

# Breathing Air System

## KBS SERIES



## Breathable air

Our bodies have a limited capacity to filter the air we breathe. Anything much smaller than 10µm will travel past the nose and into the lungs. When contaminants reach the lungs, respiratory illness can occur, but when they hit the bloodstream they can be deadly.



Carbon monoxide gas has no odor, taste, or color, but even in small concentrations it is quickly absorbed into the bloodstream. It has a detrimental effect on coordination, reaction time, and visual acuity, subjecting even the most safety conscious worker to accidents. In higher concentrations, it is lethal.

The KBS is a complete purification system designed to remove excessive moisture, solid particles, oil and oil vapor, and carbon monoxide from ordinary compressed air. The OSHA Grade D air it produces can feed face masks, hoods, and other breathing devices to protect worker health and safety, while improving productivity.

## Typical applications

**Petrochem industries** - oil and gas industries must protect their workers from inhaling hazardous fumes, gases, and vapors inherent in gas and chemical processing operations.

**Construction industries** - proper handling and working protection is critical to the health and safety in shot blasting and asbestos remediation.

**Coating and paint spraying** - automotive and manufacturing environments utilize atomized paint to spray coatings. Workers can be exposed to airborne paint emissions. Even small scale auto body shops and light manufacturing need to provide workers with clean breathing air.

**Confined spaces** - mines, vats, tanks, boilers, ships' hulls, and even grain storage facilities can be deadly traps of stale or contaminated air.

## Meet health and safety requirements

Environmental safety standards regulate the need for fresh air supplies to ensure the safety of workers. Kaeser Breathing Air Systems are engineered to supply Grade D breathing air for flows from 15 to 940 scfm in accordance with the following standards:

**OSHA:** CFR1910.134  
(Occupational Safety and Health Assoc.)

**CSA:** Z180.1-00  
(Canadian Standards Assoc.)

**CGA:** Pamphlet G-7  
(Compressed Gas Association)

**ANSI:** Z88.2-1080  
(American National Standards Institute)

## Six stage purification

**Stage 1** A general purpose coalescing filter (KPF) removes liquid contaminants and particles 1 micron and larger.

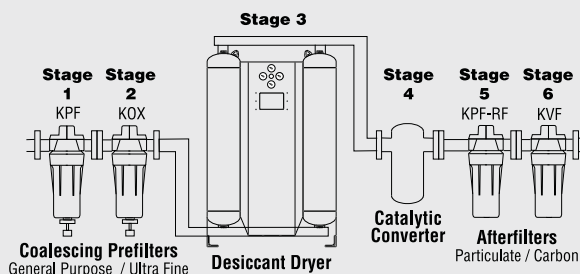
**Stage 2** An ultra high efficiency coalescing type oil removal filter (KOX) removes virtually all oil aerosols and provides ISO Class 1 solid particle removal.

**Stage 3** KAD pressure-swing regenerative desiccant dryer reduces the moisture content to ensure the effectiveness of the catalyst bed.

**Stage 4** Catalytic converter lowers CO concentrations by converting CO to CO<sub>2</sub>.

**Stage 5** A particulate removal afterfilter (KPF-RF) removes contaminants 1 micron and larger from the air stream.

**Stage 6** KVF activated carbon filter removes oil vapor and undesirable odors (and other gases normally adsorbable by activated carbon). A final layer of media provides ISO Class 1 solid particle removal.



# Breathing Air System



## Standard features

### 1 Filtration and monitoring

- Coalescing filters with automatic drain valves and differential pressure gauges
- CO catalyst convertor
- Particulate afterfilter with differential pressure gauge
- Activated carbon filter
- Air sample ports for optional analyzer installation

### 2 Instrumentation

- Left and right tower pressure gauges
- Purge pressure gauge
- Inlet pressure gauge
- Color change moisture indicator

### 3 Standard controller

- NEMA 4/4X with critical LED indicators
- Soft on/off switch with 2 power recovery modes
- Switching failure alarms
- Adjustable service indications
- Tower / valve status LED's
- Voltage free common alarm contacts
- RS232 communications port

### Advanced controls (optional)

- Vacuum fluorescent text display
- Automatic purge saver
- High inlet temperature & low inlet pressure alarms

## Recommended option: Carbon Monoxide (CO) monitor



- Digital readout of CO concentration
- Visual and audible alarm
- Adjustable high and low alarms
- Contacts for remote alarm
- Push-to-test button
- Multiple alarm capabilities
  - CO and Oxygen
  - CO and dew point
  - CO, oxygen, and dew point

## or Wall-Mount: CO Monitor Kit



- For CO only

## Other options

- Purge Saver - automatically matches purge air consumption to air demand to save energy
- Nema 7 electrics (explosion proof)
- Copper/brass or stainless steel instrument tubing and fittings for severe environments
- SSPC-SP10 sandblast and epoxy paint for severe environments

## Selecting the proper model

To correct rated capacity for actual operating conditions, refer to "Capacity Correction Factors for Operating Conditions" and find the capacity correction factor corresponding to the inlet pressure and temperature. Multiply the capacity correction factor by any purifier's rated capacity to determine its capacity at your operating conditions. Capacity correction factors for conditions not shown may be interpolated. To determine purge air volume subtract outlet flow from rated capacity. To determine the outlet flow at your operating conditions, subtract the purge air flow from the capacity at your operating conditions. Consult factory if assistance is needed.

