Refrigerated Dryers

FLOW CAPACITY: 25 to 6600 l/s
1.5 to 396 m3/min

Experience. Customer. Service

Why select nano as partner?

Industry leaders have always been researching how to maintain stable and efficient production in enterprises to improve their manufacturing advantage in ever-changing industrial competition. They know that the reliability and energy-saving capacity of the manufacturing process directly affects the final overall efficiency results. nano is aware of the manufacturing and process application needs and invests in professional post-processing technology to help small and micro manufacturing workshops or large industrial production bases. They provide solutions for simple working conditions to complex duty conditions, which helps users to improve their production capacity and innovation. The DXR-A series dryer offers a simple and reliable operation that provides excellent protection for your products and process systems against damage or corrosion. With this, you can experience long-term reassurance in running your operations.

Keep away from condensation.

After high temperature compressed air enters the process pipeline system, a certain amount of condensed water will be formed, which will easily create rust inside the pipeline, and cause the accuracy of the downstream equipment to decrease, or be damaged. Condensate will also add scrap rate, virtually increasing operating costs. nano refrigerated dryer DXR-A series is right design to protect you from condensation.

Quick response service

nano's experienced professional service team is located in the region, providing quick response and problem resolution at any time.

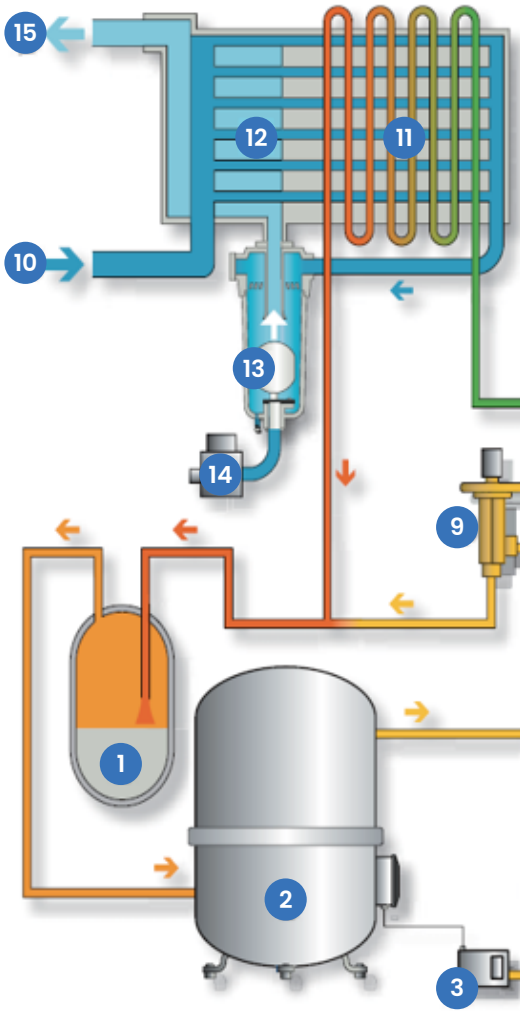
Delivered stable running performance.

With global multi-market field installation and application experience, nano's strict testing and quality control system at every assembly stage ensures DXR-A are delivered ready for use.

How does the DXR-A Dryer work?

Refrigerant Circuit

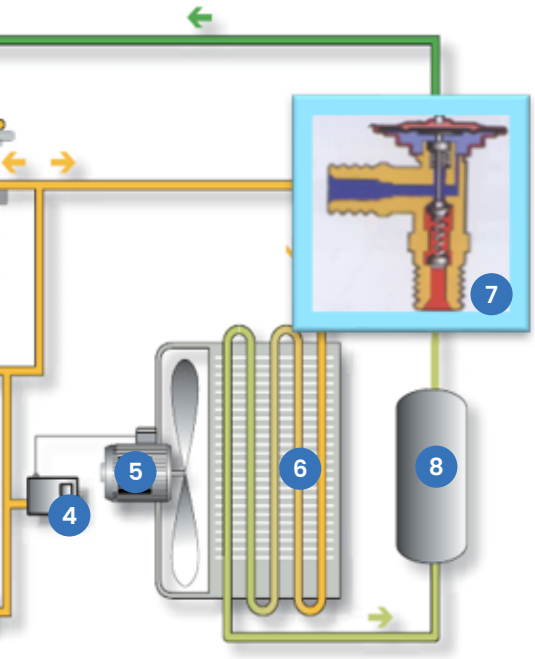
The refrigerant circuit compresses and expands the refrigerant gas in a closed-loop system in order to efficiently transfer heat from the wet compressed air to the atmosphere. The DXR-A dryer's refrigerant circuit is designed as a whole and only uses components of high and reliable quality, supplied by globally recognized manufacturers.



