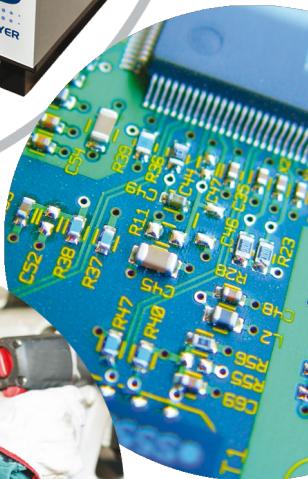


optimum
energy efficiency

nano



cycling refrigerated compressed air dryers

flow capacity: 20 - 2000 scfm (32 - 3210 Nm³/hr)

R¹

Leading edge technology and hundreds of 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 nano 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. nano realize that world-class customer **service** is the most important component to any successful business.

Experience. Customer. Service...**nano**



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 R¹ refrigerated 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.



how do R¹ cycling dryers save energy

Unlike direct expansion dryers which run continuously, when the NXC's silica dry thermal mass reaches a set temperature, the compressor stops or cycles off but continues to provide clean and dry compressed air to your process. The thermal mass stores the cold energy and keeps the dew point at the desired temperature. Once the temperature of the dry thermal mass begins to rise, the refrigerant compressor cycles on.

Refrigerated 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 what is typically required. Traditional air dryers operate at 100% power consumption at all times, even when the actual demand on the dryer could be far less than 100%.

The advanced dual transfer technology in the R¹ cycling dryer allows it to automatically reduce its power consumption to meet the actual demand saving you up to 80% over a traditional dryer. As a result, the R¹ energy saving cycling dryer is eligible for rebates in many parts of the country.

Dryer demand is a function of both required air flow and ambient conditions. Unless both of these variables are at their maximums at the same time, there are energy savings to be had. The R¹ takes advantage of this savings opportunity by significantly reducing power consumption to match actual demand.

saves money

In most applications, the air flow varies significantly throughout the day reaching peak demand only for a very short time. Often times, demand can be close to zero overnight or during breaks. The R¹ matches its power consumption to the air flow demand providing optimal energy savings. (*example shown to right*)

at 0.08 per kWh for a plant running 24/7, the NXC dryer saves the company nearly \$500 in electrical costs annually. A similarly installed 500 scfm dryer would save over \$1,000 annually

dryer used	electrical consumption	actual air flow
thermal mass	0.96 kW	150 scfm
direct expansion	0.96 kW	150 scfm

energy consumption according to the air flow variations during the day

working	duration	direct expansion	thermal mass
100%	0.5 hours	0.48 kWh	0.48 kWh
75%	1.5 hours	1.44 kWh	1.08 kWh
50%	5.0 hours	4.80 kWh	2.40 kWh
25%	3.0 hours	2.88 kWh	0.72 kWh
0%	14.0 hours	13.44 kWh	0.00 kWh
daily total	24.0 hours	23.04 kWh	4.68 kWh



energy efficient and reliable scroll and rotary compressors

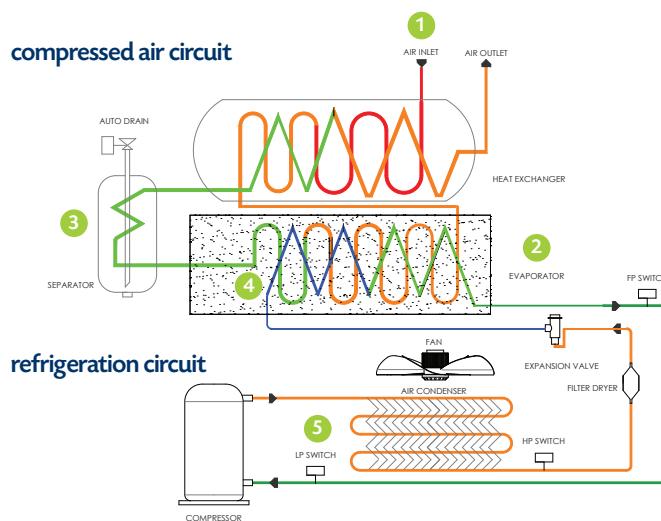


simple to use CAREL digital microprocessor features dew point temperature



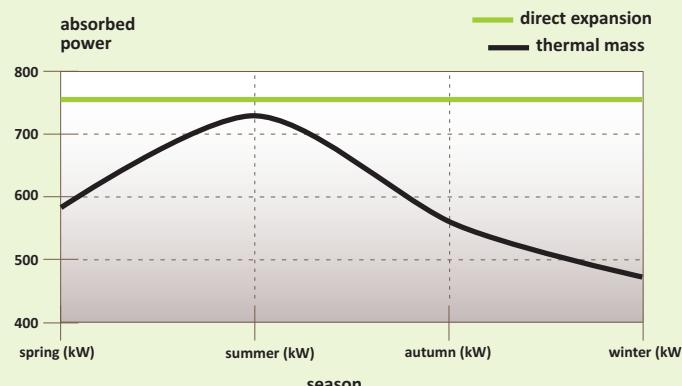
standard refrigerant gauge located on side of cabinet for ease of troubleshooting