## KBS purifiers help meet standards for breathing quality compressed air

The table below shows a comparison of the maximum allowable concentrations of contaminants allowed by OSHA standard 1910.134 for Grade D breathing air.

Contaminant	Maximum Allowable Concentration OSHA
<b>Carbon Monoxide (CO)</b> (ppm or mL/m <sup>3</sup> by volume)	10
<b>Carbon Dioxide (CO<sub>2</sub>)</b> (ppm or mL/m <sup>3</sup> by volume)	1000
<b>Condensed Hydrocarbons</b> (mg/m <sup>3</sup> )	5
<b>Odor</b>	Not Detectable
<b>Moisture Content</b> (dew point temperature)	10°F (5.6°C) below ambient temperature (at 1 atm. pressure)

### NOTES:

- The OSHA standard states that compressed breathing air shall meet at least the requirements for Type 1-Grade D breathing air described in the ANSI/Compressed Air Gas Association Commodity Specification for Air ANSI/CGA G-7.1.
- The KBS will remove only those gaseous contaminants normally absorbable by activated carbon. Air that is grossly contaminated or oxygen deficient cannot be purified to levels acceptable for breathing.

## Specifications

Model	Rated Capacity* (scfm)	Outlet Flow (scfm)	Power Supply (V/ph/Hz)	In/Out Connections (in.)	Dimensions W x D x H (in.)	Weight (lb.)
KBS 15	18	15	85-264/1/47-63 AC 11.5-28 V DC	½ NPT(F)	35 x 35 x 49	440
KBS 25	30	25		¾ NPT(F)		450
KBS 35	42	35				455
KBS 50	60	50		1 NPT(F)	37 x 35 x 64	560
KBS 75	90	75			37 x 35 x 79	700
KBS 95	114	95			46 x 43 x 55	820
KBS 135	162	135		1½ NPT(F)		820
KBS 205	246	205			56 x 44 x 75	1185
KBS 305	366	305		2 NPT(F)	62 x 51 x 65	1405
KBS 375	450	375			66 x 51 x 73	1560
KBS 490	590	490			55 x 70 x 103	1650
KBS 625	750	625			63 x 75 x 107	2800
KBS 775	930	775		3 FLG	62 x 85 x 112	3275
KBS 940	1130	940		3 FLG	66 x 82 x 115	3750

\*Rated capacity: Based on compressed air saturated at 100°F and 100 psig.

Carbon monoxide outlet concentration: 10 ppm<sub>W</sub> achieved with inlet concentration of ≤ 135 ppm<sub>W</sub>  
5 ppm<sub>W</sub> achieved with inlet concentration of ≤ 100 ppm<sub>W</sub>

- Maximum inlet temperature: 120°F
- Maximum allowable working pressure: 150 psig
- Maximum/minimum ambient air temperature: 130/40°F

## Capacity Correction Factors for Operating Conditions

Inlet Pressure psig	Inlet Temperature				
	100°F	105°F	110°F	115°F	120°F
60	0.65	0.64	0.62	0.60	0.58
70	0.74	0.73	0.71	0.69	0.66
80	0.83	0.81	0.80	0.77	0.74
90	0.91	0.89	0.87	0.85	0.81
100	1.00	0.98	0.96	0.93	0.89
110	1.04	1.02	1.00	0.97	0.93
120	1.08	1.06	1.04	1.00	0.96
130	1.12	1.10	1.08	1.04	1.00
140	1.16	1.14	1.11	1.08	1.03
150	1.20	1.18	1.15	1.12	1.07

*Specifications are subject to change without notice.*

# KAESER COMPRESSORS

**Built for a lifetime.™**

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

**Kaeser Compressors, Inc.**  
511 Sigma Drive  
Fredericksburg, VA 22408 USA  
Telephone: 540-898-5500  
Toll Free: 800-777-7873  
info.usa@kaeser.com

**Kaeser Compressors Canada Inc.**  
3760 La Verendrye Street  
Boisbriand, QC J7H 1R5 CANADA  
Telephone: (450) 971-1414  
Toll free: (800) 477-1416  
info.canada@kaeser.com

**Kaeser Compresores de México S de RL de CV**  
Calle 2 #123  
Parque Industrial Jurídica  
76100 Querétaro, Qro.  
Telephone: 01 (442) 218 64 48  
sales.mexico@kaeser.com

**Kaeser Compresores de Guatemala y Cia. Ltda.**  
Calz. Atanasio Tzul 21-00, zona 12  
El Cortijo II, Bodega 501  
01012-Guatemala City  
Telephone: +502 2412-6000  
info.guatemala@kaeser.com

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