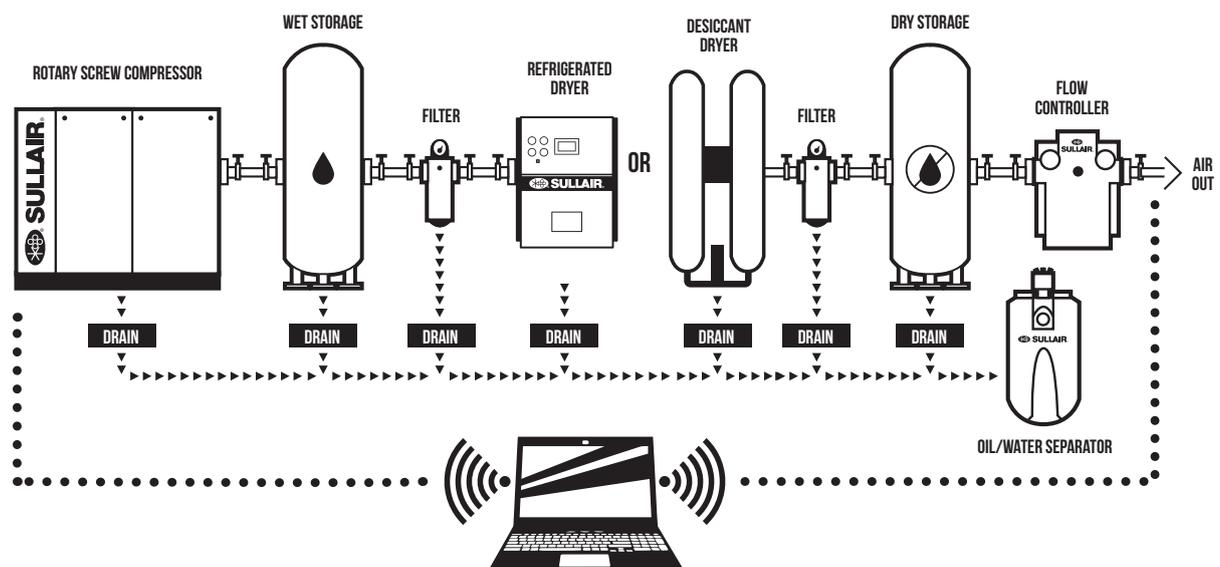
THE IMPORTANCE OF CLEAN, DRY COMPRESSED AIR

HOW MUCH WATER IS TOO MUCH? ANY AMOUNT OF WATER IS TOO MUCH.

Water jeopardizes everything you want your compressed air system to do. It ruins product and fouls processes. Removing it is vital in order to protect both your equipment and your operations.

- Moisture in compressed air remains in a vapor state through the compression cycle, so it is not a problem until it leaves the compressor.
- At 75°F (24°C) and 75% relative humidity, a 75 hp compressor takes in 46 gallons of water vapor in 24 hours. When this air is cooled to approximately 35°F (2°C) at 100 psig, the water vapor condenses into 46 gallons of liquid.

A well-designed air treatment system has a number of critical stages, each contributing to the goal of clean, dry air. The following diagram represents a sample of a complete system from start to finish. For more information on dryers, visit Sullair.com.



COMPRESSED AIR FILTRATION AND MIST ELIMINATORS



Sullair Family of Filtration

- Superior filtration from 1 micron to .01 micron
- Durable element construction
- Efficient drain layer ensures continued performance after optimal element change periods

Particulate Filters: F and FR Elements

- High efficiency filters remove particles to 1 micron, including coalesced liquid water and lubricants
- Maximum remaining aerosol content after filtration is 0.5 ppm at 70°F (21°C)

High Efficiency Coalescing Filtration: H and HR Elements

- Maximum filtration to remove particulate down to 0.01 micron, including water and oil aerosols. Maximum remaining oil aerosol content of 0.01 ppm at 70°F (21°C), when used with Sullair particulate filters

Vapor Removal: C Elements

- Filters with activated carbon remove lubricant and hydrocarbon odors
- Remaining vapor content is less than 0.003 ppm (excluding methane)
- This filter installation should always be preceded by high efficiency filter grades

High Pressure: HP Element

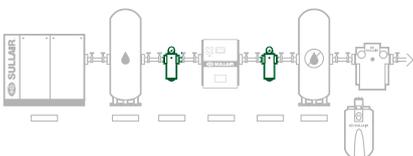
- Filters are available for pressures up to 725 psig (49.9 bar)

