

# Compressed Air Filters



# Superior Filtration for Increased Productivity

## Kaeser Gives You the Air Quality You Require

Ambient air contains contaminants that are drawn into the compressor. These contaminants are concentrated during compression and find their way into the compressed air system. A typical compressed air system is contaminated with abrasive solid particles such as dirt, rust and pipe scale, compressor lubricants, condensed water droplets, and oil and hydrocarbon vapors.

Contaminated compressed air systems increase operating costs by robbing the air system of useful power. This results in reduced efficiency, damaged air-operated equipment, higher maintenance and repair costs, reduced production caused by downtime, and increased product rejections.

The properly sized and selected Kaeser filter(s) in conjunction with the appropriate dryer will remove these contaminants. This will allow the compressed air system to deliver the quality of air required for the particular application whether it's plant air, instrument air, or breathing air.

## High Performance Filters and Separators

Designed and developed using the latest innovations and manufacturing techniques, Kaeser filter housings are designed with larger flow areas to ensure low pressure drop and to provide easier installation, operation and maintenance. The result is consistent product quality while minimizing operating costs.

## Kaeser Reduces the Cost of Compressed Air

Kaeser filters remove more contaminants with less pressure drop. Compare the operating pressure drop of competitive brand filters and remember, for every extra 2 psi of pressure drop, power requirements increase by 1%.

With a complete selection of application-specific filter types, sizes, technical service and support, Kaeser offers a customized solution for all of your compressed air quality needs.

## What happens when you don't use an air filter?



*All ambient air contains harmful particulates and contaminants*



*Any contaminants that are not filtered from the compressor will eventually wind up in the machinery or end product*



*Contaminants corrode and damage air-operated equipment*

## Standard Features and Benefits



### 1 Delta P Slide Indicator

Ensures economical operation by changing color when filter element requires replacement. Fitted as standard on filters up to 60 scfm (excluding KVA).

### 2 Color Coded Elements

Allows easy identification. Elements are designed using the latest media innovations and manufacturing technology.

### 3 Internal Automatic Drain

Reliably discharges collected condensate (excluding KVA and KFS 250 and above).

### 4 Delta P Gauge

Large, easy-to-read dual gauge faces allow housings to be mounted in any flow direction. Fitted as standard on filters from 100 scfm and up (except KVA).

### 5 Modular Connections

Space-saving design allows housings to be connected in series without additional piping.

### 6 Liquid Level Indicator

Visually monitor liquid level and verify drain operation.

## Modular Housings for Flows up to 780 scfm

- Manufactured from top quality aluminum and steel
- Epoxy powder coated (interior and exterior) for added durability and corrosion resistance
- All filter types fit same size housings
- 1/8 turn bayonet head to bowl connections for easy access (20 to 170 scfm)
- Threaded connection for 250 scfm and up
- Optimized air flow through housing minimizes pressure drop

- The tapered housing and non-turbulent lower filter zone prevents condensate from being picked up by the air flow
- Audible warning if disassembly attempted while housing under pressure
- Wall mounting brackets available

## Enhanced Performance

- Latest filter media technology results in higher efficiencies and lower Delta P
- Additional filter types for extra critical applications
- 150°F maximum inlet temperature

- 250 psig maximum working pressure (pressure vessels, 225 psig)
- Push-on element for quick, reliable replacement
- Coalescing filters have new horizontal-web fiber structure
- Optimum filter efficiency even at low airflow of up to five percent of nominal flow
- Filter element seals to filter head
- Stainless steel support sleeves, oil and acid resistant coated collars and end caps

# Premium Options



## 1 Filter Monitor

- Microprocessor control and LCD display
- Indicates optimum element replacement based on:
  - operating time
  - differential pressure
  - filter type
- Filter replacement “warning”
- Continuously measures differential pressure

