

**Gardner**  
**Denver**

REFRIGERATED AIR DRYERS | 75-550 SCFM

**RPC**

# Energy Saving Series



## Sustainable Energy Saving Solutions

Gardner Denver is a place where innovation is constant and the real-world needs of our customers are understood. We transform market-inspired ideas into actioned solutions enabling our global customers to meet their sustainability goals and thrive in a complex, ever-changing marketplace.

Utilizing the latest advancements in heat transfer technology, RPC Series refrigerated dryers offer an innovative approach to efficiently remove liquid contamination from compressed air.

### The RPC Series with Standard Energy Saving System

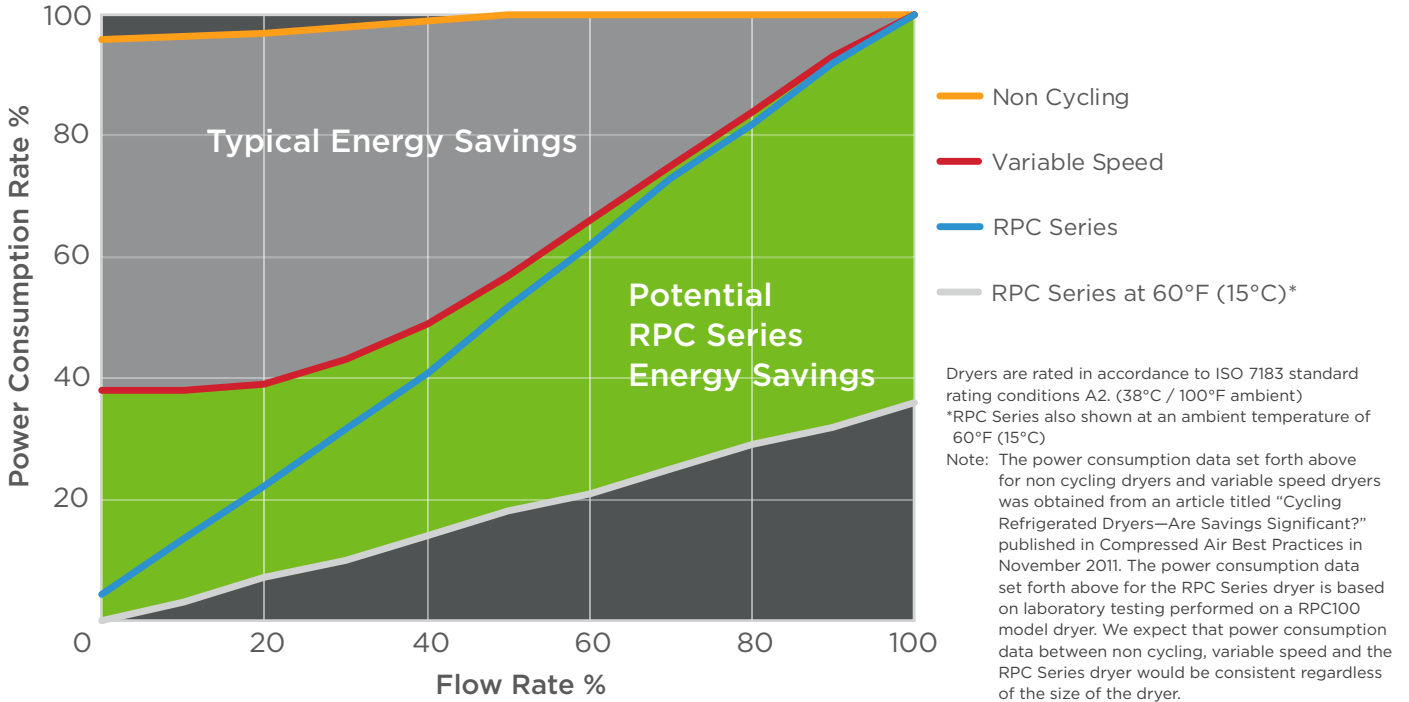
The ESS (Energy Saving System) is capable of transferring heat energy through a change of state. During the thermal change process, the media's temperature remains constant—known as latent heat transfer. Latent heat transfer occurs when the media changes from a solid to liquid or a liquid to solid. The state of the media is monitored by a temperature probe that automatically engages the refrigeration compressor to power on or off according to varying inlet load profiles. Because the ESS is capable of storing and releasing heat energy without a change in temperature, the refrigerant compressor cycles less frequently and saves energy.