1. **Refrigerant Separator**
   Ensures that only refrigerant gas can enter the compressor, as liquid would cause damage.
2. **Refrigerant Compressor**
   Brings the gaseous refrigerant to a high pressure and a high temperature.
3. **Max. Pressure Switch**
   Protects by ensuring that the refrigerant gas never exceeds the maximum pressure.
4. **Fan Control Pressure Switch**
   Saves energy by temporarily turning off the condenser fan when the load on the dryer is low.
5. **Condenser Fan**
   Efficiently provides a constant flow of ambient air to the air condenser. (Only for air-cooled)
6. **Condenser**
   Cools the refrigerant slightly so that it can change from gas to liquid. Refrigerant is more effective in a liquid state.
7. **Expansion Valve**
   Reduces the refrigerant's pressure, thereby lowering its temperature and increasing its cooling capacity. The refrigerant is now almost all liquid, with some residual gas. Expansion valves are expansion devices that are extremely reliable, and stabilize the dew point of the dryer.

Air Circuit

Wet compressed air flows directly through the DXR-A dryer's internal 3-in-1 heat exchanger, wherein the 3 key dryer functions are combined. Firstly, the wet compressed air is cooled down to condense the moisture, secondly, this condensed moisture will be collected and drained out. Finally, the dried compressed air is re-heated before it enters the factory's pipework.



8 Filter
Protects the expansion device from harmful particles.

9 Hot Gas Bypass
Regulates the amount of refrigerant passing through the air-to-refrigerant heat exchanger, ensuring a stable pressure dew point, and eliminating the chance of the condensate freezing.

10 Air Inlet
Hot saturated air enters the dryer.

11 Air-to-Refrigerant Heat Exchanger
Transfers heat from the compressed air to the cold refrigerant, forcing water vapour in the compressed air to condense.

12 Air-to-Air Heat Exchanger
Cools down the air inlet while re-heating the outlet air.

13 Water Separator
Collects and drains out condensate from the cooled air flow 3-in-1 aluminium heat exchangers combine above points 11, 12 and 13 making them highly efficient and reliable.

14 Automatic Drain
Removes the free water collected in the water separator.

15 Air Outlet
Re-heats the outgoing air to prevent condensation on the factory's pipework.

Compressed Air Dryers
DXR-A Series Refrigerated Air Dryers

The compact & efficient dry air solution

nano DXR-A series refrigerated dryers keep your compressed air system in optimal shape, removing humidity efficiently and reliably. With a stable pressure dew point as low as 7°C, these compact, low-maintenance dryers are compatible with most compressor technologies and applications.

Air/air & air/ refrigerant heat exchanger

Offers high thermal exchange and low load losses.

Control panel

With PDP indicator and main on/off switch.

Hot gas bypass valve

- Injects hot compressor discharge gas into the suction/ liquid separator.
- Keeps refrigeration capacity in all load conditions.
- Maintains constant pressure in the evaporator to avoid freezing.

Refrigerant condenser

Air-cooled and with a large exchange surface for high thermal exchange.

Refrigerant compressor

Driven by an electric motor, cooled with refrigerant fluid and protected against thermal overload.

Performance & reliability

- Constant performance with steady pressure dew point.
- High efficiency thanks to innovative 3-1 heat exchanger.
- Industry-leading hot gas bypass valve with high reliability.

Quick installation & easy operation

- Compact design with a small footprint.
- Quick plug-and-play installation.
- Easy monitoring with the digital controller showing the exact PDP.

Environment friendly

- Environmentally friendly refrigerant R134a/R410a with zero ozone depletion potential.
- Low power consumption contributes to lower emissions and a smaller environmental footprint.