High Temperature: HT Element

- Filters are available for temperatures up to 350°F (176.6°C)

Ultra Filter: U Element

- For sensitive and high-end applications including pharmaceutical grade, Sullair offers the Ultra Filter, an absolute high efficiency particulate filter. (0.01 Micron Absolute)



*FX = Standard NPT inlet and outlet ports
(BSP optional)*

FW = Flange inlet and outlet ports



SULLAIR COMPRESSED AIR FILTERS

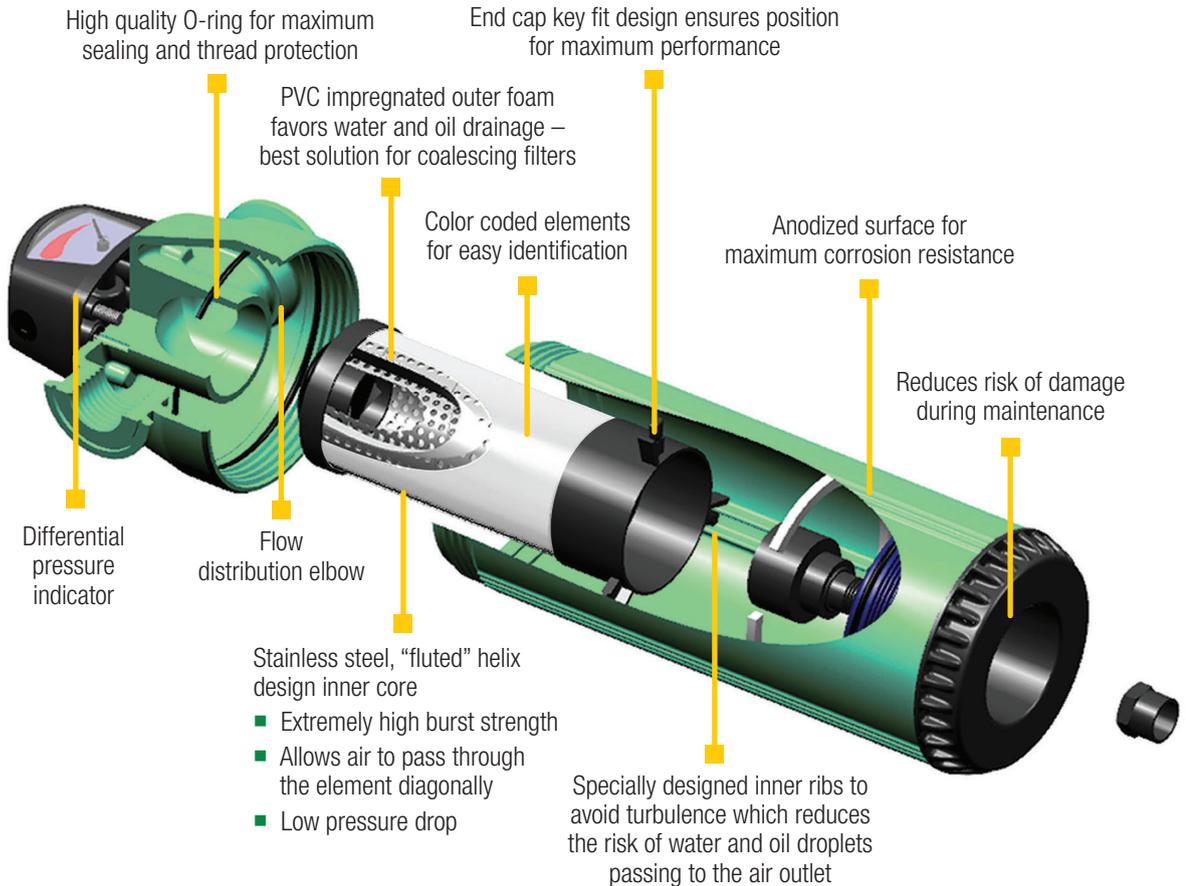
Sullair Family of Filtration

Sullair filters protect your plant equipment and processes, improve your product quality and reduce your energy costs. Sullair offers filtration products in an application range from general purpose air to the most stringent food and pharmaceutical applications. Sullair filters are available from 25 to 17,700 scfm, 15 to 725 psig, and 36°F (2°C) to 350°F (177°C).