how it works



- ① hot, moist compressed air enters the separate air to air heat exchanger where it is precooled
- ② precooled compressed air then enters the air to refrigerant evaporator where it reaches its coldest point and achieves its lowest dew point
- ③ condensed moisture is removed by an integrated moisture separator and condensate drain prior to reentering the air to air heat exchanger where incoming hot air reheats the exiting cold compressed air
- ④ the refrigerant comes into direct contact with both the silica dry mass and compressed air inside the air to refrigerant evaporator
- ⑤ if demand drops and compressed air flow rate is reduced, the refrigerant compressor cycles off and the silica dry mass is employed to continue drying the air. THIS is dual transfer technology

saves energy



dryer model	consumption/year
NXC 0130 cycling	10,310 kW
direct expansion	37,422 kW
energy savings	27,422 kW (72.4%)

dryer model	consumption/year
NXC 0325 cycling	20,594 kW
direct expansion	79,575 kW
energy savings	58,981 kW (74.1%)

note: in many factories, the dryers are used 8 hours/day but they continue to run 24/7. As a result, the difference in electrical consumption between thermal mass and direct expansion dryers is dramatic



Intertek UL/CSA 22.2 Approval (Models NXC 020 - NXC 0165)

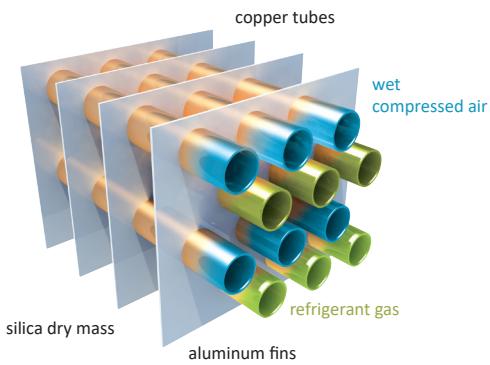


robust, reliable and fully adjustable timer drain standard on all models



performance validated F1 filtration provides additional energy savings and improved air quality

benefits



energy savings

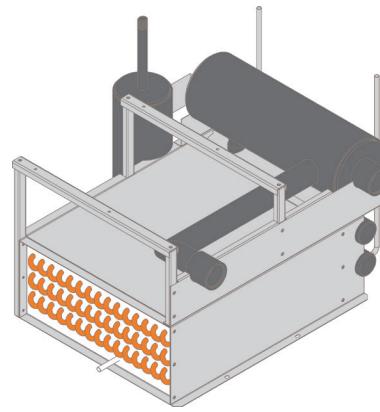
the unique NXC dry thermal mass saves energy and money by utilizing dual transfer technology (DTT). NXC employs DTT which treats the compressed air according to actual air flow

direct transfer: cold refrigerant comes into direct contact with the compressed air through the unique patented copper/aluminum heat exchanger making for the most efficient cooling method during periods of high air usage

indirect transfer: excess refrigerant cools down the unique dry thermal mass allowing the compressor to cycle off during periods of lower compressed air consumption. This cycling feature ensures excellent dew point performance and low power consumption

consistent dew point and low pressure drop

nano NXC uses a patented heat exchanger comprised of a separate air to air exchanger and an air to refrigerant exchanger immersed in an environmentally friendly and highly efficient silica dry thermal mass. This unique combination provides the best dew point performance, the fastest response times if demand increases suddenly and the lowest power consumption across the entire spectrum of operation.



optimum energy efficiency

lower electrical consumption from 0% to 100% duty cycle and low pressure drop

easy to install and start-up

thanks to the silica dry mass, no overnight precooling of thermal mass is required

space saving design

fully packaged into a simple compact design, NXC will fit into the smallest spaces

total accessibility

all panels can be removed to facilitate maintenance

nano F¹ filter packages

nano filters to improve compressed air quality and to ensure trouble-free operation

