SSRC Refrigerated Air Dryers

Thermal Mass Cycling Refrigerated Air Dryers

4-85 m³/min. ■ 150-3000 scfm

- Reduced power consumption
- Consistent dew point control
- Ease of use
- Microprocessor control
- Scroll compressor
- Environmentally friendly R404A refrigerant

SULLAIR®
Always air. Always there.™

Sullair Capabilities

Sullair Leadership

Since 1965, Sullair has been recognized around the world as an innovator and a leader in rotary screw compression and vacuum technology. For more than 40 years, Sullair has designed and manufactured its own rotors and air end assemblies at the corporate headquarters in Michigan City, Indiana.

The award-winning rotary screw design sets the industry standards and delivers the quality and reliability one expects from a leader.

Sullair Technology

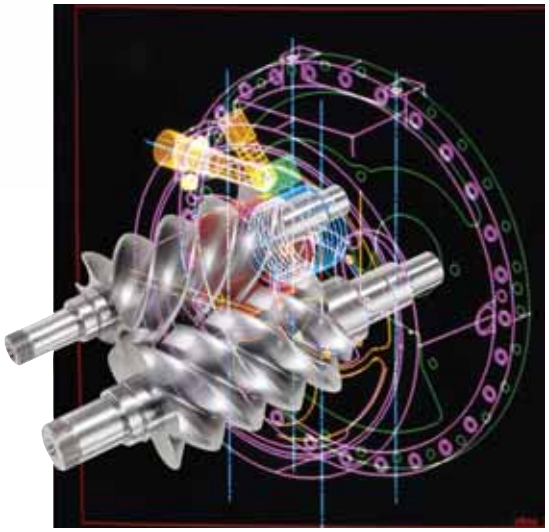
Utilizing the most modern technologies, equipment and advanced manufacturing techniques, Sullair designs, manufactures, assembles, and tests the most innovative compressed air and vacuum products in the industry. Sullair products are known around the world for their universally applicable design, outstanding craftsmanship and superior quality.

Sullair's Statistical Process Control

Sullair's Statistical Process Control (SPC) system monitors rotor quality standards to assure consistent compressor and vacuum performance.

Sullair's Commitment to Innovation

Underlying Sullair's leadership is a dedication to excellence and a commitment to innovation. Sullair is constantly exploring new ideas and seeking new ways to meet industry's need for increasingly energy-efficient compressed air and vacuum solutions.

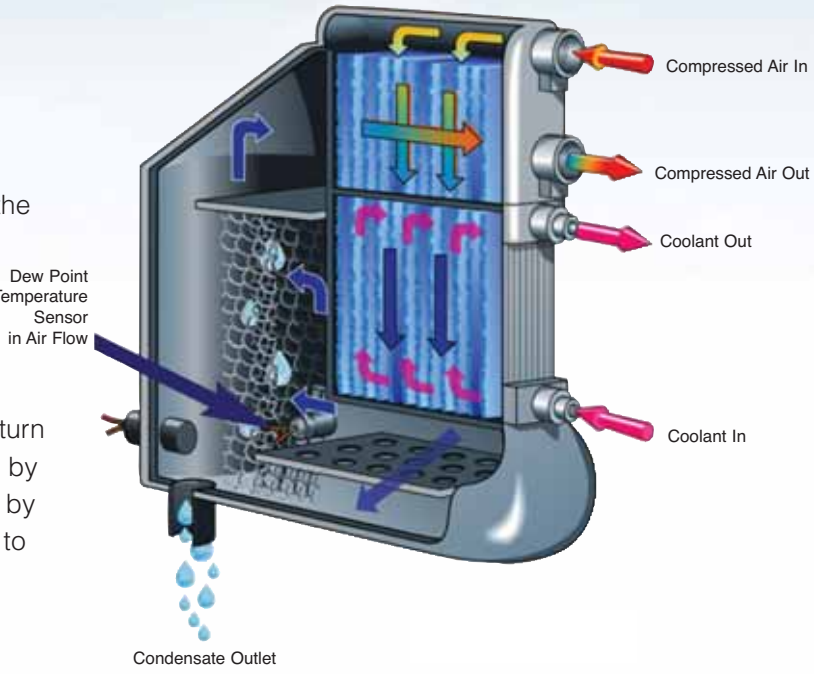


How a Thermal Mass Dryer Works

How It Works

The hot wet air enters the SSRC Dryer, where it immediately passes through the air-to-air exchanger, which cools the incoming air with the exiting air. This pre-cooled air then enters the evaporator, where it is further cooled by the thermal mass fluid, to achieve the dew point temperature. Because of this cooling effect, water condenses out of the air and is efficiently separated by the demister, then removed by the condensate drain.