Applications

- Painting
- Professional and industrial applications
- Pneumatic tools and equipment
- Pneumatic control systems
- Car mechanics

Technical Specifications

MODEL	COOLING	INLET CAPACITY		PRESSURE DROP	MAXIMUM WORKING PRESSURE	ELECTRICAL SUPPLY	DIMENSIONS			WEIGHT	CONNECTIONS
							LENGTH	WIDTH	HEIGHT		
	A/W	I/S	M3/MIN	BAR	BAR	V/PH/HZ	MM	MM	MM	KG	
DXR15-A	A	25	1.5	0.28	13	230V/1/50	548	400	615	36	G¾''
DXR21-A	A	35	2.1	0.28	13	230V/1/50	548	400	740	38	G1''
DXR36-A	A	60	3.6	0.28	13	230V/1/50	600	520	750	56	G1''
DXR45-A	A	75	4.5	0.28	13	230V/1/50	600	520	750	58	G1.5''
DXR60-A	A	100	6	0.28	13	230V/1/50	600	520	750	58	G1.5''
DXR72-A	A	120	7.2	0.28	13	230V/1/50	650	650	875	75	G1.5''
DXR96-A	A	160	9.6	0.28	13	230V/1/50	650	650	875	79	G2''
DXR120-A	A	200	12	0.28	13	230V/1/50	752	745	960	104	G2.5''
DXR140-A	A	230	14	0.28	13	230V/1/50	752	800	1020	108	G2.5''
DXR170-A	A	285	17	0.28	13	230V/1/50	752	800	1020	121	G2.5''
DXR200-A	A	335	20	0.28	13	230V/1/50	928	800	1126	170	G2.5''
DXR240-A	A	400	24	0.28	13	230V/1/50	928	800	1126	176	G2.5''

Correction factors:

Correction factors for different ambient temperatures

AMBIENT TEMPERATURE (°C)	25	30	35	40	45
CORRECTION FACTOR	1	0.91	0.81	0.72	0.62

Correction factors for different inlet temperatures

INLET TEMPERATURE (°C)	25	30	35	40	45	50	55	62
CORRECTION FACTOR	1	1	1	0.82	0.69	0.58	0.45	0.34

Correction factor for different inlet pressures

INLET PRESSURE (BAR)	5	6	7	8	9	10	11	12	13
CORRECTION FACTOR	0.9	0.97	1	1.03	1.06	1.08	1.1	1.12	1.13

Refrigerant types:
R134a for DXR15-21 A, R410a for DXR36-240 A

Reference conditions:
Ambient temperature: 25°C
Inlet temperature: 35°C
Working pressure: 7 bar(g)

Limitations:
Maximum ambient temperature: 46°C
Minimum ambient temperature: 5°C
Maximum inlet temperature: 62°C
Maximum working pressure: 13 bar

60Hz models are available upon request

QUALITY CLASSES	PARTICLE SIZE	MAXIMUM PRESSURE DEW POINT	PRESSURE DROP MAXIMUM OIL CONTENT (DROPLETS, AEROSOLS, AND VAPOUR PPM)	
	MICRONS	°C	W/W	MG/M³
0	as specified	as specified	as specified	
1	0.1	-70	0.008	0.01
2	1	-40	0.08	0.1
3	5	-20	0.8	1
4	15	3	4	5
5	40	7	21	25
6	-	10	-	-

IS0 8573-1 Class 5 quality

Thanks to their 7°C pressure dew point, nano DXR-A dryers can be used for applications that require IS0 8573-1 Class 5 air quality.

DXR-A Series design for long-term reliability

DXR-A Series

1 Robust and compact design
Small footprint design allows for ease of installation.

2 High-quality components
Concise piping system design has fewer welding spots, and strength supports as well to protect the pipes, reducing logistical damage risks.

3 Top of the range heat exchanger
3-in-1 technology designed for air/air & air/refrigerant heat exchanger provides high thermal exchange and low load losses.

4 Simple to use digital microprocessor
The intelligent controller integrates dew point display and fault alarm function in one.