The dryer requires fewer components than conventional cycling designs and does not require a cooling media circulation pump, storage tank and glycol to refrigerant heat exchanger. All cooling is accomplished in the 3-in-1 heat exchanger.

The media within the ESS is non-toxic, does not require replacement and maintains its thermal properties regardless of age. In the frozen state the media will not thermally expand, maintaining the long-term integrity of the heat exchanger assembly.



## ENERGY SAVINGS COMPARISON



### Energy Saving Sustainability

The RPC Series lowers air system power costs and improves productivity by matching power consumption to compressed air demand.

In a typical manufacturing facility, up to 30% of electricity consumed is for generating and treating compressed air. To reduce total cost of operation and qualify for utility company incentive programs, proper air treatment equipment selection and application is required.

### Load Matching Performance

Compressed air load profiles in most manufacturing facilities fluctuate. The RPC Series provides cost-effective energy savings by matching electrical power consumed in direct proportion to air demand. Linear load matching is achieved from 0% up to 100% demand.

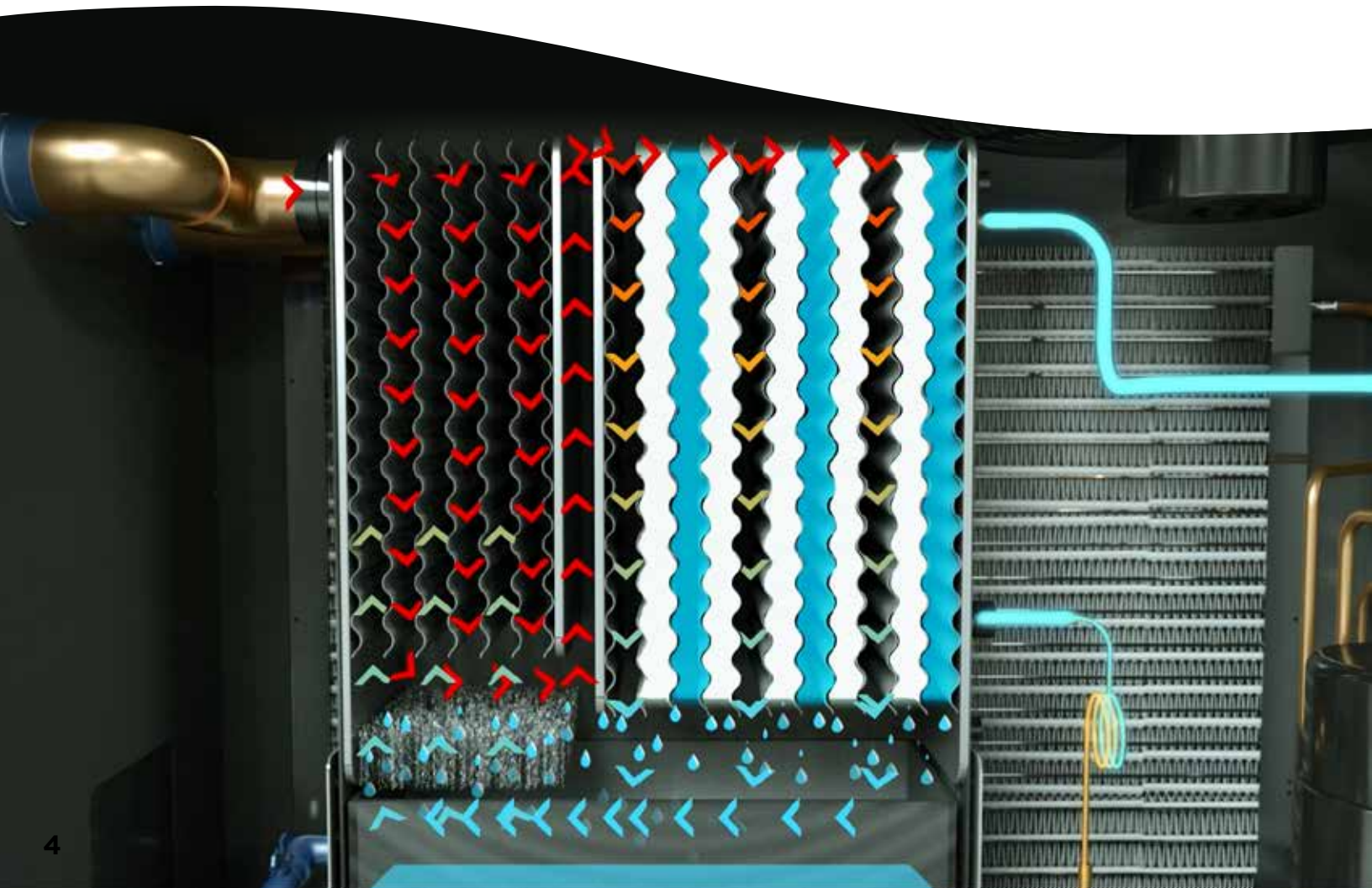
Non-cycling dryers operate with the refrigeration compressor running continuously, regardless of inlet load conditions. Minimal energy savings are realized from 100% down to 0% inlet air load.