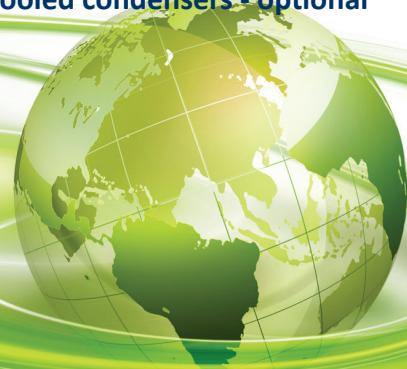
robust construction

powder coated galvanized steel panels are corrosion resistant

environmentally friendly

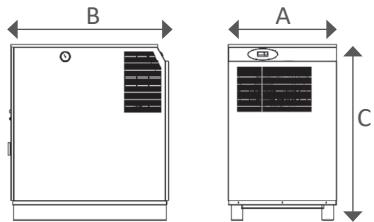
R134A or R407C refrigerant and non-toxic silica dry mass utilized in all models

water cooled condensers - optional



sizing & specifications

model	inlet & outlet ⁽¹⁾		rated flow ⁽²⁾		absorbed power ⁽³⁾		dimensions (inches)		approx. weight	power supply (V/Ph/60Hz) ⁽⁴⁾		
	NPT/FLG	scfm	Nm ³ /h	kW	A	B	C	lbs		115/1	230/1	460/3
NXC 0020	½"	20	32	0.23	17	16	22	82	●			
NXC 0030	¾"	30	48	0.24	18	18	26	106	●			
NXC 0045	¾"	45	72	0.25	18	18	26	112	●			
NXC 0065	1"	65	104	0.47	23	21	30	196	●			
NXC 0090	1"	90	144	0.49	23	21	30	201	●			
NXC 0110	1"	110	177	0.51	23	21	30	205	●			
NXC 0130	1½"	130	209	0.97	29	24	37	291	●			
NXC 0165	1½"	165	265	1.02	29	24	37	302	●			
<i>Models NXC 0020 - NXC 0165: UL STD 60335-1 & 60335-2-40 / CSA STD C22.2</i>												
NXC 0200	2"	200	321	1.41	29	30	39	386	●	●		
NXC 0265	2"	265	425	1.41	29	30	39	386	●	●	●	
NXC 0325	2"	325	522	1.47	29	30	39	397	●	●	●	
NXC 0400	2"	400	642	1.52	29	30	39	408	●	●	●	
NXC 0500	2½"	500	803	2.50	29	42	47	539				●
NXC 0650	3"	650	1043	3.46	29	61	59	961				●
NXC 0850	3"	850	1364	3.60	29	61	59	992				●
NXC 1050	3"	1050	1685	5.00	44	56	59	1159				●
NXC 1300	3"	1300	2087	5.15	44	56	59	1195				●
NXC 1600	4" Flg	1600	2568	6.90	44	74	59	1586				●
NXC 2000	4" Flg	2000	3210	7.20	44	74	59	1635				●



specifications

design operating pressure range	0 to 232 psig		
maximum inlet temperature	158°F		
maximum ambient temperature	110°F - 122°F depending on refrigerant (contact support for specific details)		

pressure correction factors ⁽⁵⁾

inlet air pressure (psig)	58	72	87	100	115	130	145	160	175	190	204	218	232
correction factor	0.75	0.84	0.92	1.00	1.06	1.08	1.11	1.15	1.18	1.19	1.21	1.23	1.26

inlet temperature correction factors ⁽⁵⁾

inlet air temperature (°F)	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155
correction factor	1.29	1.21	1.11	1.00	0.93	0.80	0.72	0.65	0.57	0.53	0.50	0.46	0.43	0.41	0.38

ambient temperature correction factors ⁽⁵⁾

ambient temperature (°F)	70			80			90			100			105		110
correction factor	1.18			1.16			1.07			1.00			0.96		0.89

(1) ½" to 3" are NPT threaded connections, 4" are supplied with ANSI flanged connections

(2) rated flow capacity: conditions for rating dryers are in accordance with ISO7183 (Option A2). Compressed air at dryer inlet: 100 psig (7 bar) and 100°F (38°C); ambient air temperature: 100°F (38°C); operating on 60Hz power supply

(3) nominal absorbed power at rated operating conditions using 115/1/60 or 460/3/60 power supply (as applicable). for absorbed power at other voltages or conditions, contact support@n-psi.com

(4) specify voltage requirements when ordering. For 575V applications, please contact support@n-psi.com for assistance

(5) for correction factors other than those shown above, contact support@n-psi.com for sizing assistance

*2 year warranty with pre-filtration and non-corrosive piping installed

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