The now dry but cold air passes back through the return side of the air-to-air exchanger, where it is heated up by the incoming air. This process not only saves energy by pre-cooling the inlet air, but also heats the exiting air to well above dew point and prevents sweating in the piping.



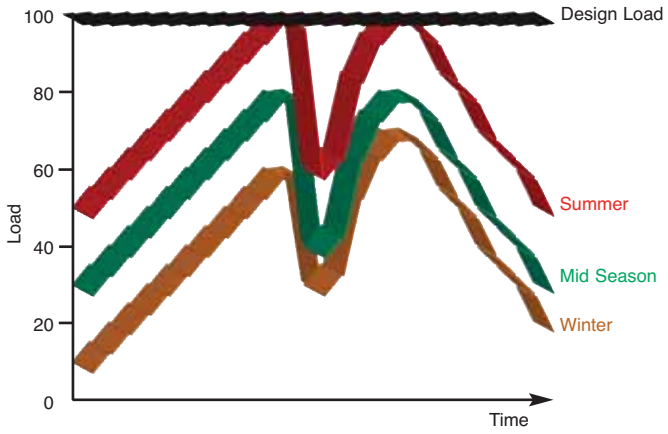
Why a Sullair SSRC Thermal Mass Dryer is Best

Refrigerated air dryers rarely operate at full load. They are sized for maximum operating conditions—usually the hottest time of day at the hottest time of year with the air compressor at full load—however this is rarely the case.

Air demand and heat load fluctuate during the day… and temperatures fluctuate throughout the year, such that the dryer may rarely, if ever, operate at full load.

By choosing a dryer that matches power consumption to actual operating conditions, a significant amount of energy and energy cost can be saved.

Although energy savings depend on the operating conditions specific to the application, it is easy to see that energy savings can be easily in excess of 50%. For example a drop in inlet temperature alone, even without a change in flow can decrease the load on the dryer by 50%.



The graph above illustrates how heat loads fluctuate season to season. The SSRC recognizes these fluctuations, maintaining dew point while maximizing energy efficiency.

Efficient and Reliable Components

Efficiency and Reliability In Scroll Compressors

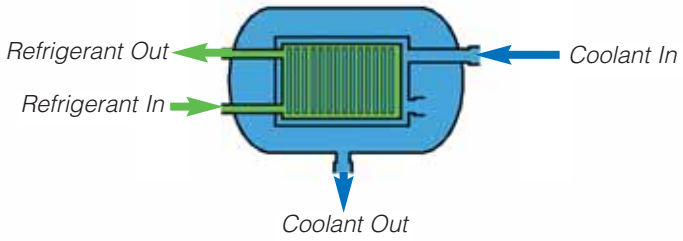
These compressors employ two identical, concentric scrolls, one inserted within the other. One scroll remains stationary as the other orbits around it. This movement draws gas into the compression chamber and moves it through successively smaller "pockets" formed by the scroll's rotation, until it reaches maximum pressure at the center of the chamber. There, it's released through a discharge port in the fixed scroll. During each orbit, several pockets are compressed simultaneously, so operation is virtually continuous and pulse-free. Standard on models SSRC-400 through SSRC-3000, scroll compressors offer numerous benefits:

- A higher efficiency rating adds up to energy savings of over 20%
- Extremely high reliability due to reduced vibration levels and fewer moving parts
- Scroll compressor technology offers near indestructibility, even permitting liquid refrigerant returns

Dynamic Thermal Mass Storage Lowers Power Consumption

The SSRC dryers overcome the typical disadvantages of cycling dryers—that of energy loss in the thermal mass, with two unique design features:

- The refrigerant to coolant exchanger is mounted inside the thermal tank itself. This unique feature reduces power consumption and improves temperature control.
- The coolant-to-air exchanger's compact design, with no interconnecting tubing or other sources of energy loss, improves thermal retention, further minimizing power consumption.