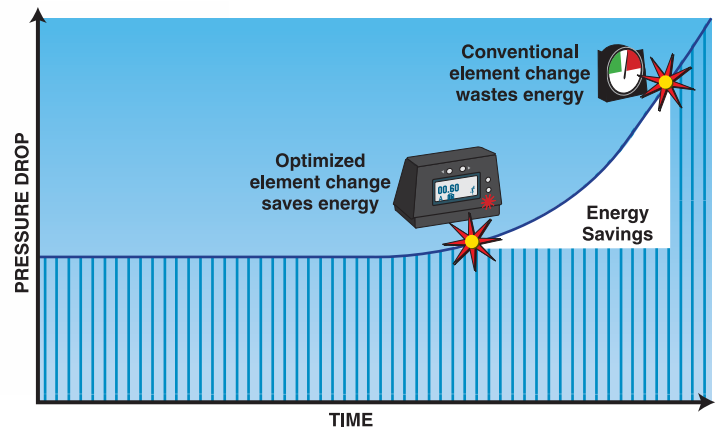
## 2 Filter Connection Set

Quickly isolates condensate drain for easy maintenance without interrupting air supply.

## 3 Eco-Drain

- Non-wearing electronic probe does not have moving parts
- Reliably discharges condensate, but not costly compressed air
- Self-checking electronics with automatic alarm test button, and voltage free alarm contact
- LEDs for power supply and alarm

## Potential Energy Savings with Filter Monitor



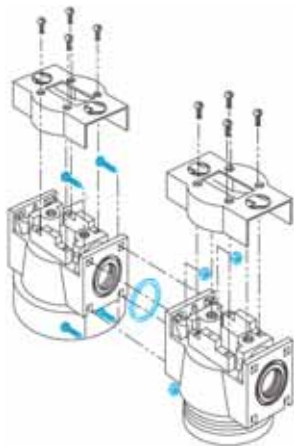
## Filter Accessories



**Wall Mounting Bracket**  
Available for housings from 20 through 780 scfm



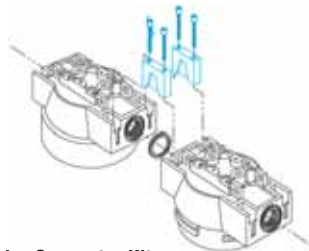
**Remote Indication Differential Pressure Gauge**  
Available for housings from 20 through 780 scfm



**Manifold Connector Kit**  
Available for housings from 250 through 780 scfm (Threaded-type head)



**Manual Drain and External Drain Adapter**  
Available for housings from 20 through 170 scfm



**Modular Connector Kit**  
Available for housings from 20 through 170 scfm (Bayonet-type head)



### Oil Mist Eliminators (OME)

Oil Mist Eliminators (OME) are large oil removal filters with a very low pressure drop. Not only do they remove both oil aerosols and water, but they can handle large slugs of liquid. The cartridge life is normally 8 to 15 years, requiring virtually no maintenance.

*Sizes: 125 – 3000 scfm*

## Other Clean Air Treatment Products



**Drain Traps**  
Kaeser's Automatic Drains like the Automatic Magnetic Drain (AMD)

(shown, right) and the award-winning Eco-Drain (shown, left) provide reliability and reduce maintenance. Timed Electric Traps and Automatic Drain Traps complete our compressed air treatment product line.



**Condensate Management**  
Kaeser's Aquamat and Condensate Filter (KCF)

automatically remove oil from compressor condensate. This allows for easy and economical disposal of compressed air condensate in an environmentally responsible way. The low maintenance system requires no electricity for operation.



### High Pressure Filters (HP)

High Pressure filters (HP) are available for applications requiring pressures up to 900 psig. They include seam welded stainless steel cores for

greater durability and corrosion resistance.



### Membrane Dryers (KMM)

Kaeser Modular Membrane Dryers (KMM) provide a dew point suppression without requiring any external power or regular maintenance. These dryers

are well suited for point of use applications and are easy to install with simple piping connections.

# Global Standards

ISO 8573.1 was developed in 1992 by ISO (International Organization for Standardization) to help facility engineers specify compressed air quality globally with "Quality Classes" for solid particulates, humidity and oil. Quality classes provide an internationally accepted unit of measure. A typical pharmaceutical plant, for example, would have a compressed air specification of ISO Quality Class 1.2.1. This is equivalent to 0.1 micron particulate filtration, -40° F (-40°C) dew point, and 0.008 ppm (0.01 mg/m<sup>3</sup>) oil filtration.

