

## Air Treatment

# Cooling Units



## Applications

Some industrial processes and equipment require cold, dry compressed air. Such applications include cooling molds and parts to increase production rates in plastics, metal and glass production, cooling cutting tools to extend tool life in machining operations, and maintaining inks at a consistent temperature in printing plants.

## Product description

Kaeser Cooling (KCA) Units are non-cycling refrigerated dryers without an air-to-air heat exchanger to provide the pre-cooling/re-heating function. Compressed air goes directly into the air-to-refrigerant heat exchanger (evaporator), where it is cooled.

In normal operation, the outlet air temperature is 45-50°F.

## Simple and durable

The KCA is built around a premium grade 316 stainless steel, copper brazed, plate heat exchanger with large, smooth channel flow for excellent heat transfer and low pressure drop. Its refrigeration system employs a non-cycling, fully hermetic compressor with R-134a refrigerant. The KCA 10 through 70 have an internal float-type drain. KCA 100-330 have Kaeser Eco-Drains. Cabinet panels are steel and protected by an epoxy-based powder coat finish. KCA units are easy to install and require little maintenance.

## Capacities

- 10 to 330 cfm

## Standard Features

- 45° to 50°F outlet air temperature
- 3 micron moisture separator
- On/Off switch
- Power On light

### *Models KCA 10 through 70*

- 8 foot grounded power cord
- Outlet air temperature indicator

### *Models KCA 100 through 330*

- Power On, Compressor On and Alarm/Service LED's
- Backlit LCD display with 10 languages
- Fault condition display
- Auto Start/Stop time scheduler
- Predictive maintenance scheduler
- Automatic demand electric drain
- Panel mounted push-to-test button for condensate drain
- Volt-free alarm contacts

## Optional Equipment

- Integral cold coalescer on all models

### *Models KCA 50 through 330*

- Panel-mounted analog gauge package with:
  - 1) Inlet air temperature
  - 2) Outlet air pressure
  - 3) Refrigerant suction pressure
  - 4) Refrigerant discharge pressure

### *Models KCA 100 through 330*

- Water-cooled refrigeration system

# Technical Specifications

Model	Rated Capacity* (scfm)	Power Supply (V / Ph / Hz)	Inlet/Outlet Connection (in.)	Dimensions W x D x H (in.)	Weight (lbs.)
KCA 10	10	115 / 1 / 60	½" NPT(M)	20 x 21 x 26	86
KCA 15	15				90
KCA 25	25				95
KCA 35	35	220-240 / 1 / 50	¾" NPT(M)		106
KCA 50	50	100-115 / 1 / 50-60	1 NPT(M)	28 x 20 x 38	251
KCA 70	70				273
KCA 100	100	208-230 / 3 / 60	1½ NPT(M)	34 x 32 x 39	425
KCA 160	160				463
KCA 200	200				684
KCA 240	240	380-420 / 3 / 50	2½ NPT(M)	35 x 42 x 58	691
KCA 330	330				575 / 3 / 60

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

- Maximum inlet temperature: 120°F
- Maximum allowable working pressure: 230 psig
- Maximum/minimum ambient air temperature: Air-cooled dryers: 110/40°F  
Water-cooled dryers: 130/40°F

Specifications are subject to change without notice.

**Table 1: Capacity Correction Factors for Operating Conditions**

Pressure (psig)	Compressed Air Temperature (°F)								
	80	85	90	95	100	105	110	115	120
20	1.00	0.87	0.80	0.71	0.65	0.59	0.53	0.49	0.45
40	1.30	1.16	1.01	0.91	0.80	0.73	0.66	0.59	0.53
60	1.40	1.25	1.09	0.98	0.88	0.80	0.72	0.66	0.59
80	1.50	1.34	1.17	1.06	0.95	0.87	0.79	0.73	0.66
100	1.55	1.39	1.23	1.12	1.00	0.91	0.82	0.76	0.70
110	1.58	1.42	1.26	1.15	1.03	0.94	0.86	0.79	0.72
125	1.63	1.47	1.31	1.19	1.07	0.99	0.91	0.83	0.74
145	1.69	1.52	1.36	1.24	1.12	1.03	0.94	0.87	0.79
175	1.75	1.59	1.42	1.30	1.18	1.09	0.99	0.92	0.84
200	1.80	1.64	1.47	1.35	1.22	1.13	1.03	0.96	0.89
230	1.82	1.66	1.49	1.37	1.24	1.15	1.05	0.98	0.91

**Table 2: Capacity Correction Factors for Ambient Temperature**

Factor	Ambient Air Temperature (°F)							
	75	80	85	90	95	100	105	110
	1.15	1.12	1.09	1.06	1.03	1.00	0.97	0.94

## Selecting the right model

Use the correction factors in Tables 1 and 2 to determine a selected dryer's capacity at your actual operating conditions. You will need to know the compressed air temperature and pressure as well as the ambient air temperature.

## Scenario

You need 200 scfm of cold air at 125 psig. You have found that your worst case conditions during the year are in the summer when the compressed air temperature at the inlet of the KCA is 95°F and the ambient air temperature around the KCA is also 95°F. You select the KCA 200 and calculate capacity at these actual conditions:

$$200 \text{ scfm} \times 1.19 \times 1.03 = 245 \text{ scfm}$$

This is more capacity than needed so you try the next smaller model:

$$160 \text{ scfm} \times 1.19 \times 1.03 = 196 \text{ scfm}$$

Since this is very close to 200 and is based on the worst case conditions, you are confident that the KCA 160 will work for your application.



*Built for a lifetime.™*



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