### Linear Energy Savings

RPC Series dryers automatically power (on/off) the refrigeration compressor in response to inlet load conditions. As the inlet air load is reduced, the power requirement to dry the air is matched in proportion to the demand. For example, at 60% inlet air load, a non-cycling dryer consumes 96% of the full load power consumption, a 4% energy savings. By comparison, at 60% inlet air load, the RPC Series consumes only 60% of the full load power, a 40% energy savings.

## How It Works

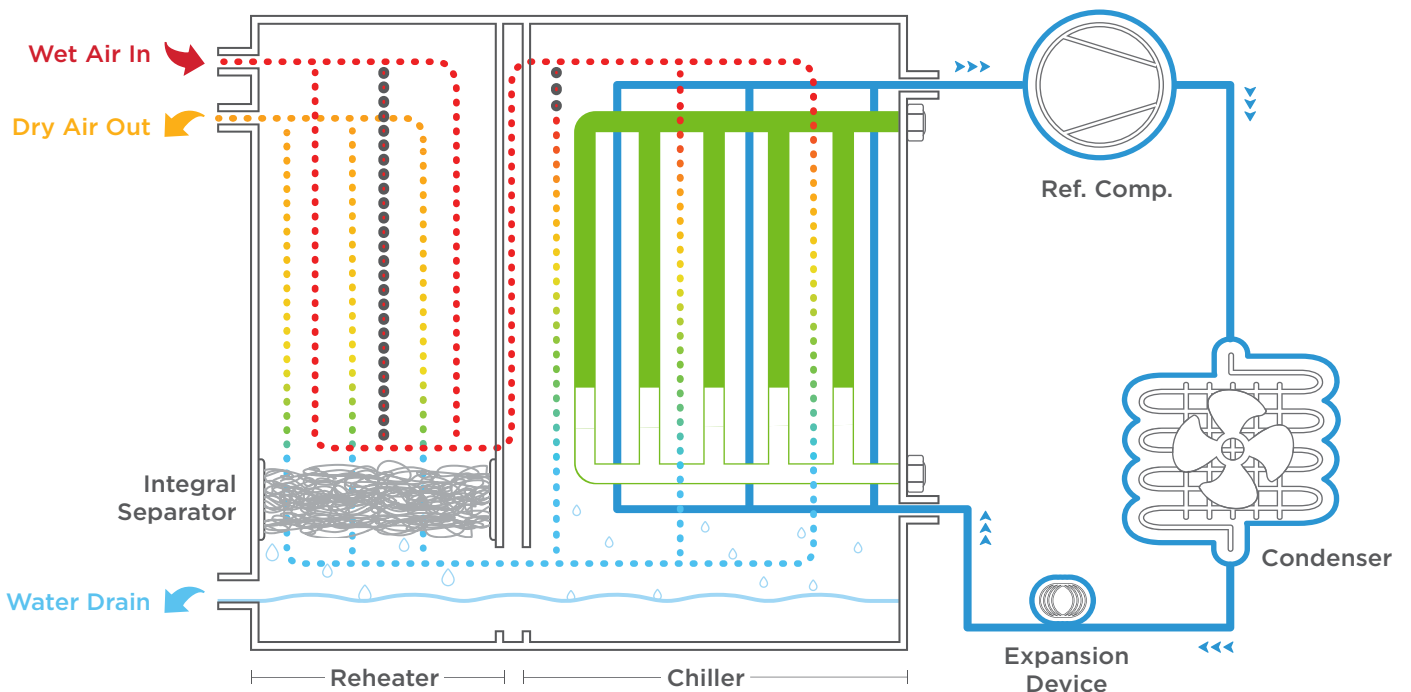
- 1** The RPC Series utilizes an ESS that allows for heat to transfer medium between the refrigeration and compressed air circuits that serves as a reservoir for thermal storage.
- 2** The thermal reservoir is comprised of a patent-pending heat exchanger filled with a media that efficiently transfers heat energy through a “change of state”.
  - Thermal Change: changing from liquid to solid back to liquid in a continuous cycle.
- 3** The refrigeration circuit operates to cool down the medium until it forms into a solid at which time the refrigeration system powers off.
  - Thermal Change: changing from liquid to solid back to liquid in a continuous cycle.



