KAESER COMPRESSORS

Built for a lifetime.™

Cycling Refrigerated Air Dryers

Secotec®

20-1060 cfm

kaeser.com

Secotec® Cycling Dryers

Energy efficient compressed air drying

Secotec refrigerated dryers reliably remove the moisture from compressed air while minimizing energy consumption thanks to their innovative cycling control. They feature premium quality components to ensure a long and dependable service life and keep pressure drop low. The broad range of available models makes it possible to install the most suitable dryer for virtually any application.

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 cools, condenses, and may pass into production tools and equipment. Refrigerated dryers condense water vapor and remove the condensed liquid from the air system.

Smart controls for ongoing energy savings

The Secotec cycling control significantly reduces energy consumption compared to conventional systems with continuous control. The refrigeration circuit is activated only when cooling is actually required, saving you money year after year.

Premium components

Secotec dryers are designed and built for maximum reliability. High quality, generously sized components (e.g. the condenser) ensure optimum flow at all times even at high operating temperatures and guarantee a long and dependable service life. Details such as using smooth bore copper piping in the refrigeration circuit also contribute to exceptional system efficiency.

Service-friendly

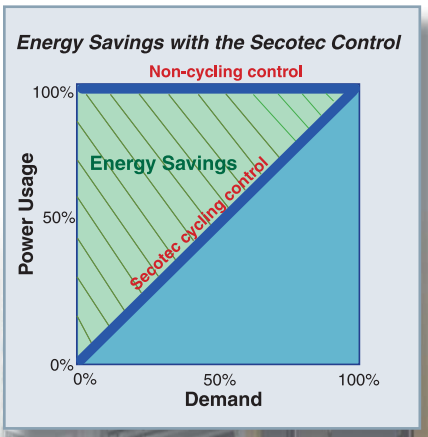
From the ground up, these dryers have been designed with the user in mind. Fewer wearing parts and using premium quality materials ensure reduced maintenance requirements, longer service intervals, and extended service life. Components are accessed by easily removed service panels, simplifying service and lowering operating costs.


KAESER
SECOTEC TF 340

Energy Savings

Why Secotec?

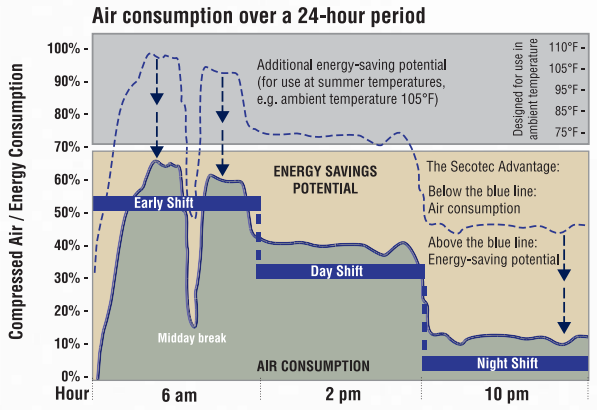
The Secotec cycling control reduces electrical consumption by operating the refrigerant compressor only when necessary. This is achieved by utilizing thermal storage. The refrigerant system cools the medium to a certain temperature, cuts off, and then stands by until the temperature rises to a predetermined level before switching on again. Therefore, the dryer is not wasting energy when the demand is low.



Energy Savings

The Secotec cycling control provides the greatest savings during low demand periods such as evening and night shifts. As shown in the chart, significant savings are possible on a daily basis. During breaks, low demand periods, and shut down, the Secotec dryers save energy because the refrigerant system is shut off.

In a three-shift operation with 100%, 75% and 50% loads respectively, and power costs of $.08 per kWh, the Secotec TF 340 costs under $2100 per year to operate. A similarly sized non-cycling dryer costs nearly $4300. The Secotec solution's 50% power savings pays back in less than 2 years.

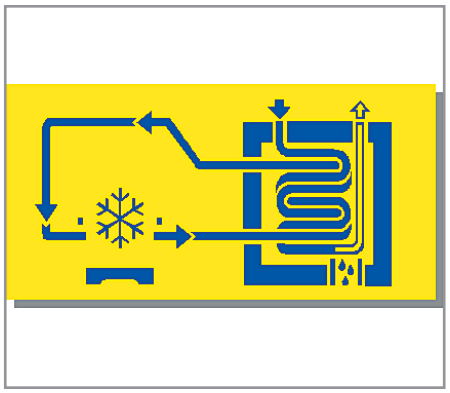


The graph shows a typical compressed air consumption profile. Secotec dryers save energy because the refrigerant system is shut down during breaks, periods of low demand, and downtime; the control system operates without fixed run-on periods. The integrated thermal mass ensures that the system is always ready for operation.

