

# Cycling Refrigerated Air Dryers

Secotec™

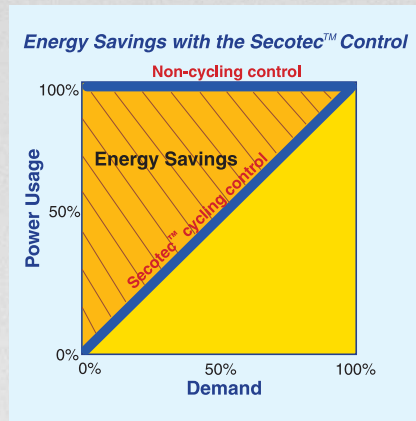
20 - 520 cfm @ 100 psig



## Why Do We Need Dry Air?

As atmospheric air is drawn into a compressor, water vapor is introduced as well. During compression, air heats up and is able to hold more water vapor.

Mechanical separators and filters are used to remove liquid water, yet air remains saturated with water vapor. As air travels through the piping, the vapor condenses and becomes hazardous to your system. Using a Secotec™ refrigerated dryer eliminates vapor before it condenses and attacks your system.



## Why Secotec™ ?

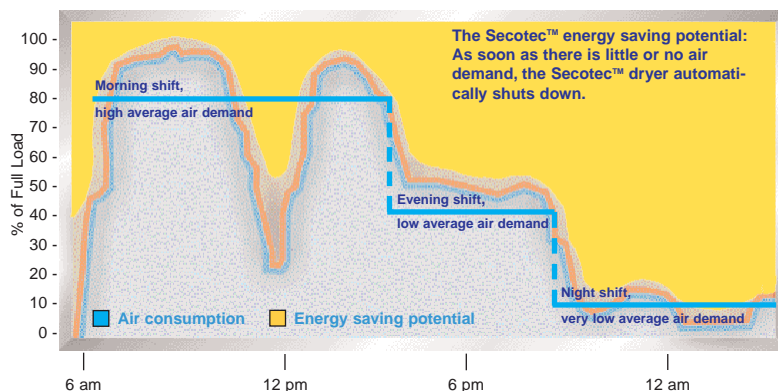
The Secotec™ cycling control provides maximum efficiency by operating the refrigerant compressor only when necessary. This is achieved by utilizing a thermal storage medium. The refrigerant system cools the medium to a certain temperature, cuts off, and then stands by until the temperature rises to a predetermined level before cutting back on again. Therefore, the dryer is not wasting energy when the demand is low, compared to a non-cycling dryer, which continues to operate even during low demand periods.

## Energy Savings

The Secotec™ cycling control provides the greatest savings during low demand periods such as evening and night shift.

As shown in the chart, significant savings are possible on a daily basis. During breaks, low demand periods, and

### Air Consumption Over a 24-Hour Period

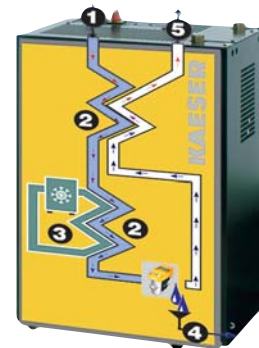


shut down, the Secotec™ dryers save energy because the refrigerant system is shut off.

For example, comparing the TD 61 cycling dryer with a non-cycling dryer, the TD 61 (at 240 cfm) in single shift operation (8760 service hours, of which only 1000 hours are under full load) saves \$930/yr. at \$.08/kWhr.

## Operation

Warm compressed air (1) entering the dryer is initially cooled in the air-to-air heat exchanger (2) by the cold compressed air leaving the dryer. This allows for greater efficiency by reducing the heat load on the refrigeration system.

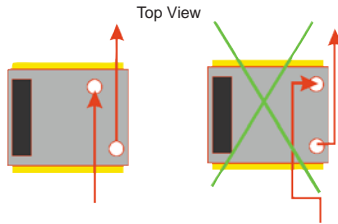


The air is cooled to the dew point temperature in the lower part of the heat exchanger (2) by a refrigerant circuit with a thermal storage medium (3). The condensate formed by the cooling action is separated from the compressed air by a multi-stage, stainless steel, maintenance-free separating system (4). The automatic condensate drain (4) reliably drains the water without wasting valuable compressed air. The dried air leaving the dryer is reheated in the upper part of the heat exchanger (2) before exiting the outlet (5). Reheating the compressed air eliminates pipe sweating down-stream.

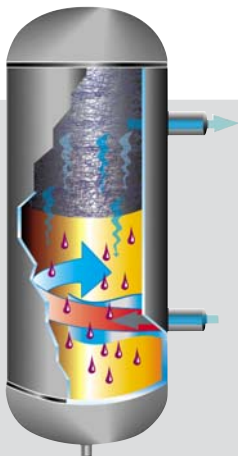
# Convenient Features

## Dryer Construction

All components such as heat exchangers, refrigerant circuit, condensate separator, and drain are conveniently accessible from above when the panels are removed. Service connections are provided at the suction and discharge lines to check the refrigerant circuit. The dryer construction and component arrangement minimize the required floor space.



Staggered piping connections for easy hook-up on TC Series dryers and larger.