**4** As the compressed air enters the ESS, the media absorbs heat from the airstream and begins to melt the media at a constant temperature.

**5** When most of the media has turned to liquid the refrigeration system powers on to again cool down the media turning it back into a solid.

**6** This process repeats as required to meet the corresponding compressed air load on the RPC Series dryer.





# Better by Design

## RPC Energy Saving Series 75-550 scfm

The RPC Series is the ideal solution to reliably and economically dry compressed air. The innovative technology does not require a recirculating pump and associated piping. This results in a simpler, more energy efficient design.

- 1** Stainless steel brazed plate 3-in-1 heat exchanger (patent-pending), with Energy Saving System
  - The ESS thermal reservoir operates at a precise temperature to deliver a stable pressure dew point
  - Smooth, non-fouling stainless steel surfaces promote low resistance to flow, optimizing air system efficiency
- 2** No-air-loss, demand drain efficiently removes condensate without loss of compressed air
  - Condensate drain lines terminate at discharge connections conveniently located on the side of the dryer
  - Failure-to-discharge alarm on the operator interface enhances system reliability
- 3** High-efficiency, up-flow aluminum air-cooled condenser
  - Pulls ambient air through the condenser and releases out the top of the dryer condenser
  - Provides cooler condensing air and greater efficiency

- 4** Reliable, semi-hermetic refrigerant compressor
  - Environmentally-friendly, globally-accepted refrigerants
  - Rugged design, for long-term operation
- 5** Controller with LCD display provides ease-of-monitoring and operating status
  - RPC75 & RPC100
    - Energy savings (%), dryer operating time, refrigeration compressor operating time, active fault message and dew point status
  - RPC150 to RPC550
    - Energy saving (%), dryer operating time, refrigeration compressor operating time, active fault message and dew point status
    - USB connection port to download operating data and upgrade firmware
    - Remote monitoring capability - RS485 communications port



Simple  
Reliable  
Energy Efficient



# International Air Quality Class Standards

## ISO 8573-1 Air Quality Standard

ISO 8573-1, the international standard for compressed air quality, defines the amount of contamination permissible in compressed air.