5 Electronic water drain
Electrical timer water drain removes free water from the water separator automatically.

6 Easy installation and maintenance
Long maintenance interval reduces downtime maintenance and cost.

Technical Specifications

DXR360-3960 W-A

MODEL	OUTLET PRESSURE DEW POINT +3-10 °C				MAXIMUM WORKING PRESSURE	ELECTRICAL SUPPLY	DIMENSIONS			WEIGHT	CONNEC-TIONS
	COOLING	INLET CAPACITY		PRESSURE DROP			LENGTH	WIDTH	HEIGHT		
	A/W	I/S	M3/MIN	BAR	BAR	V/PH/HZ	MM	MM	MM	KG	
DXR360 W-A	w	600	36	0.15	10	400V/3/50Hz	1133	1000	1550	425	DN100
DXR450 W-A	w	750	45	0.15	10	400V/3/50Hz	1133	1000	1550	430	DN100
DXR510 W-A	w	850	51	0.15	10	400V/3/50Hz	1133	1000	1550	445	DN100
DXR600 W-A	w	1000	60	0.16	10	400V/3/50Hz	1644	1000	1550	610	DN150
DXR750 W-A	w	1250	75	0.16	10	400V/3/50Hz	1644	1000	1550	620	DN150
DXR1000 W-A	w	1670	100	0.16	10	400V/3/50Hz	2100	1150	1750	980	DN150
DXR1260 W-A	w	2100	126	0.16	10	400V/3/50Hz	2100	1150	1750	1040	DN150
DXR1500 W-A	w	2500	150	0.16	10	400V/3/50Hz	2300	1150	1750	1225	DN200
DXR1980 W-A	w	3300	198	0.16	10	400V/3/50Hz	2300	1150	1750	1465	DN200
DXR2500 W-A	w	4170	250	0.16	10	400V/3/50Hz	2300	1650	1900	2440	DN250
DXR3000 W-A	w	5000	300	0.16	10	400V/3/50Hz	2300	1650	1900	2800	DN250
DXR3480 W-A	w	5800	348	0.16	10	400V/3/50Hz	3000	1650	1900	3200	DN300
DXR3960 W-A	w	6600	396	0.16	10	400V/3/50Hz	3000	1650	1900	3555	DN300

DXR360-750 W-A

Correction factor list

AMBIENT TEMPERATURE (°C)	25	30	35	40	45
MULTIPLICATION FACTOR	1	0.91	0.81	0.72	0.62

Correction factor for different inlet temperature

INLET TEMPERATURE (°C)	25	30	35	40	45	50	55
MULTIPLICATION FACTOR	1	1	1	0.82	0.69	0.58	0.45

Correction factor for different inlet pressure

PRESSURE (BAR)	5	6	7	8	9	10
MULTIPLICATION FACTOR	0.9	0.97	1	1.03	1.06	1.08

DXR1000-3960 W-A

Correction factor list

AMBIENT TEMPERATURE (°C)	25	30	35	40	45
MULTIPLICATION FACTOR	1.16	1.11	1.05	1.0	0.9

Correction factor for different inlet temperature

INLET TEMPERATURE (°C)	25	30	35	40	45	50	55
MULTIPLICATION FACTOR	1.55	1.46	1.22	1.0	0.82	0.67	0.55

Correction factor for different inlet pressure

PRESSURE (BAR)	2	3	4	5	6	7	8	9	10
MULTIPLICATION FACTOR	0.53	0.64	0.75	0.85	0.91	1.0	1.02	1.04	1.07

DXR360-750 W-A 400V/3PH/50Hz

Refrigerant: R410a
Reference conditions:
Ambient temperature: 25°C
Inlet temperature: 5°C
Working pressure: 7 bar(g)
Dew point: 7°C
Limitations:
Maximum ambient temperature: 45°C
Minimum ambient temperature: 5°C
Maximum inlet temperature: 55°C
Maximum working pressure: 13 bar

60Hz models are available upon request

DXR1000-3960 W-A 400V/3PH/50Hz

Refrigerant: R407c
Reference conditions:
Ambient temperature: 40°C
Inlet temperature: 40°C
Working pressure: 7 bar(g)
Dew point: 10°C
Limitations:
Maximum ambient temperature: 45°C
Minimum ambient temperature: 5°C
Maximum inlet temperature: 55°C
Maximum working pressure: 10 bar

60Hz models are available upon request

DXR VSD W-A Series the premium choice for energy savings

DXR-A Series	
1	Wide range of models to meet all of your application requirements.
2	3-in-1 technology designed for air/air & air/refrigerant heat exchanger provides high thermal exchange and low load losses.
3	Zero air loss electronic drain removes free water from the water separator automatically.
4	The premium drying ability enables PDP to reach 3~5°C and system pressure to drop even lower than 0.2 bar
5	Smart nano VISION [01] controller monitors all configurations, and works perfectly with intelligent VSD drive technologies automatically regulating air flow peaks.
6	High quality water cooler brings increased cooling efficiency. Reliable water-flow control valve installed.

