



nano



cycling refrigerated air dryers

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

“We purchased a nano NXC 1050 because I trust my distributor to sell me a product which will provide clean, dry air efficiently and be serviceable for the long term.”

aerospace manufacturer - western US

Refrigerated dryers must be sized to handle the worst case operating conditions-the highest flow rate and highest inlet temperature on the hottest day of the year. The power consumption needed to operate at worst case conditions is far greater than the typical requirement. Non-cycling dryers operate at 100% power consumption, regardless of conditions or demand. But, the R¹ NXC range takes power savings to the next level.

nano R¹ NXC cycling refrigerated air dryers

- clean, dry compressed air at ISO class 4, 5 or 6 as necessary
- saves energy by matching power to actual demand and conditions
- lowest pressure drop
- steady, reliable pressure dew point
- rebate-friendly

cycling technology

NXC dryers save money when they're running full load and save money when they're not. To find out how much you can save, ask nano for a simple power study!



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 NXC 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 air flow variations during the day

working	duration	non-cycling	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

BENEFITS

consistent dew point & low pressure drop

- patented heat exchanger comprised of separate air to air exchanger and an air to refrigerant exchanger immersed in an environmentally friendly and highly efficient silica dry thermal mass. 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

space saving design

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

easy to install

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

robust construction

- powder coated galvanized steel panels are corrosion resistant

total accessibility

- all panels can be removed to facilitate maintenance

environmentally friendly

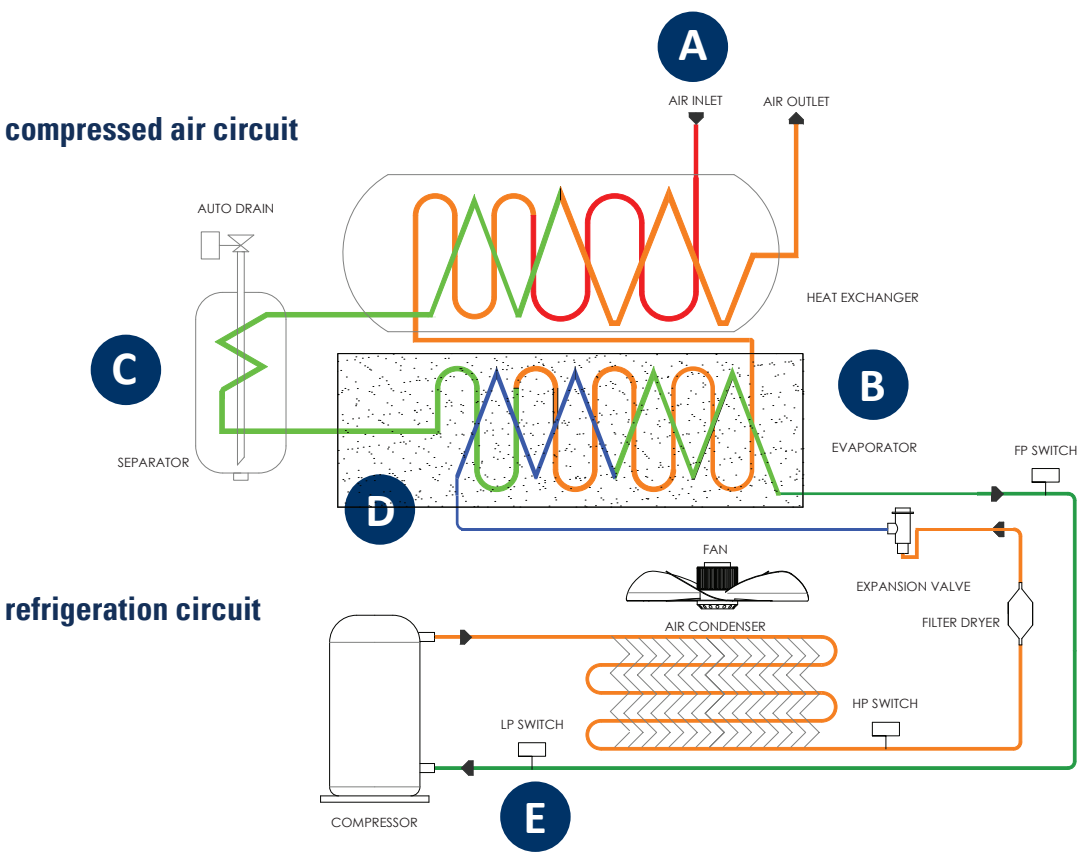
- R134a or R407C refrigerant and non-toxic silica dry mass utilized in all models



HOW IT WORKS

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.

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.



- A** hot, moist compressed air enters the separate air to air heat exchanger where it is precooled
- B** precooled compressed air then enters the air to refrigerant evaporator where it reaches its coldest point and achieves its lowest dew point
- C** condensed moisture is being 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
- D** the refrigerant comes into contact with both the silica dry mass and the compressed air inside the air to refrigerant evaporator
- E** 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 (DTT)

FEATURES

dual transfer technology (DTT)