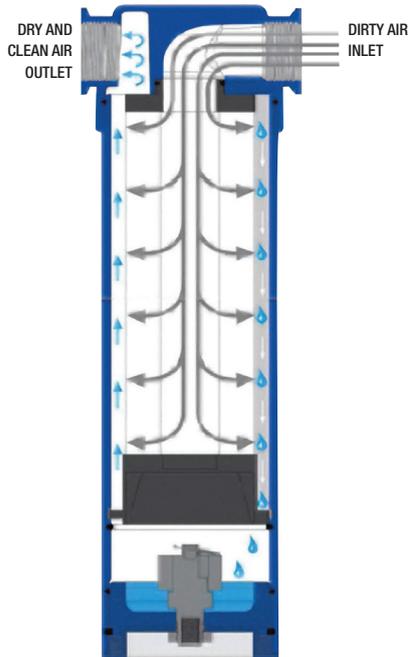
- Filtration equipment includes pre-filters, high efficiency filters, high-pressure high-temperature and odor-removal filters
- The type, number, and placement of filters depend on the applications and the degree of contaminant removal required
- Certifications: ISO 8573-1, ASME, CRN

Element Features

- 7 element types
- Superior construction
- Efficient drainage layer
- Hydrophobic micro fiber
- Deep pleats
- Stainless steel cores
- Special disruptive pattern
- PVC impregnated layer
- End cap key fit



STATE OF THE ART FILTER ELEMENT AND FEATURES



The Sullair range of compressed air filters is designed from the outset to meet current and forthcoming requirements for compressed air quality. Using aerospace technology, Sullair has optimized the flow path through the housing and element, significantly reducing air turbulence and pressure losses. Providing an optimal flow path is key to reducing pressure drop and system operating costs.



Drainage Ribs

Filter housing and element integrate to provide capillary action which greatly improves liquid drainage. Interaction between housing and element also ensures maximum coalescing performance is achieved at all times.



Recessed Drain

Specially designed auto drain system protects the auto drain against damage during shipping, handling and installation.

THE FILTRATION PROCESS

Deep Bed Pleating

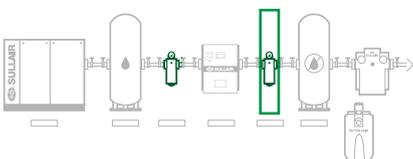
For particle and aerosol removal, deep bed pleating provides 450% more filter media than an ordinary element, giving a larger filtration area, lower flow velocities, increased dirt holding capacity, lower running costs and a more compact filter element. Graded density further improves filter life and overall performance.

Oil Vapor Removal

While mechanical filtration is capable of removing extremely fine liquids and solid particles, it cannot remove gaseous contaminants such as oil vapor or odors. To efficiently remove these vapors, Sullair FXC and FWC filters employ adsorption techniques.



Micro-glass filter media



SULLAIR MIST ELIMINATORS



The time-tested range of Sullair Mist Eliminators combines extensive research and development with decades of experience in compressed air treatment.

Sullair now offers the ideal solution to ever increasing demands from the industry for clean, high quality compressed air, efficient removal of oil-mist carryover from piston or oil flooded rotary compressors.

Compressed air processing equipment must have a very low pressure drop, long service life, and be strong enough to withstand the most harsh operating conditions. Protection from slugs of oil or compressor air/oil separator failure is essential.

The range of Mist Eliminators is specifically designed to meet these demands and will optimize oil removal while ensuring extremely low pressure drop and long service life.

Element

- Ultra low .05 psi differential
- High load factor compared to conventional hand packed media which is prone to poor performance under varying load conditions
 - Provides 9–10 times greater filtration surface area, greater dirt holding capability and lower pressure drop
 - Eliminates migration of airflow to area of least resistance, also known as “channeling”
 - Eliminates the shedding of media
 - Consistent quality
- Strong stainless steel support sleeve construction
 - Eliminates rust and corrosion which can contaminate the air system
 - Integral support of the filtration media to eliminate bypass of contaminants
- For the removal of particles down to 1 micron including coalesced liquid water and oil providing a maximum remaining oil aerosol content of 0.5 ppm

Special machine pleated element construction

The machined pleating of the filter media increases its stability under changing loads and reduces the specific surface tension.

Low Pressure Drop and Operating Costs

The Sullair Mist Eliminator’s pressure drop is one of the lowest available at 0.5 psi which is typically 4 psi lower than conventional filters. This provides significant energy savings based on the rule of thumb that for every 2 psi pressure drop that is eliminated, a 1% energy reduction in compressor horsepower is achieved.