Technical Specifications

DXR246-2500 VSD W-A

MODEL	COOLING	INLET CAPACITY		PRESSURE DROP	MAXIMUM WORKING PRESSURE	ELECTRICAL SUPPLY	LENGTH	WIDTH	HEIGHT	WEIGHT	CONNEC-TIONS
	A/W	I/S	M3/MIN	BAR	BAR	V/PH/HZ	MM	MM	MM	KG	
DXR246 VSD W-A	W	410	25	0.18	13	400/3/50Hz	1350	1100	1750	405	DN100
DXR360 VSD W-A	W	600	36	0.18	13	400/3/50Hz	1350	1100	1750	480	DN100
DXR450 VSD W-A	W	750	45	0.18	13	400/3/50Hz	1350	1100	1750	600	DN100
DXR510 VSD W-A	W	850	51	0.18	13	400/3/50Hz	1350	1100	1750	600	DN100
DXR600 VSD W-A	W	1000	60	0.15	13	400/3/50Hz	1750	1000	1750	670	DN150
DXR750 VSD W-A	W	1250	75	0.15	13	400/3/50Hz	2050	1000	1750	820	DN150
DXR1000 VSD W-A	W	1670	100	0.18	13	400/3/50Hz	2100	1350	2100	1070	DN150
DXR1260 VSD W-A	W	2100	126	0.18	13	400/3/50Hz	2100	1350	2100	1250	DN150
DXR1500 VSD W-A	W	2500	150	0.18	13	400/3/50Hz	2500	1350	2100	1650	DN200
DXR1980 VSD W-A	W	3300	198	0.18	13	400/3/50Hz	2500	1900	2200	2030	DN250
DXR2500 VSD W-A	W	4170	250	0.18	13	400/3/50Hz	2500	1900	2200	2190	DN250

Correction factor list

AMBIENT TEMPERATURE (°C)	25	30	35	40	45
MULTIPLICATION FACTOR	1	0.93	0.87	0.8	0.7

Correction factor for different inlet temperature

INLET TEMPERATURE (°C)	25	30	35	40	45	50	55
MULTIPLICATION FACTOR	1	1	1	0.82	0.67	0.55	0.44

Correction factor for different inlet pressure

PRESSURE (BAR)	4	5	6	7	8	9	10	11	12	13
MULTIPLICATION FACTOR	0.625	0.75	0.875	1	1.08	1.15	1.22	1.28	1.34	1.39

DXR246 VSD W-A - DXR2500 VSD W-A 400V/3PH/50Hz

Refrigerant: R410a
Reference conditions:
Ambient temperature: 25°C
Inlet temperature: 35°C
Working pressure: 7 bar(g)
Dew point: 3~5°C
Limitations:
Maximum ambient temperature: 45°C
Minimum ambient temperature: 5°C
Maximum inlet temperature: 55°C
Maximum working pressure: 13 bar

60Hz models are available upon request

Headquarters

United States
Charlotte, North Carolina
Phone: +1 704 897 2182
E-mail: support@nano-purification.com

United States
Maryville, Tennessee
Phone: +1 704 897 2182
E-mail: support@nano-purification.com

Canada
St. Catharines, Ontario
Phone: +1 905 684 6266
E-mail: canadasupport@nano-purification.com

Singapore
Singapore
Phone: +65 6748 7988
E-mail: support.asia@nano-purification.com

United Kingdom
Gateshead, Tyne and Wear
Phone: +44 (0) 191 497 7700
E-mail: sales_uk@nano-purification.com

Germany
Erkelenz, Germany
Phone: +49 2431 9550 600
E-mail: sales_de@nano-purification.com

nano
Experience. Customer. Service.

nano-purification solutions
www.nano-purification.com