Smart Features for Energy Efficient Operation

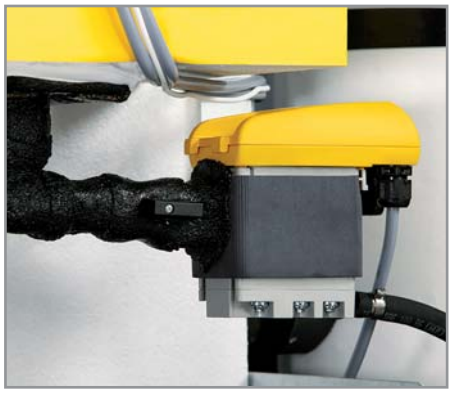
Separator

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



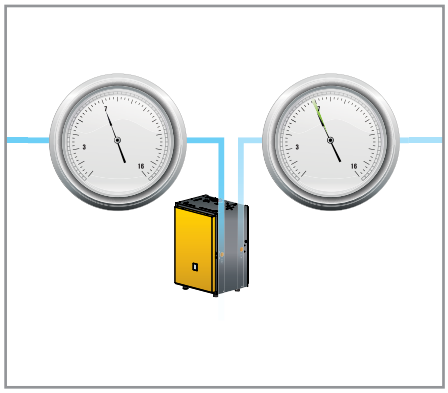
Heat exchangers

Air-to-air and thermal storage-to-refrigerant heat exchangers provide low pressure drop. Smooth inner walls prevent fouling.



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.

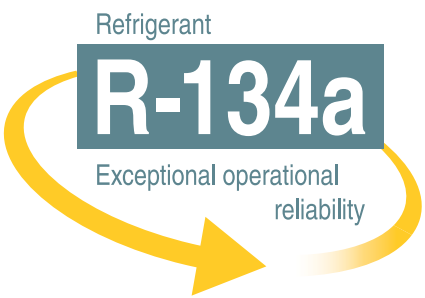


Minimal pressure drop

Secotec dryers ensure minimal pressure, saving additional energy since the maximum system pressure is reduced.

Reliable refrigerant circuit

The refrigerant circuit in Secotec dryers is specially designed for efficient use with R-134a refrigerant. This ensures maximum efficiency and reliability, even at higher temperatures.



User-friendly Integrated Controllers

Control panel includes dew point indicator, on/off switch, and LED's indicating "power on" (active thermal storage) and "compressor on." Electronic demand drain includes "push-to-test" button to confirm drain operation.

TE and TF models include Sigma Control Smart, a micro-processor based controller which controls the thermal storage process. It has an alarm and service message memory, as well as remote on/off control capability. An optional Modbus TCP interface for connecting to a master control system is also available.

Easy to Maintain

Maintenance-friendly design

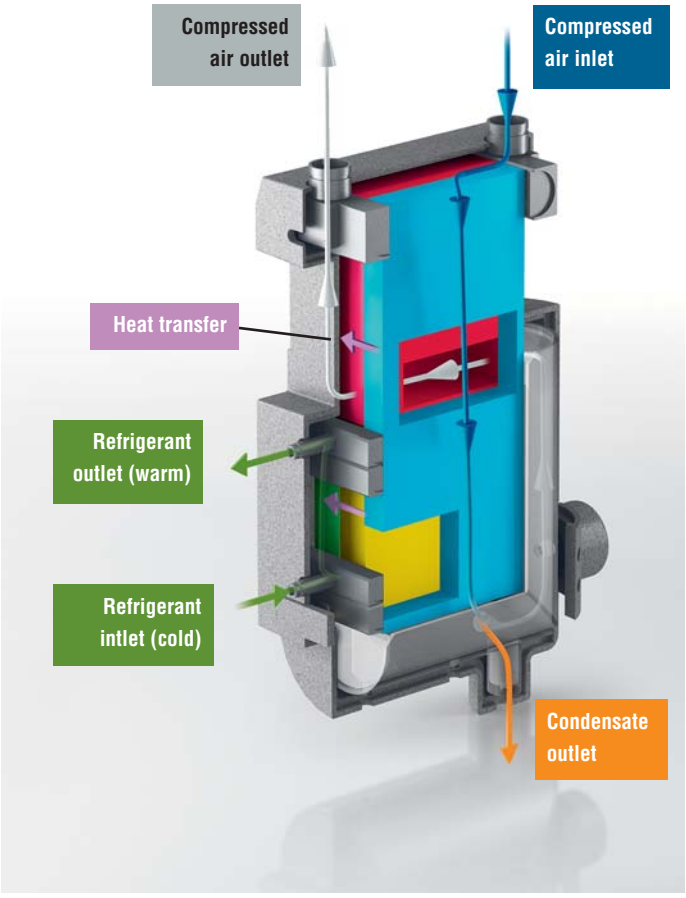
All components such as heat exchangers, refrigerant circuit, condensate separator, and drain are conveniently accessible when the side panels are removed. Service connections are provided at the suction and discharge lines to check the refrigerant circuit easily. The dryer construction and component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

SecoPack LS

Thermal Storage

Thermal storage (a “heat sink”) is required to allow for refrigerant compressor off time. For small and midsize Secotecs, a granular medium is ideal for this, however, large capacity dryers will benefit more from a medium that can change phase from a liquid state to solid state and back within the typical evaporator temperature range of a refrigerated dryer.