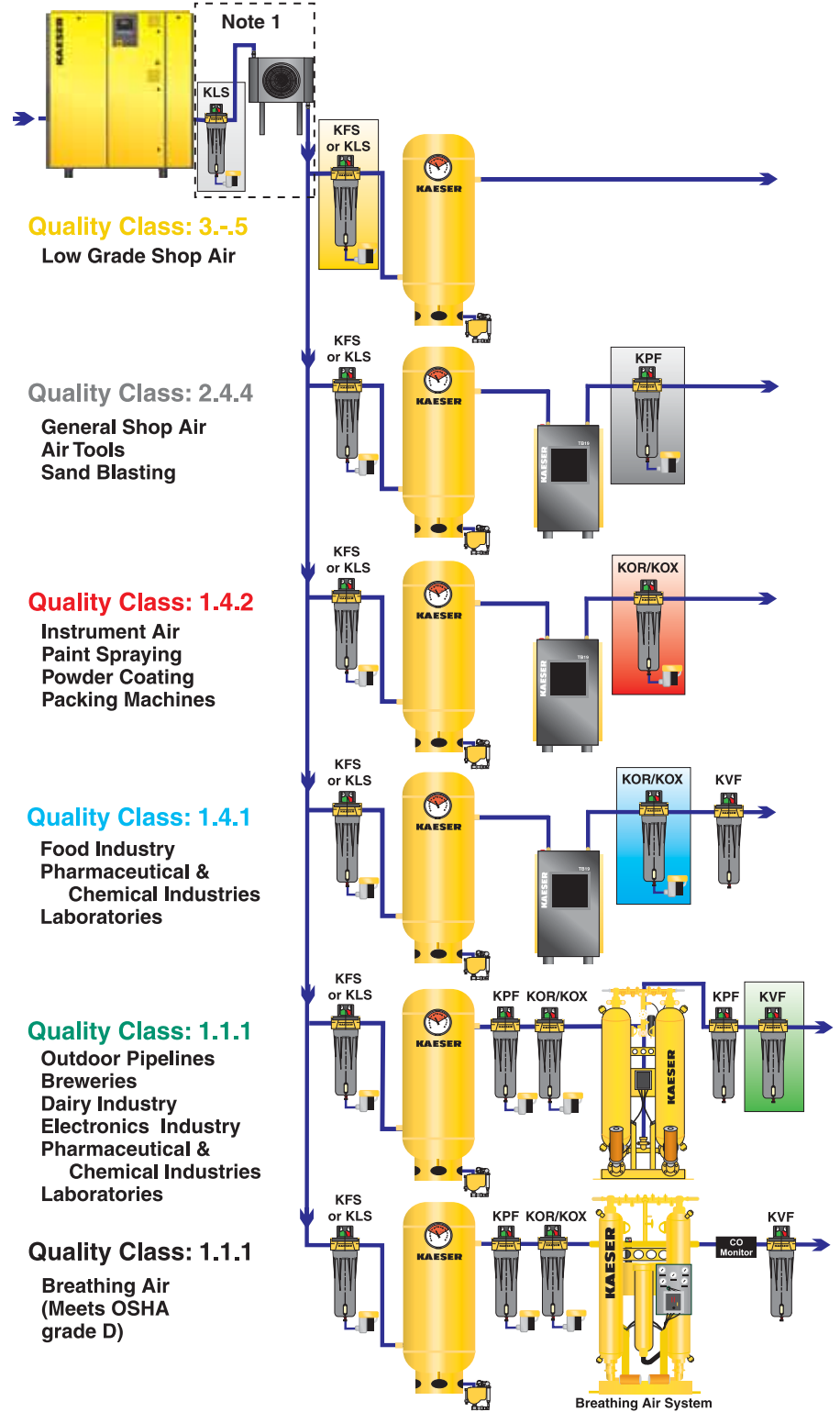
Quality Classes	SOLIDS Maximum Particle Size (microns)
0	as specified
1	0.1
2	1
3	5
4	15
5	40
6	—

Quality Classes	MOISTURE Dew Point	
	°C	°F
0	as specified	
1	-70	-94
2	-40	-40
3	-20	-4
4	3	38
5	7	45
6	10	50

Quality Classes	OIL Liquid and Gas	
	mg/m <sup>3</sup>	ppm <sub>w/w</sub>
0	as specified	
1	0.01	0.008
2	0.1	0.08
3	1	0.8
4	5	4
5	25	21
6	—	—

# Typical Air Treatment Configurations

## ISO 8573.1 Quality Classes



**Note 1:** All Kaeser Rotary Screw Compressors have built-in aftercoolers. However, for equipment without an aftercooler or where the discharge temperature is 110°F or higher, an aftercooler should be positioned at the location shown.