Therefore annual energy savings would be:

4 psi = 2% savings in lost compressor power

Annual energy savings on 100 hp system

$\$0.05/\text{kWh} \times 8760 \text{ hours} \times 74.6 \text{ kW} \times 2\% = \$ 653$

$\$0.08/\text{kWh} \times 8760 \text{ hours} \times 74.6 \text{ kW} \times 2\% = \1046

$\$0.10/\text{kWh} \times 8760 \text{ hours} \times 74.6 \text{ kW} \times 2\% = \1307

SP OIL/WATER SEPARATORS



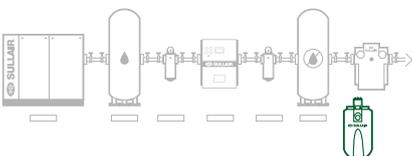
FEATURES AND BENEFITS

- Less than 10 ppm guarantee
- Rugged HDPE construction
- Easy installation
- Place it and forget it
- Maintenance free
- No pumps, sensors, or pre-separation filter pads
- No messy element changes
- No power consumption
- No fumes
- No odors
- Disposal as non-hazardous special waste
- Environmentally considerate

SP's are proven to handle condensate containing these common compressor lubricants (including emulsified and silicone condensate solutions):

- Polyglycols
- Diester-based lubricants
- PAO-based lubricants
- Glycol-based lubricants
- Silicone-based fluids (++)
- Hydraulic lubricants
- Food grade lubricant
- Mineral-based lubricants

++ Silicone Pak required on most models



THE PERFORMANCE OF SULLAIR SP OIL/WATER SEPARATORS



The Problem

Compressed air systems generate liquid condensate that is a combination of water, oil and various other contaminants. Failure to remove these contaminants is bad for the environment and risks substantial regulatory penalties and costly remediation.

For example: A 1000 cfm (1700 m³/hr) compressor with a refrigerated dryer can produce over 57,000 gallons of condensate per year. One gallon of oil can cover 4 acres of water surface. This oil:

- Inhibits the operation of water treatment plants by choking bacteria used for sewage digestion
- Kills plants, fish and animals by reducing oxygen in water

The Green Solution

SP model Oil/Water Separators are engineered molecular filtration solutions for condensate discharge problems. These units are designed for molecular filtration of condensate, including emulsified lubricant solutions. SP units have a Performance Guarantee of less than 10 ppm oil carryover.

SP model Oil/Water Separators are engineered to minimize maintenance and reduce the cost of dealing with wastewater streams. This advanced molecular filtration system removes all types of lubricants, providing a truly scientific solution to the condensate problem.

SP units are filled with a media bed formulated to attract and hold contaminants, while at the same time repelling water molecules. Wastewater passes through the media bed and traps the contaminants. The lubricants are actually bonded to the media bed, virtually eliminating the possibility of ground water contamination from the spent bed.

Unlike gravity-type oil/water separators that use elements and time to pre-filter condensate, the SP units need no pumps, sensors or pre-separation filter pads. In addition, the rugged internal piping and a fail-safe decompression chamber assure proper operation.

All SP Oil/Water Separators contain media of the highest quality substrate. The media is a product of a proprietary sequenced process that applies the proper layers under tight quality assurance standards.

In most cases, used SP unit disposal can be managed by a regular waste management pick up service, provided the proper paperwork is completed.

DRAINS



FEATURES AND BENEFITS

The Ultra — Zero Air Loss Drain

- Zero air loss during the discharge cycle
- Compressed air systems up to 3600 scfm (101.9 m³/min)
- Simple to install, easy to maintain
- Many programmable features
- Integrated mesh strainer
- Valve is fully serviceable
- Anti-air lock

The Mini — Zero Air Loss Drain

- No electricity required
- Zero air loss during the discharge cycle
- Designed for any size downstream filters
- Simple to install, easy to maintain
- Valve is fully serviceable

Timed Solenoid Drain

- Does not air lock during operation
- Works with any size system
- Dual thread inlet
- Valve is fully serviceable
- Mounting can be vertical or horizontal
- Built-in test feature
- UL/CUL approved

SULLAIR DRAIN FAMILY

The Ultra – Zero Air Loss Drain

The Ultra is designed to remove condensate from compressors and dryers up to 3600 scfm capacity. The operation is automatic and there is zero air lost during the condensate discharge cycle.

The Ultra also offers many programmable features to allow it to be customized to the application. Alarm contacts can be programmed N.O. or N.C. Service alarm interval can be set, anti-air lock feature can be set, as well as many other features. It also offers an array of fault alarms should the drain stop functioning correctly.



