

**KAESER**  
**COMPRESSORS**

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# Breathing Air System

KBS Series

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# Breathing Air System

## 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.*

*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 efficiently feed face masks, hoods, and other breathing devices to protect worker health and safety.*

## Meets health and safety requirements

Environmental safety standards regulate the need for fresh air supplies to ensure workers safety. 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*)

## 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.

## Six stage purification

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

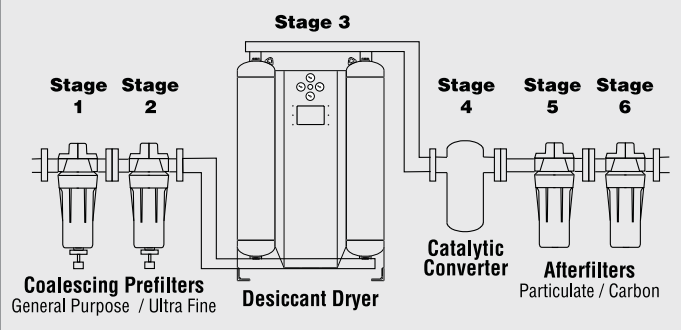
**Stage 2** An ultra high efficiency coalescing type oil removal filter removes virtually all oil aerosols and provides ISO Class 1 solid particle and oil aerosol removal.

**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 removes contaminants 1 micron and larger from the air stream.

**Stage 6** An 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.



# Features and options



**Instrumentation**

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

**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

**Filtration and monitoring (not shown)**

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

**OPTIONAL Advanced Controls**

Purge Saver - automatically matches purge air consumption to air demand to save energy

## 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

- 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

# Technical Specifications

Model	Rated Capacity* (scfm)	Outlet Flow (scfm)	Power Supply (V / Ph / Hz)	Inlet/Outlet Conns. (in.)	Dimensions W x D x H (in.)	Wt. (lbs.)
KBS 15	18	15	85-264/1/47-63 AC 11.5-28 V DC	1/2 NPT (F)	42 x 38 x 49	440
KBS 25	30	25				450
KBS 35	42	35				455
KBS 50	60	50		1 NPT (F)	42 x 38 x 64	560
KBS 75	90	75			42 x 38 x 81	700
KBS 95	114	95			49 x 45 x 56	820
KBS 135	162	135		2 NPT (F)	58 x 47 x 75	1185
KBS 205	246	205			64 x 52 x 66	1405
KBS 305	366	305			64 x 52 x 74	1560
KBS 375	450	375			57 <sup>7</sup> / <sub>16</sub> x 69 <sup>1</sup> / <sub>2</sub> x 102 <sup>13</sup> / <sub>16</sub>	1650
KBS 490	590	490			62 <sup>3</sup> / <sub>16</sub> x 75 x 107	2800
KBS 625	750	625		3 FLG	62 x 85 x 111 <sup>13</sup> / <sub>16</sub>	3275
KBS 775	930	775			65 <sup>7</sup> / <sub>8</sub> x 81 <sup>5</sup> / <sub>16</sub> x 115	3750
KBS 940	1130	940				

Inlet Pressure (psig)	Inlet Temperature (°F)				
	100	105	110	115	120
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.

\*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 ppmw 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

## 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	Max. 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.



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