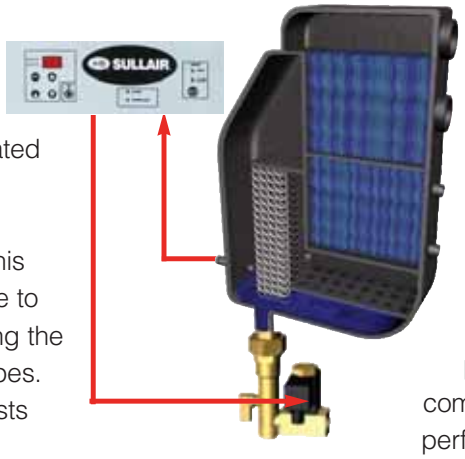


The use of the energy saving scroll compressors and R404A refrigerant ensures the SSRC dryers avoid the high full-load power consumption associated with thermal mass-type dryers.

Intelligent Integral Zero-Loss Drain

The Drain Is One of the Most Important Components

Dryer models SSRC-400 and larger utilize a truly unique zero air loss drain integrated into the heat exchanger. Condensate is collected in a chamber, segregated from the air flow. As condensate builds, it activates a drain level sensor built into the chamber. This opens an external solenoid valve to evacuate the condensate, closing the valve again before any air escapes. The drain cycle continually adjusts itself to working conditions.



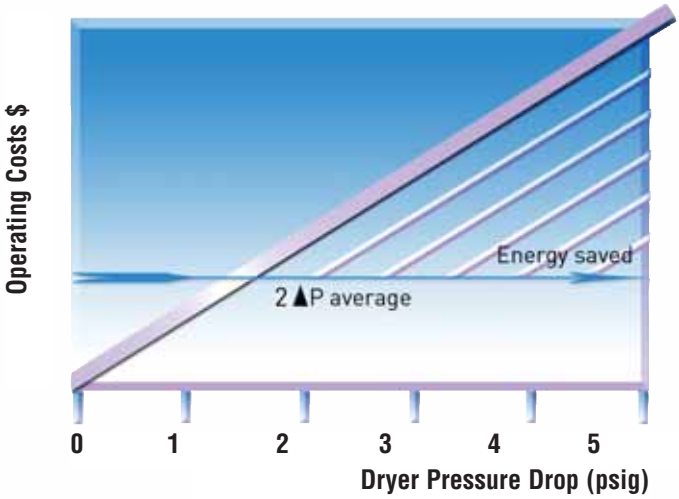
Self-diagnostic software avoids fault situations. And should an error occur, an alarm will be signalled and the drain will continue to operate on a pre-programmed timed drain cycle. The controls for the drain are part of the microprocessor's fully integrated control and alarm system.

Sullair offers a drain alcove on all its standard dryers. This simple solution is a major benefit to the user. The drain is one of the most important components within the dryer. If it doesn't work properly the dryer's whole operation is compromised. The alcove offers simple access to perform any required maintenance.

Features That Make Them Efficient

Demister Separator

Sullair uses a high capacity demister separator to remove condensed liquids. This lowers the air velocity which maximizes the condensate separation from the air, even when the dryer is not operating at maximum flow. This design also ensures the differential pressure across the dryer is kept to a minimum.



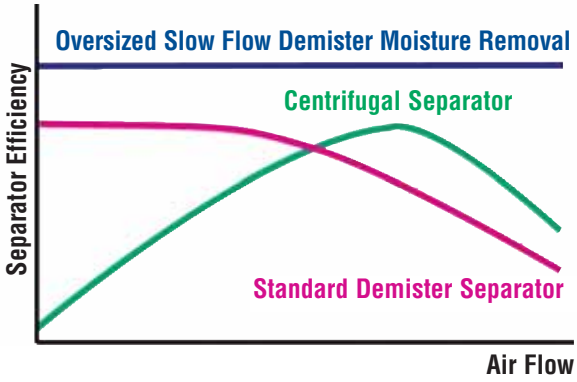
Oversized Condenser

SSRC Series dryers have been designed with oversized condensers to allow operation up to 140°F (60°C) air inlet and 115°F (46.1°C) high temperature ambients.