*KFS/KPF/KOR/KOX filter elements should be replaced at 10 psid (red area of Delta P gauge) or annually, whichever occurs first. KVF filter elements should be replaced after 1,000 hours of operation or annually, whichever occurs first. Kaeser recommends processing condensate through the Aquamat which safely and economically disposes of the environmentally threatening oil/water mixture. KPF is offered in a reverse flow version (KPF-RF) for cold regenerative desiccant dryers. Consult factory for specifications.*

### KLS - Kaeser Liquid Separator



Downstream of Aftercooler

- Liquid Removal: 99+% of water
- Max. Liquid Loading: 30,000 ppm w/w
- Solid Particle Removal: 10 microns
- Oil Carry-Over: N/A
- Pressure Drop: Wet: 0.8 psi

### KFS - Kaeser Filtered Separator



Downstream of Aftercooler (shown)

- Liquid Removal: 99+% of water
- Max. Liquid Loading: 25,000 ppm w/w
- Solid Particle Removal: 3 microns
- Oil Carry-Over: 5 ppm w/w
- Pressure Drop: Dry-1 psi; Wet: 1.5 psi

### KPF - Kaeser Particulate Filter



Downstream of Refrigerated Air Dryer (shown)

Downstream of Heatless Desiccant Dryer

Upstream of KOR/KOX

- Liquid Removal: 100% of water
- Max. Liquid Loading: 2,000 ppm w/w
- Solid Particle Removal: 1 micron
- Oil Carry-Over: 1 ppm w/w
- Pressure Drop: Dry: 1 psi; Wet: 2 psi

### KOR - Kaeser Oil Removal Filter



Downstream of Refrigerated Air Dryer (shown)

Upstream of Desiccant Dryer

- Liquid Removal: 99.99+% of oil
- Max. Liquid Loading: 1,000 ppm w/w
- Solid Particle Removal: 0.01 micron
- Oil Carry-Over: 0.01 ppm w/w
- Pressure Drop: Dry: 1 psi; Wet: 3 psi

### KOX - Kaeser Oil Removal eXtra Fine Filter



Downstream of Refrigerated Air Dryer (shown)

Upstream of Desiccant Dryer or KVA

- Liquid Removal: 99.999+% of oil
- Max. Liquid Loading: 100 ppm w/w
- Solid Particle Removal: 0.01 micron
- Oil Carry-Over: 0.001 ppm w/w
- Pressure Drop: Dry: 2 psi; Wet: 6 psi

### KVF - Kaeser Vapor Adsorber



Downstream of KOR/KOX & Desiccant Air Dryer (shown)

- Liquid Removal: 0%
- Max. Liquid Loading: 0 ppm w/w
- Solid Particle Removal: 0.01 micron
- Vapor Carry-Over: 0.003 ppm w/w
- Pressure Drop: Dry: 1 psi; Wet: N/A