The ISO standard identifies three primary forms of contamination in compressed air systems: solid particles, water and oil. These contaminants are classified and assigned a quality class, ranging from Class 0, the highest purity level, to Class 6, the most relaxed.



RPC Series refrigerated air dryers offer the perfect balance between technology and simplicity to dry compressed air systems to ISO 8573-1 Air Quality Class 4-5 pressure dew points.

Note: Bundle Filtration Option When Purchased with the Dryer (FP)

### Option Pre-Filtration

FIL series C grade filtration removes solid and oil contaminants from the air stream before entering the dryer.

#### ISO Air Quality Class:

- Solids - Class 2
- Remaining oil - Class 4
- Removes solids 1.0 micron and larger
- Remaining oil content < 2.0 mg/m<sup>3</sup>

### Option After-Filtration

FIL series E grade filtration provides high efficiency oil removal protecting downstream equipment.

#### ISO Air Quality Class:

- Solids - Class 1
- Remaining oil - Class 1
- Removes 99.999+% of solids  $\geq$  0.01 micron
- Remaining oil content < 0.01 mg/m<sup>3</sup>





## *Premium Warranty*

- 2 Years—Standard
- 3 Years—Extended
- 5 Years—Total

Parts and labor included.  
Contact your local distributor for more details.

## PRODUCT SPECIFICATIONS

DRYER MODEL	INLET FLOW		PRESSURE DROP PSI	VOLTAGE	IN/OUT CONNECTIONS	POWER CONSUMPTION KW	REFRIGERANT	HEIGHT		WIDTH		DEPTH		WEIGHT LBS
	NM <sup>3</sup> /H	SCFM						IN	MM	IN	MM	IN	MM	
RPC75	127	75	2.9	115/1/60	1" NPT	0.54	R134A	30	751	15	381	24	603	120
RPC100	170	100	3	115/1/60	1" NPT	0.62	R134A	28	711	15	381	31	781	147
RPC150	255	150	1.7	115/1/60	1" NPT	1.04	R407C	30	751	18	443	36	911	203
			3.6	230/1/60	2" NPT	0.85		30	751	18	443	36	911	189
RPC200	340	200	2.2	230/1/60	2" NPT	1.32	R407C	30	751	18	443	38	961	217
			2.1	460/3/60		1.26	R134A	30	751	18	443	38	961	244
RPC300	509	300	3.6	460/3/60	2" NPT	1.99	R407C	36	911	20	494	44	1111	324
RPC400	680	400	2.5	230/1/60	2" NPT	2.54	R407C	36	911	20	494	44	1111	335
RPC450	765	450	3.0	460/3/60	2" NPT	3.23	R407C	41	1032	20	494	50	1253	366
RPC550	935	550	3.0	460/3/60	2" NPT	3.42	R407C	41	1032	20	494	50	1253	396

Performance data presented in accordance with ISO 7183 (Option A2) conditions: 100°F inlet temperature, 100°F ambient temperature and 100 psig conditions.

## CAPACITY CORRECTION FACTORS

To adjust the dryer capacity for non-standard conditions, use the Capacity Correction Factors (multipliers) from Tables 1, 2 & 3.

Table 1: Inlet Air Pressure

INLET AIR PRESSURE	75 PSIG 5.2 BAR	100 PSIG 6.9 BAR	120 PSIG 8.3 BAR	150 PSIG 10.3 BAR	225 PSIG 15.5 BAR
Multiplier	0.86	1.00	1.04	1.09	1.15

Table 2: Inlet Air Temperature

INLET AIR TEMPERATURE	80°F / 27°C	90°F / 32°C	100°F / 38°C	110°F / 43°C	120°F / 49°C
Multiplier	1.12	1.06	1.00	0.83	0.68

Table 3: Ambient Air Temperature

AMBIENT AIR TEMPERATURE	80°F / 27°C	90°F / 32°C	100°F / 38°C	110°F / 43°C	120°F / 49°C
Multiplier	1.46	1.23	1.00	0.82	0.68



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with a focus on innovation and velocity

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