Lowest Differential Pressure

SSRC dryers have an average of 2.0 psid versus the industry average of 5.0 psid. Calculations for a 500 scfm dryer operating 8760 hours per year are

$0.05 per kW = $ 546 per year
$0.10 per kW = $1091 per year
$0.15 per kW = $1638 per year



Dew Point Control And Performance

Accurate Dew Point Control

The SSRC's sophisticated control program ensures lowest dew points at all times.

Typically cycling dryers only control the temperature of the thermal mass. The SSRC monitors both the thermal mass and dew point temperature, allowing it to better control the dew point and anticipate load variations.

As the dew point sensor is positioned in the air flow itself, it senses the actual air conditions in the dryer improving the control.

The SSRC's thermal mass is continuously circulated ensuring a stable temperature. Traditional dryers using sand or non-circulating liquids cannot guarantee uniform temperature control and put the dew point at risk.

Excellent Dew Point Performance

Wide air channels and low air velocities maximize dew point performance. Standard demisters provide inferior separation at high air flows and centrifugal separators provide inferior separation at low air flows. Sullair's oversized "slow flow" demister is non-velocity sensitive and therefore offers perfect cross separation whatever the airflow.

Smart Maintenance: Easy Access To All Components From Front Panel

Access All Components Through One Panel

All SSRC dryers provide a single panel access to all components for standard maintenance. Some competitive dryers require as many as all four sides free for maintenance access (and for air flow making them difficult to install in an out-of-the-way location).

The control panel, located in a separate enclosure, is easily accessed from the front of the dryer.

The condenser section is separated from the main body of the dryer to allow proper air flow and condenser cooling during operation.

For ease of maintenance and testing, the solenoid valve is located in the drain alcove, accessible from the outside of the dryer without removing any panels .

Avoid emergencies by proactively maintaining your dryer.