## Engineering Data

Model	Air Flow @ 100 psig (cfm)	Connection Size (in.)	Standard Features of Filters*						Max. Working Pressure (psig)	Dimensions W x H (in.)	Weight (lbs.)		
			KLS	KFS	KPF	KOR	KOX	KVF					
<b>Modular Type Housing</b>													
(Filter Type) - 20	20	1/2 NPTF	1	5	5	5	5	10	With Manual Drain: 300	4 1/8 x 8 1/4	5		
(Filter Type) - 35	35	1/2 NPTF								4 1/8 x 11	8		
(Filter Type) - 60	60	1/2 NPTF								4 1/8 x 13 1/2	9		
(Filter Type) - 100	100	1 NPTF								5 1/4 x 14 1/2	10		
(Filter Type) - 170	170	1 NPTF								5 1/4 x 18 5/8	11		
(Filter Type) - 250	250	1 1/2 NPTF	6 1/2 x 20 3/4	11									
(Filter Type) - 375	375	1 1/2 NPTF	2	7	6	6	6		250	With Auto Drain or LLI:	6 1/2 x 25 3/8	12	
(Filter Type) - 485.2	485	2 NPTF									7 5/8 x 29	28	
(Filter Type) - 485.2.5	485	2 1/2 NPTF	3	8	9	9	9			9	9	7 5/8 x 29	28
(Filter Type) - 625	625	2 1/2 NPTF										7 5/8 x 34 7/8	33
(Filter Type) - 780	780	2 1/2 NPTF						7 5/8 x 41				38	
<b>Pressure Vessel</b>													
(Filter Type) - 1000P	1000	3 NPTM	4	4	4	4	4	11		225	16 x 48	90	
(Filter Type) - 1250P	1250	3 NPTM									16 x 48	90	
(Filter Type) - 1875P	1875	3 NPTM									16 1/4 x 49	118	
(Filter Type) - 2500P	2500	4 Flange									20 x 52 1/4	178	
(Filter Type) - 3125P	3125	4 Flange							20 x 52 1/4		180		
(Filter Type) - 5000P	5000	6 Flange							24 x 54 5/8		271		
(Filter Type) - 6875P	6875	6 Flange							28 x 62 9/16		518		
(Filter Type) - 8750P	8750	6 Flange							28 x 62 9/16		525		
(Filter Type) - 11875P	11,875	8 Flange							33 x 69 1/8		709		
(Filter Type) - 16250P	16,250	8 Flange							39 x 68		918		
(Filter Type) - 21250P	21,250	10 Flange							45 7/8 x 71		1412		

#### \*Standard Features of Filters

- 1 - Internal Automatic Drain, Liquid Level Indicator
- 2 - Manual Drain, Liquid Level Indicator (Automatic drain trap is **STRONGLY** recommended)
- 3 - Manual Drain (Automatic drain trap is **STRONGLY** recommended)
- 4 - Plugged Drain Port (Automatic drain trap is **STRONGLY** recommended)
- 5 - Internal Automatic Drain, Delta P Slide Indicator, Liquid Level Indicator
- 6 - Internal Automatic Drain, Delta P Gauge, Liquid Level Indicator
- 7 - Manual Drain, Delta P Gauge, Liquid Level Indicator (Automatic drain trap is **STRONGLY** recommended)
- 8 - Manual Drain, Delta P Gauge (Automatic drain trap is **STRONGLY** recommended)
- 9 - Internal Automatic Drain, Delta P Gauge
- 10 - Manual Drain (Automatic drain trap not required)
- 11 - Plugged Drain Port (Manual drain recommended, automatic drain trap not required)

### Sizing

To find the maximum flow for a filter size at pressures other than 100 psig, multiply the rated flow by the Correction Factor corresponding to the minimum pressure at the inlet of the filter. Do not select filters by pipe size. Use flow rate and operating pressure.

Minimum Inlet Pressure (psig)	20	30	40	60	80	100	120	150	200	250
Correction Factor	0.30	0.39	0.48	0.65	0.82	1.00	1.17	1.43	1.87	2.31

Note: Maximum inlet temperature is 150°F.

Specifications are subject to change without notice.



*Kaeser's U.S. Headquarters in Fredericksburg, Virginia*

### **Mission Statement**

We strive to earn our customers' trust by supplying high quality Kaeser air compressors, related compressed air equipment and premium blower systems. Our products are designed for reliable performance, easy maintenance, and energy efficiency. Prompt and dependable customer service, quality assurance, training, and engineering support contribute to the value our customers have come to expect from Kaeser. Our employees are committed to implementing and maintaining the highest standards of quality to merit customer satisfaction. We aim for excellence in everything we do.

Our engineers continue to refine manufacturing techniques and take full advantage of the newest machining innovations. Extensive commitment to research and development keeps our products on the leading edge of technology to benefit our customers.



***Built for a lifetime.™***

*Corporate Headquarters:*  
P.O. Box 946  
Fredericksburg, Virginia 22404  
Phone 540-898-5500  
Fax 540-898-5520  
www.kaeser.com

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## **The Air Systems Specialist**

With over 85 years of experience, Kaeser is the air systems specialist. Our extensive 100,000 square foot facility allows us to provide unequaled product availability. With service centers nationwide and our 24-hour emergency parts guarantee, Kaeser customers can rely on the best after-sales support in the industry. Kaeser stands committed to providing the highest quality air system for your specific compressed air needs.