Secotec TE and TF models are equipped with the innovative SecoPack LS heat exchanger system. Its latent heat thermal mass is composed of a phase changing material. Compressed air warms the material until its melting point (thermal mass discharge), absorbing melting heat in the process. This is significantly greater than the amount of heat that it can absorb based on its normal specific heat capacity (without phase changing properties). The latent heat thermal mass in the Secotec TE and TF dryers therefore has a dramatically higher thermal density and is capable of delivering the same performance, yet requires 98% less thermal mass material than conventional thermal mass systems. The end result is stable pressure dew points and a dramatically reduced unit footprint.



Technical Specifications

Model	Rated Capacity [1] (scfm)	Power Supply (V / Ph / Hz)	Full Load Power Consumption (kW)	Inlet / Outlet Connections (in.)	Dimensions W x D x H (in.)	Weight (lb.)
TA 5	20	115 / 1 / 60	0.33	3/4 NPT (F)	19 x 24 3/4 x 30 3/8	154
TA 8	30					176
TA 11	45		0.43			187
TB 19	70	115 / 1 / 60 230 / 1 / 60	0.62	1 NPT (F)	21 1/4 x 24 3/8 x 37 7/8	238
TB 26	95		0.82			255
TC 31	115	115 / 1 / 60 230 / 1 / 60	1.03	1-1/4 NPT (F)	26 x 31 1/2 x 39 3/4	342
TC 36	135		1.22			375
TC 44	170	230 / 1 / 60	1.45			440
TD 51	200	230 / 3 / 60 460 / 3 / 60 575 / 3 / 60	1.32	1-1/2 NPT (F)	29 7/8 x 45 1/2 x 46 3/4	553
TD 61	240		1.50			
TD 76	285		2.10	2 NPT (F)		632
TE 102	325	208 / 3 / 60 230 / 3 / 60 460 / 3 / 60 575 / 3 / 60	1.50	2 NPT (F)	28 x 40 3/4 x 64 5/8	485
TE 122	410		1.90			496
TE 142	470		2.20			529
TF 174 [2]	520		2.18	2-1/2 FLG	32 7/8 x 48 3/8 x 78 3/4	750
TF 230 [2]	670		3.06	3 FLG		794
TF 280 [2]	900		3.70			849
TF 340 [2]	1060		4.23			915

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

[2] Available water-cooled

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

Specifications are subject to change without notice.

Selecting the Proper Dryer

To correct Rated Capacity for actual operating conditions, refer to “Capacity Correction Factors for Operating Conditions” and “Capacity Correction Factors for Ambient Temperature”. Find the capacity correction factors corresponding to the inlet and ambient conditions. Multiply these factors to find the “overall” capacity correction factor, then multiply any dryer’s rated capacity by the overall correction factor to determine its capacity at your operating conditions. Capacity correction factors for conditions not shown may be interpolated.

Capacity Correction Factors for Operating Conditions

Pressure (psig)	Temperature (°F)											
	75	80	85	90	95	100	105	110	115	120	125	130
60	0.95				0.85	0.76	0.67	0.59	0.52	0.46	0.41	0.36
80	1.10				0.98	0.88	0.77	0.68	0.60	0.53	0.48	0.42
100	1.25				1.12	1.00	0.88	0.78	0.69	0.61	0.54	0.48
120	1.32				1.18	1.06	0.93	0.82	0.73	0.64	0.57	0.50
140	1.38				1.24	1.11	0.97	0.86	0.76	0.67	0.60	0.53
160	1.45				1.29	1.16	1.02	0.90	0.80	0.70	0.62	0.55
180	1.50				1.34	1.20	1.05	0.93	0.82	0.73	0.65	0.57
200	1.54				1.38	1.23	1.08	0.96	0.85	0.75	0.67	0.59
230	1.58				1.42	1.26	1.11	0.99	0.87	0.77	0.69	0.60

Capacity Correction Factors for Ambient Temperature

	Ambient Air Temperature (°F)							
	75	80	85	90	95	100	105	110
Factor	1.09				1.05	1.00	0.96	0.92

The world is our home

As one of the world's largest compressed air systems providers and compressor manufacturers, Kaeser Compressors is represented throughout the world by a comprehensive network of branches, subsidiary companies and factory trained partners.

With innovative products and services, Kaeser Compressors' experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency. Every Kaeser customer benefits from the decades of knowledge and experience gained from hundreds of thousands of installations worldwide and over ten thousand formal compressed air system audits.

These advantages, coupled with Kaeser's worldwide service organization, ensure that our compressed air products and systems deliver superior performance with maximum uptime.

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