PURIFICATION SOLUTIONS

R-Series[1]

cycling refrigeration compressed air dryers

flow capacity: 20 - 2000 scfm (34 - 3400 Nm³/hr)

R 1

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Leading edge technology and more than 100 years of **experience**...nano-purification solutions, your world-class provider of state-of-the-art compressed air and gas solutions to industry.

Our commitment at n-psi is to work alongside our **customers** and provide unique solutions with the highest quality products to solve your specific challenges.

A wealth of experience and leading edge products are only part of the equation. n-psi realize that world-class customer **service** is the most important component to any successful business.

Experience.Customer.Service...**n-psi**

Clean and Dry

Clean and dry compressed air is essential in every efficient and profitable manufacturing and process operation worldwide. nano-purification solutions' vast experience includes food, beverage, chemical, laboratory, medical and natural gas applications.

n-psi understands your needs and has created the nano range of high-performance, energy-saving compressed air and gas purification products to provide clean and dry compressed air and gases at an affordable price with unrivaled reliability.

Design

Our experienced team of design engineers are always looking for new and unique technologies and products to bring you the highest level of performance and lowest overall operating cost.

Research & Development

Our R&D team endeavor to provide solutions that go beyond developing an existing product. They are continually researching new technologies which can provide unique advantages over competitive offerings.

Manufacture

The reliable and energy saving nano R-Series[1] refrigeration air dryers are manufactured in a state of the art facility to the highest standards of build quality to ensure reliability and high levels of performance.

nano R-Series[1] cycling refrigeration dryers

The advanced nano R-Series[1] cycling refrigeration air dryer combines the advantages of a direct thermal exchange with thermal storage. It's two dryers in one. By combining these two powerful energy saving technologies the R-Series[1] provides you with the lowest power consumption available in the market today. This cutting edge, patented concept not only reduces your energy bill, it also offers steady dew point performance and reliable operation to ensure you have continuous, worry free, clean and dry compressed air.

With digital controls that automatically manage energy consumption, and unique condensate drains that automatically adjust to demand - the R-Series[1] cycling refrigeration dryer saves energy and eliminates seasonal adjustments. It is the ultimate solution to remove moisture from your compressed air system.

advanced microprocessor controls

At n-psi we take our control systems seriously. The R-Series[1] dryers feature easy to use advanced electronic controls and digital LED displays on every model, although with standard features like automatic on/off operation, and automatic self calibration you may never get to use them.

Control System		NRC 0020 to 250	NRC 0325 to 2000
Type:		Electronic	Microprocessor
User Interface :		5 Button Digital Interface	6 Button Digital Interface
Display:		Digital LED Display	
Digital Readouts:	Outlet Air Dewpoint	Yes (Non Numerical)	Yes (in °F or °C)
	Inlet Air Temperature	-	Yes (in °F or °C)
	Alarm Codes	Yes (4 alarms)	Yes (14 alarms)
	Alarm History	-	Yes (up to 50 stored alarms)
LED Indicators:	Energy Saving Mode Indicator	Yes	
	Programmable Service Interval Indicator	Yes	
Control Features:	Programmable User Alarm	Yes	
	User Programmable Operating Parameters	Yes	
	Two Dewpoint Settings	Yes	
	Remote on/off capability	Yes	
	Condensate Drain Control & Test Function	Yes	
	Volt Free General Alarm Contacts	-	Yes
	RS485 Serial Outlet (for connection to MODBUS Supervisor System)	-	Optional

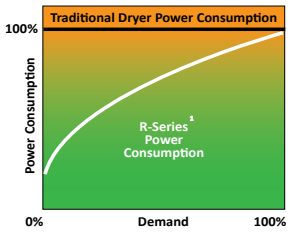
energy saving condensate drains

The NRC 0020 to 0250 models feature a unique timed solenoid drain that automatically adjusts with demand. The NRC 325 to 2000 models feature an intelligent electronic zero air loss drain that automatically adjusts based on condensate flow. These drains need no calibration at start up or from season to season, saving you time and valuable compressed air.

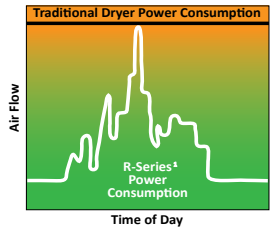
R-Series[1] cycling - energy saving design

Refrigeration dryers must be sized to handle the worst case operating conditions they may encounter - the highest possible flow at the highest possible inlet temperature on the hottest day of the year. The power consumption needed to operate at these worst case conditions is far greater than otherwise needed. Traditional dryers operate at this higher power consumption all the time - even though the actual demand on the dryer is normally much less.