ENERGY STAR PARTNER

Specifications

Model	Air Flow Capacity (scfm @ 68°F)	Air Inlet/Outlet (NPT)	Condensate Drain (NPT)	Width (in) w/o pkg	Width (in) w/ pkg	Height (in) w/o pkg	Height (in) w/ pkg	Depth (in) w/o pkg	Depth (in) w/ pkg	Weight (lb) w/o pkg	Weight (lb) w/ pkg	Electrical Supply (V/Ph/Hz)
SSRC-0150-A1	150	1-1/2"	1/4"	27.0	28.0	55.5	59.5	24.5	29.5	431	456	115/1/60
SSRC-0150-A2	150	1-1/2"	1/4"	27.0	28.0	55.5	59.5	24.5	29.5	431	456	230/1/60
SSRC-250	250	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	532	562	230/1/60
SSRC-250	250	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	532	562	230/3/60
SSRC-250	250	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	532	562	460/3/60
SSRC-250	250	1-1/2"	1/4"	27.1	28.1	58.0	62.0	33.0	38.0	556	591	575/3/60
SSRC-325	325	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	547	577	230/1/60
SSRC-325	325	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	547	577	230/3/60
SSRC-325	325	1-1/2"	1/4"	27.1	28.1	58.0	62.0	27.6	32.5	547	577	460/3/60
SSRC-325	325	1-1/2"	1/4"	27.1	28.1	58.0	62.0	33.0	38.0	569	604	575/3/60
SSRC-400	400	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	928	968	230/3/60
SSRC-400	400	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	928	968	460/3/60
SSRC-400	400	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	967	1007	575/3/60
SSRC-500	500	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	941	981	230/3/60
SSRC-500	500	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	941	981	460/3/60
SSRC-500	500	2"	1/4"	47.1	48.1	65.0	69.0	35.1	36.0	980	1020	575/3/60
SSRC-700	700	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1158	1208	230/3/60
SSRC-700	700	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1158	1208	460/3/60
SSRC-700	700	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1202	1252	575/3/60
SSRC-850	850	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1236	1286	230/3/60
SSRC-850	850	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1236	1286	460/3/60
SSRC-850	850	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1276	1326	575/3/60
SSRC-1000	1000	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1236	1286	230/3/60
SSRC-1000	1000	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1236	1286	460/3/60
SSRC-1000	1000	3"	1/4"	56.0	57.0	70.8	74.8	33.5	38.0	1276	1326	575/3/60
SSRC-1200-A4	1,200	3"	1/2"	85.25	86.25	65.8	69.0	33.5	38.0	2024	—	460/3/60
SSRC-1200-A5	1,200	3"	1/2"	85.25	86.25	65.8	69.0	33.5	38.0	2091	—	575/3/60
SSRC-1600-A4	1,600	4" flg	1/2"	97.5	98.5	77.8	81	41.75	46.50	2561	—	460/3/60
SSRC-1600-A5	1,600	4" flg	1/2"	97.5	98.5	77.8	81	41.75	46.50	2648	—	575/3/60
SSRC-2000-A4	2,000	4" flg	1/2"	97.5	98.5	77.8	81	41.75	46.50	2746	—	460/3/60
SSRC-2000-A5	2,000	4" flg	1/2"	97.5	98.5	77.8	81	41.75	46.50	2853	—	575/3/60
SSRC-2400-A4	2,400	6" flg	1/2"	102.5	103.5	81	83	61	65.5	3737	—	460/3/60
SSRC-2400-A5	2,400	6" flg	1/2"	102.5	103.5	81	83	61	65.5	3839	—	575/3/60
SSRC-3000-A4	3,000	6" flg	1/2"	102.5	103.5	81	83	61	65.5	4009	—	460/3/60
SSRC-3000-A5	3,000	6" flg	1/2"	102.5	103.5	81	83	61	65.5	4111	—	575/3/60

SSRC Performance Data Based On:

Ambient temperature	100°F
Inlet temperature	100°F
Inlet pressure	100 psig

For flow rates at other conditions, please contact Sullair for correct sizing

Performance data obtained and presented in accordance with CAGI Standard No. ADF 100, "Refrigerated Compressed Air Dryers – Methods for Testing and Rating"

SSRC Technical Data

Maximum ambient temperature	115°F
Maximum inlet temperature	140°F
Minimum ambient temperature	41°F
Maximum pressure	203 psig
Refrigerant	R404A

SSRC Flow Correction Factors

Capacity correction to be used when operating conditions differ from those shown above. To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2 x C3.

Ambient Temperature (C1)

°F	80	90	100	110	115
Correction factor	1.12	1.05	1.00	0.92	0.84

Inlet Temperature (C2)

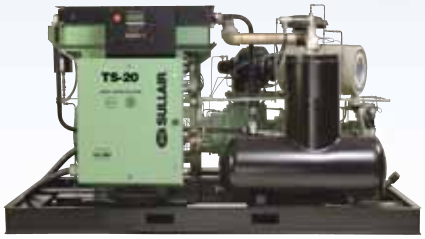
°F	80	85	90	95	100	105	110	115	120
Correction factor	1.50	1.36	1.22	1.10	1.00	0.92	0.83	0.76	0.69

Inlet Pressure (C3)

Pressure psig	50	75	80	90	100	110	125	130	140	150	175	200
Correction factor	0.80	0.90	0.93	0.96	100	1.01	1.02	1.03	1.04	1.05	1.08	1.10

Sullair Supplies Compressed Air Systems

For the lowest total cost of ownership, Sullair provides an air system designed to lower operating cost, improve reliability and maximize return on investment.



Sullair offers air systems to help compressed air users reduce their energy costs and improve their productivity by analyzing, managing and controlling total compressed air systems. Information on the compressed air system tailored to your specific needs can be obtained by contacting your local Sullair Distributor. To acquire local distributor contact information visit us online at www.sullair.com or call 219-879-5451.

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