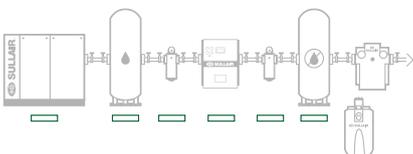
The Mini – Zero Air Loss Drain

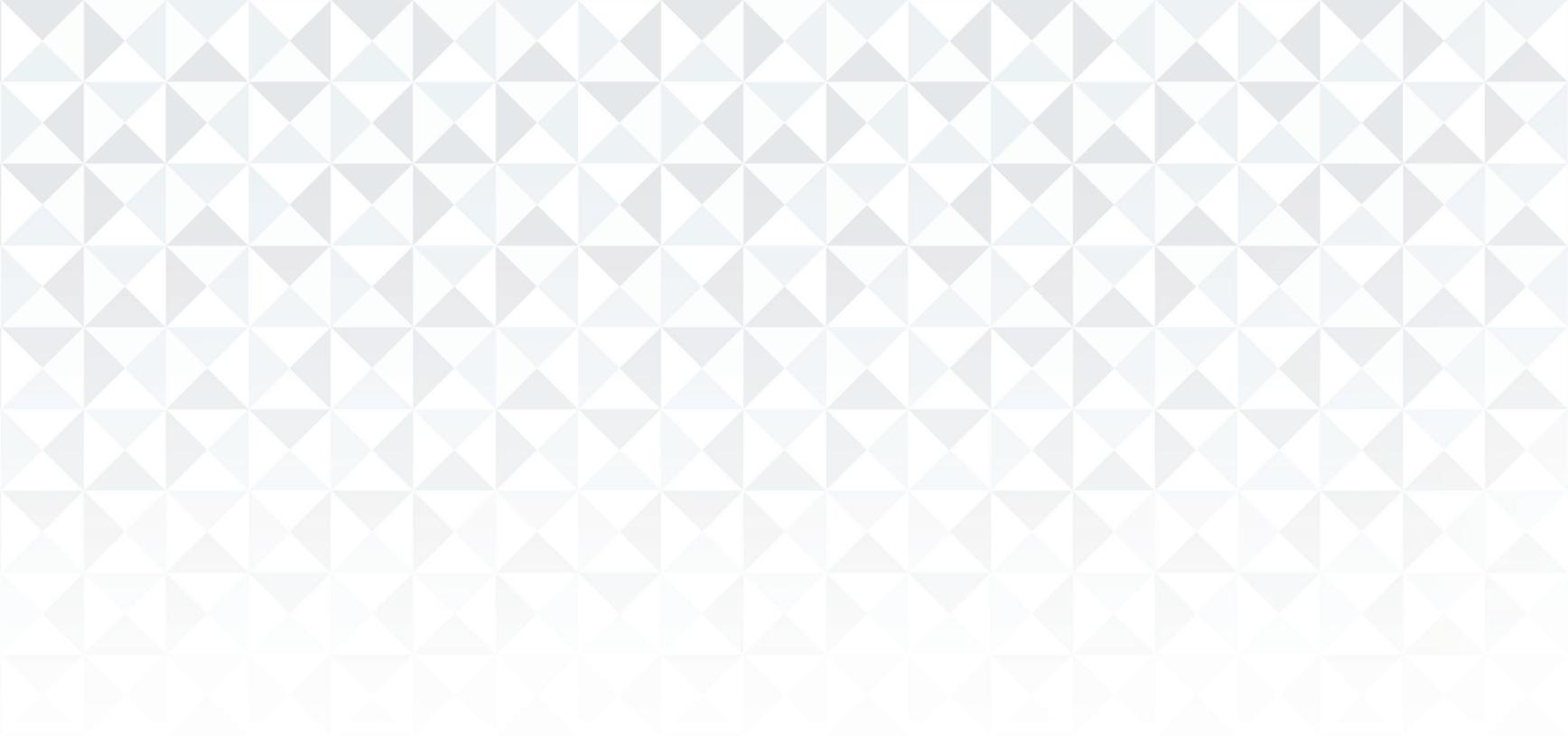
The Mini is designed to remove condensate from air filters up to any size and type. It utilizes internal magnets for its power source requiring no electrical power. The operation is automatic and there is zero air lost during the condensate discharge cycle.



Timed Solenoid Drain

The Timed Solenoid is designed to remove condensate from any compressed air application. Its unique design includes a built-in shut off valve and strainer. The strainer protects the valve and orifice from becoming plugged with debris and the shut off valve allows for safe isolation from the air source when maintenance is performed.





FOR MORE INFORMATION, CONTACT YOUR LOCAL AUTHORIZED SULLAIR DISTRIBUTOR.