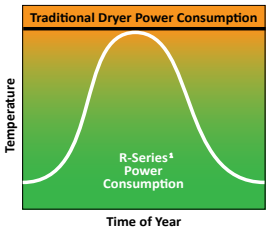
The advanced technology in the R-Series[1] cycling dryer allows it to automatically reduce it's power consumption to meet the actual demand, saving you up to 80% over a traditional dryer.



Dryer demand is a function of both air flow and ambient temperature. Unless both these variables are at the maximum at the same time, there are energy savings to be had. The R-Series[1] takes advantage of this, significantly reducing power consumption to match the actual demand.



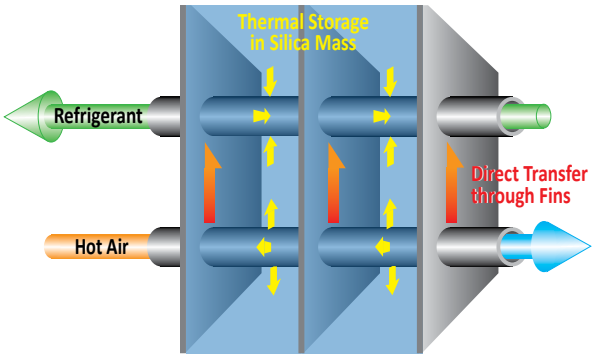
In most applications the air flow varies significantly throughout the day reaching peak demand only for a very short time, and often can be close to zero overnight or during breaks. The R-Series[1] power consumption matches that demand for optimal savings.



Ambient temperatures can vary significantly from day to night and throughout the year - most of the time well below mid-day summer highs. The R-Series[1] takes advantage of this energy savings automatically lowering it's power consumption to match the decreased demand.

patented dual transfer heat exchanger

The patented heat exchanger combines direct thermal transfer & thermal storage into one powerful concept. The compact design contains aluminum fins embedded within a silica thermal mass, all within an advanced thermal isolation enclosure. Heat transfers from the air or gas to the refrigerant quickly through fins or slowly through the thermal mass for optimum operation at any load. The refrigerant circuit cycles off and on to keep the thermal mass at a constant temperature, providing a consistent dew point, and matching the power consumption to the thermal load for maximum energy savings.



features & benefits

Energy saving design - unique hybrid operation uses up to 80% less energy than a traditional dryer.

High ambient dewpoint setting - allows for additional energy savings when conditions permit.

Intelligent condensate drains - drains self adjust for maximum energy savings.

User friendly digital controls - LED interface comes standard on every model.

Quick & easy start-up - no pre-start up cooling, programming or calibration.

Automatic operation - automatically turns itself off and on as needed.

Built for the heat - keeps operating through the hottest days of summer.

Built for the cold - advanced design means no winter freeze ups.

Built to last - compressor runs cooler and less often for a longer life.

Built for industry - top mounted condenser for dusty environments.

Handles the pressure - standard 232 psig design & 740 psig option.

Easy to maintain - simple refrigeration circuit - no hot gas bypass valve.

Programmable service warning - keeps maintenance on schedule.

Wide air paths - never worry about plugging up the heat exchanger

Wide condensate paths - never worry about plugging up the drain.

No seasonal adjustments - controls self adjust with the seasons.

Guaranteed reliability - extensive factory testing for quality assurance.

Safety is built in - refrigerant cannot contaminate your compressed air.

Consistent cooling - thermal mass handles sudden changes in heat load.

Consistent separation - stainless steel demister separates efficiently at all flows.

Consistent dew point - ensured by the advanced heat exchanger & separator design.

Environmentally friendly - built using R134A refrigerant and a non-toxic silica thermal mass.