### 5 Separator

Highly efficient multistage, stainless steel separator uses centrifugal force and a stainless steel wire mesh to separate 99.9% of liquid water.



### 4 Electronic Demand Drain

Once condensate fills the collection chamber, a level sensor opens a diaphragm valve to drain the condensate. The valve then shuts before costly air can escape.

### 1 Easy and Reliable Controls

Control panel includes dew point indicator, on/off switch, and LED's indicating "power on" (active thermal storage) and "compressor on." LED's for "high dew point" are standard on models TE 91 and up and drain alarm LED is standard on TE 121.

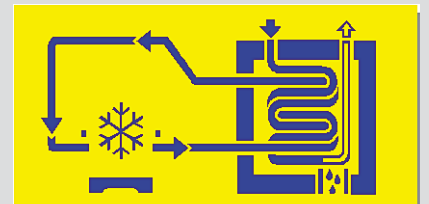


### 2 Heat Exchangers

Air-to-air and air-to-refrigerant heat exchangers are fitted with oversized copper tubing that provides low pressure drop. The smooth inner walls of the tubing also prevent fouling.

*Three-year warranty on heat exchanger.*

*Two-year warranty on all other parts and labor.*



### 3 Thermal Storage

Solid media acts as storage for efficient cooling and eliminates the possibility of leakage.

## Specifications

Model	Flow Rate @ 100 psig (scfm)	Pressure Drop (psid)	Maximum Working Pressure (psig)	Comp. * (hp)	Voltage	Connection Size (in.)	Drain Connection Size (in.)	Dimensions H x W x D (in.)	Weight (lb.)
TA 5	20	0.8	230	.4	115-1-60	1/2	1/4	30 x 20 x 25	175
TA 8	30	1.8		.4		3/4	30 x 20 x 25	176	
TA 11	45	2.3		.6		30 x 20 x 25	176		
TB 19	70	2.6		.86		1	38 x 22 x 25	255	
TB 26	95	2.6		1.1	38 x 22 x 25		255		
TC 31	115	2.3		1.32	115-1-60	1-1/4	3/8	40 x 26 x 30	342
TC 36	135	2.9		1.4	230-1-60			40 x 26 x 30	375
TC 44	170	1.5		1.68	230-1-60	1-1/2	3/8	45 x 26 x 37	440
TD 51	200	1.5		1.6	230-3-60			51 x 31 x 44	553
TD 61	240	1.5		1.93	460-3-60			51 x 31 x 44	632
TD 76	285	1.5		2.5	2			52 x 31 x 44	632
TE 91	360	1.5		1.93		1/2	64 x 42 x 59	1256	
TE 121	460	2.3		2.5	62 x 42 x 59		1455		
TE 141	520	3.4		2.7	62 x 42 x 59		1455		

Table based on: 100°F air inlet, 100 psig, 100°F ambient temperature, and 38°F pdp

• Minimum ambient temperature: 40°F • Maximum ambient temperature: 110°F

• Maximum inlet temperature: 130°F

\* Compressor Horsepower

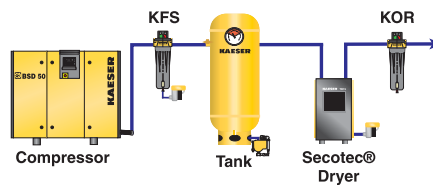
• Exact connection locations vary. Consult factory for dimensional drawing

*Specifications are subject to change without notice.*

## Sizing Your Dryer

Kaeser refrigerated dryers are rated for 100°F inlet air at 100 psig and 100°F ambient temperature. To select a dryer for your application, you must first correct your actual system conditions for these "rated" conditions. To do this, multiply your inlet air flow by each factor to get the *minimum required rated capacity* for your dryer.

## Typical Dryer Location



*For most efficient energy usage, place a filtered separator (KFS) and a receiver tank before the dryer to remove the bulk liquid condensate and solid particles. An oil removal filter (KOR) after the dryer removes oil aerosols.*

## Standard Equipment:

- On/off switch
- Dew point indicator
- Power on (active thermal storage) light
- Compressor on line
- Multi-stage separator
- Electric demand drain (except for TA 5)
- High dew point light (TE only)
- Two volt free contacts for remote status monitoring (TC-31 and larger)

## Optional Equipment:

- By-pass piping

## Correction Factors

Inlet Air Pressure		Inlet Air Temperature		Ambient Temperature	
psig	Factor	°F	Factor	°F	Factor
20	1.56	75	0.62	75	0.90
40	1.36	80	0.72	80	0.92
60	1.18	85	0.81	85	0.94
75	1.10	90	0.91	90	0.96
100	1.00	95	0.96	95	0.98
110	0.98	100	1.00	100	1.00
125	0.94	105	1.22	105	1.03
145	0.91	110	1.33	110	1.06
175	0.87	115	1.43	—	—
200	0.84	120	1.61	—	—
230	0.81	130	1.92	—	—

**All dryers use environmentally friendly R134a refrigerant**

# KAESER COMPRESSORS

**Built for a lifetime.™**

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## The Air Systems Specialist

With over 80 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.