- utilized by NXC unique dry thermal mass saving energy and money 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

energy efficient and reliable rotary scroll compressors

- efficient and reliable service

simple to use CAREL® digital microprocessor

- features dew point temperature

standard refrigerant gauge

- located on side of dryer cabinet for ease of troubleshooting

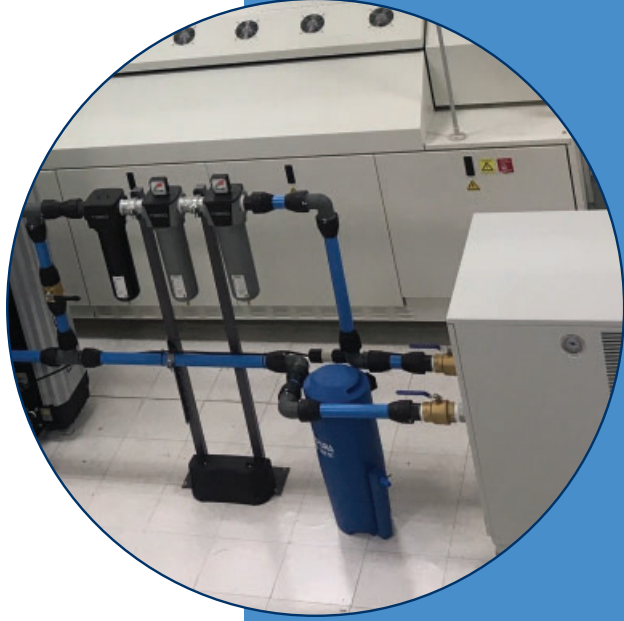
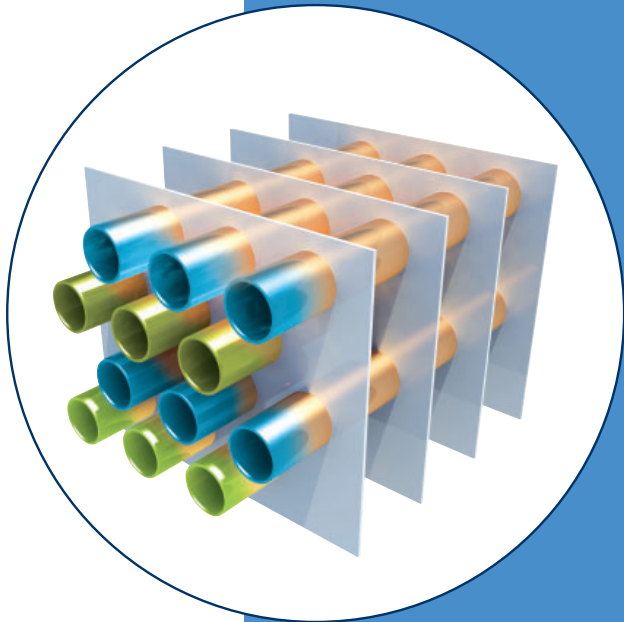
timer drain

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

performance validated filtration

- pre- and after-filter filter packages available to provide additional energy savings and improved air quality

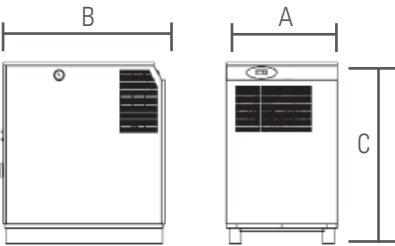
water-cooled condensers - optional



SPECIFICATIONS

dryer model	inlet & outlet ⁽¹⁾	rated flow ⁽²⁾		absorbed power ⁽³⁾	dimensions (inches)			approx. weight	power supply (V/Ph/60Hz) ⁽⁴⁾		
	NPT/Flg	scfm	Nm³/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	1 ½"	130	209	0.97	29	24	37	291	•		
NXC 0165	1 ½"	165	265	1.02	29	24	37	302	•		
(Models NXC 0020 to NXC 0165: UL STD 60335-1 & 60335-2-40 / CSA STD C22.2)											
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	2 ½"	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 to 122°F depending on refrigerant (contact nano support for details)



pressure correction factors ⁽⁵⁾													
operating 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	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	0.38

ambient temperature correction factors ⁽⁵⁾						
inlet 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" and up 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, Contact support@n-psi.com for assistance
(5) to be used as a rough guide only. All applications should be confirmed by n-psi sizing software. Contact support@n-psi.com for sizing assistance
(6) Intertek UL/CSA 22.2 approval (models NXC 0020 to NXC 0165)
(7) technical specifications subject to change without notice. Direct inquiries to support@n-psi.com or contact 704.897.2182
*2 year warranty with pre-filtration and non-corrosive piping system installed

EXPERIENCE. CUSTOMER. SERVICE.

Leading edge technology and hundreds of years of *experience*...nano-purification solutions, your world-class manufacturer 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 recognize that world-class customer *service* is the most important component to any successful business.



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 range of cycling refrigerated air dryers are manufactured in our state-of-the-art facility to the highest standards of build quality to ensure equipment reliability and high levels of performance.

ENVIRONMENTALLY FRIENDLY

Through both product development and manufacturing, we strive to produce high quality products compliant to both local and global environmental legislation. Reduction of carbon footprint through energy saving products and use of environmentally friendly components are our commitment to you.



nano-purification solutions
charlotte, north carolina
united states

nano-purification solutions
new bethlehem, pennsylvania
united states

nano-purification solutions
st. catharines, ontario
canada

nano-purification solutions
gateshead, tyne and wear
united kingdom

nano-purification solutions
krefeld, germany

tel: 704.897.2182
fax: 704.897.2183
email: support@n-psi.com
web: www.n-psi.com



copyright Air and Gas Solutions LLC
publication ref. n-psi-R1-2020-01-us

www.n-psi.com