Quality components designed for industrial applications

Advanced easy to use digital control system & LED display

nano R-Series[1] sizing & specifications

Model	Maximum Rated Flow (1)		Absorbed Power (2)	Condenser Cooling		Power Supply (V/Ph/Hz)				Inlet & Outlet Connections	Dimensions (inches)				Weight
	scfm	Nm^3/hr	kW	Air	Water	115/1/60	230/1/60	230/3/60	460/3/60		A	B	C	D	lbs
NRC 0020	20	34	0.26	●		●				1/2" NPT	20.9	11.8	20.1	3.5	80
NRC 0030	30	51	0.26	●		●	o			1/2" NPT	20.9	11.8	20.1	3.5	86
NRC 0050	50	85	0.36	●		●	o			1/2" NPT	20.9	11.8	20.1	3.5	91
NRC 0075	75	127	0.50	●		●	o			3/4" NPT	25.6	14.6	29.5	3.5	143
NRC 0100	100	170	0.64	●		●	●			3/4" NPT	25.6	14.6	29.5	3.5	148
NRC 0125	125	212	0.97	●		●	●			1" NPT	25.6	14.6	29.5	3.9	176
NRC 0150	150	255	0.92	●		●	●			1" NPT	30.7	14.6	33.5	3.9	209
NRC 0175	175	297	1.11	●		●	●			1" NPT	30.7	14.6	33.5	3.9	227
NRC 0200	200	340	1.30	●			●	●	●	1 1/2" NPT	30.7	28.9	37.0	5.1	368
NRC 0250	250	425	1.32	●			●	●	●	1 1/2" NPT	30.7	28.9	37.0	5.1	388
NRC 0325	325	552	2.07	●			●	o	●	1 1/2" NPT	30.7	28.9	37.0	5.1	416
NRC 0425	425	722	2.82	●	o			●	●	2" NPT	34.0	40.0	43.3	5.1	582
NRC 0520	520	883	3.28	●	o			o	●	2" NPT	34.0	40.0	43.3	5.1	646
NRC 0600	600	1019	3.49	●	o			o	●	2 1/2" NPT	34.0	51.9	43.3	5.1	833
NRC 0700	700	1189	3.64	●	o			o	●	2 1/2" NPT	34.0	51.9	43.3	5.1	866
NRC 0800	800	1359	4.28	●	o			o	●	2 1/2" NPT	34.0	51.9	43.3	5.1	880
NRC 1000	1000	1699	5.09	●	o			o	●	3" NPT	37.9	62.6	61.7	6.0	1598
NRC 1220	1220	2073	6.48	●	o			o	●	4" Flanged	37.9	71.3	61.7	6.0	1907
NRC 1600	1600	2718	8.55	●	o			o	●	4" Flanged	34.1	88.0	81.7	10.2	2513
NRC 2000	2000	3400	10.75	●	o			o	●	4" Flanged	34.1	88.0	81.7	10.2	3064

(1) In compliance with CAGI (ADF 100) / NFPA (class H): air inlet temperature 100°F, ambient temperature 100°F, air pressure 100 psig. Pressure dew point 33°F to 39°F.
(2) Nominal absorbed power at rated operating conditions using 115/1/60 or 460/3/60 power supply.

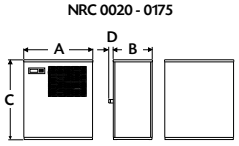
● Standard. o Available on request.

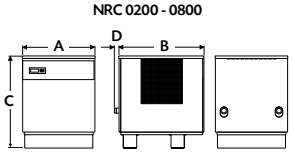
Specification	Models NRC 0020 to 1220		Models NRC 1600 & 2000	
	Minimum	Maximum	Minimum	Maximum
Ambient temperature	41°F	115°F (1)	41°F	110°F (1)
Inlet air temperature	41°F	158°F (1)	41°F	149°F (1)
Inlet air pressure	0 psig	232 psig (1)	0 psig	232 psig (1)

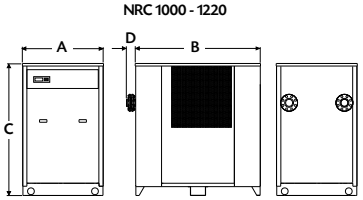
(1) Higher temperature and higher pressure models available on request.
All models supplied with R134a refrigerant.

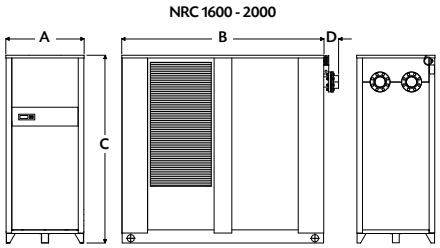
correction factors	To calculate the maximum rated flow for any model at operating conditions other than those above: Rated Flow (from table above) x K1 x K2 x K3 x K4 (from tables below) = Rated Flow at new conditions (1)									
Inlet air temperature (°F)	90	100	110	120	130	158	Ambient temperature (°F)	90	100	110	115
K1	1.23	1	0.81	0.68	0.61	0.44	K3	1.07	1	0.93	0.88
Inlet air pressure (psig)	50	75	100	125	150	232	Pressure dew point (°F)	38	40	45	50
K2	0.77	0.90	1	1.07	1.12	1.23	K4	1	1.05	1.21	1.36

(1) To be used as a rough guide only. All applications should be confirmed by n-psi sizing software. Contact us for sizing assistance.









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