

Breathing Air System

KBS SERIES



Breathable air

Our bodies have a limited capacity to filter the air we breath. 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.



Compressed air contaminants can adversely affect worker health and safety. They contribute to respiratory ailments leading to absenteeism and reduced productivity. By removing oil and oil vapor, and the associated taste and odor, the Kaeser Breathing Air System (KBS) improves worker efficiency by preventing nausea and breathing discomfort.

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.

Typical applications

Petrochem industries - oil and gas industries must protect their workers from the inhalation of 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 shotblasting 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 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.)

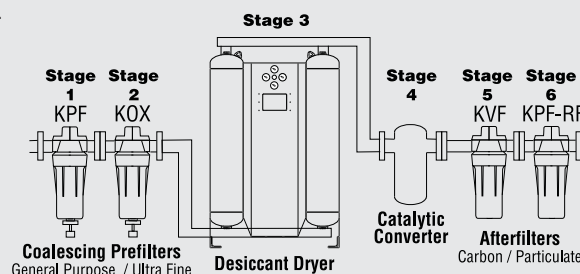
CSA: Z180.1-00
(Canadian Standards Assoc.)

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** A 0.01 micron ultra high efficiency coalescing type oil removal filter (KOX) removes virtually all oil aerosols.
- 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 CO₂.
- Stage 5** KVF activated carbon filter removes oil vapor and undesirable odors (and other gases normally adsorbable by activated carbon). A final layer of media prevents solid particles 0.01 microns and larger from passing down stream.
- Stage 6** A particulate removal afterfilter (KPF-RF) removes contaminants 1 micron and larger from the air stream.



Breathing Air System



Features

1 Filtration and monitoring

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

2 Moisture indicator

- Visual color change

3 Pressure gauges

- Left/right tower
- Inlet/outlet purifier
- Purge pressure

4 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
- Calibration free temperature sensors
- High inlet temperature & low inlet pressure alarms

5 Purge muffler

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.

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				450
KBS 35	42	35		¾ NPT(F)	35 x 35 x 64	455
KBS 50	60	50				560
KBS 75	90	75		1 NPT(F)	37 x 35 x 79	700
KBS 95	114	95				820
KBS 135	162	135				820
KBS 205	246	205		1½ NPT(F)	56 x 43 x 75	1190
KBS 305	366	305				1405
KBS 375	450	375		2 NPT(F)	66 x 51 x 73	1560
KBS 490	590	490				
KBS 625	750	625			Consult Factory	
KBS 775	930	775				
KBS 940	1130	940				

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

Carbon monoxide outlet concentration: 10 PPMw achieved with inlet concentration of ≤ 135 PPMw

5 PPMw achieved with inlet concentration of ≤ 100 PPMw

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

KBS purifiers help meet standards for breathing quality compressed air¹

The table below shows a comparison of the maximum allowable concentrations of contaminants allowed by OSHA standard 1910.134 (revision effective April 1998) for Grade D breathing air.

Contaminant	Maximum Allowable Concentration OSHA (1)
Carbon Monoxide (CO) (ppm or mL/m ³ by volume)	10
Carbon Dioxide (CO ₂) (ppm or mL/m ³ by volume)	1000
Condensed Hydrocarbons (mg/m ³)	5
Odor	Not Detectable
Moisture Content (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-7.1-1989.
- 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.

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.

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Built for a lifetime.™

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Certified Management Systems



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 unequalled 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.