



CNC Series
Refrigerated Air Dryer
10–3000 CFM

NEW



Engineered to Save

CNC Value

CompAir leads the way in providing value to our customers

We looked beyond the typical refrigerated air dryer and designed a...

Compressed Air Treatment System!

The flexibility engineered into every CNC Series dryer allows you to satisfy your air quality requirements with a single package. Enlist us to deliver the dew point stability, air quality, energy efficiency, and product reliability that you expect from CompAir.



ISO 8573.1 Air Quality Classes

1992 earmarked the year the International Organization for Standardization (ISO) established ISO 8573.1 as the global benchmark for evaluating the quality of compressed air. Thus, providing engineers with a universally accepted unit of measure for quantifying compressed air stream contaminants. Namely Solid Particulates, Moisture, and Oil.

Standards per ISO 8573.1

Quality Classes	Solid Contaminants (maximum particle size in microns)	Maximum Pressure Dew Points		Maximum Oil Content (droplets, aerosols, and vapor ppm)	
		°F	°C	w/w	mg/m ³
0	as specified	as specified		as specified	
1	0.1	-94	-70	0.008	0.01
2	1	-40	-40	0.08	0.1
3	5	-4	-20	0.8	1
4	15	38	3	4	5
5	40	45	7	21	25
6	–	50	10	–	–

CNC Series packages deliver:

ISO 8573.1 QUALITY CLASS RATINGS			
CNC Series	Solids	Moisture*	Oil
As Standard, Grade B	3	4–5	5
with Cold Coalescer Option	1	4–5	1
with an optional external Grade G CAF Filter	1	4–5	0**

* Select models 100–3000 scfm deliver Class 4 dew points. CNC25–75 deliver 43–44 F dew points, Class 5. Class 4-5 accounts for all flow models.

** Quality Class 0 reflects “as specified” level of cleanliness. The addition of an optional external Grade G Filter achieves 0.003 ppm w/w for technically Oil-Free air.

Durability Delivered

How does the CompAir CNC refrigerated dryer compare?

- **Rugged, proven, high quality components**
- **Superior dew point performance**
- **Built-in air filtration unmatched in the industry**

1 – The standard dryer is equipped with a Grade B filter/separator

- » ISO Quality Class 3: Remaining solid particulate
- » ISO Quality Class 5: Remaining oil concentration
- » ISO Quality Class 4-5: Pressure dew point

2 – Optional Grade E high efficiency coalescing filters are available

- » ISO Quality Class 1: Remaining solid particulate
- » ISO Quality Class 1: Remaining oil concentration
- » ISO Quality Class 4-5: Pressure dew point

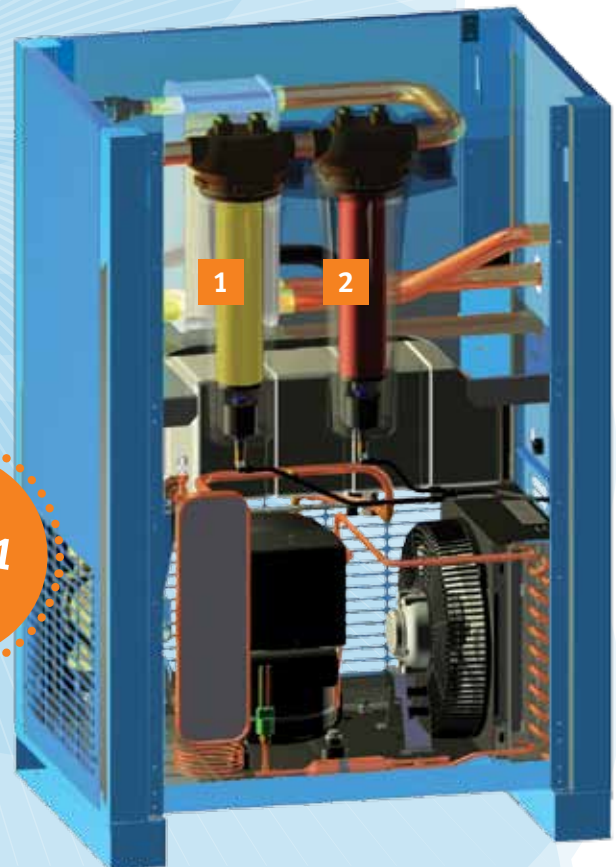
- **Benefits of Built-in Filtration**

- » Ease of installation
- » Smaller total footprint
- » Lower total installed cost

- **No-air-loss condensate drain standard**



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



CNC Design: Built to Perform



Model CNC 1000–3000

⇒ Package Design

At first glance, the ruggedness and ease of serviceability engineered into CNC Series becomes apparent. Fabricated from solid steel, the corrosion resistant epoxy powder paint and the fit and finish of the cabinet, foretell of the quality to be found within. Easy interior access and user-friendly serviceability translate to reduced maintenance costs.

⇒ Proven Performance

All models use reliable refrigeration compressors and environmentally friendly refrigerants. Models through CNC500 use proven reciprocating refrigeration compressors. CNC600 through CNC3000 incorporate rugged scroll compressors. You benefit from long component life, and exceptional around-the-clock performance.

⇒ High Performance Separator/ Filter

Effective moisture removal at all flow rates is the key to maintain dew point stability. CNC25 and larger includes Grade B two-stage cold filtration to ensure maximum water removal even under low flow conditions. Stage one separation, with dual stainless steel orifice tubes, removes bulk liquids and solids greater than 10 micron. Stage two utilizes in-depth fiber media to coalesce water droplets and captures solid particles 3 microns and larger.

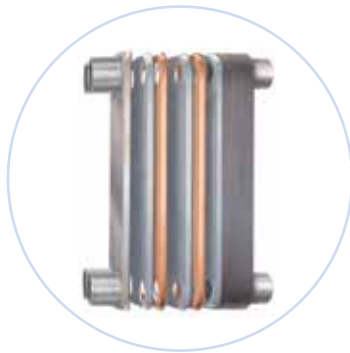
⇒ Get Connected

The extended inlet/outlet connections on CNC dryers (CNC25–CNC750) were engineered with foresight to readily accept all CAF Series Filters without the need for cumbersome adaptors and fittings. CNC/1000–3000 inlet/outlet connections are on top of unit for ease of installation. Gain the installation flexibility needed today preparing you for the changes of tomorrow.

⇒ Effective Heat Transfer

CNC 10–15 models have the patented static condenser technology that eliminates the need for a cooling fan. These models include an on/off switch, longer power cord (8 ft), and pneumatically operated float drain.

CNC Series models 25–3000 incorporate heat exchangers crafted from multiple offset layers of press formed AISI 316 stainless steel. Press forming creates peaks and valleys that form media channels that optimize fluid turbulence. This prevents fouling and maximizes energy efficiency.

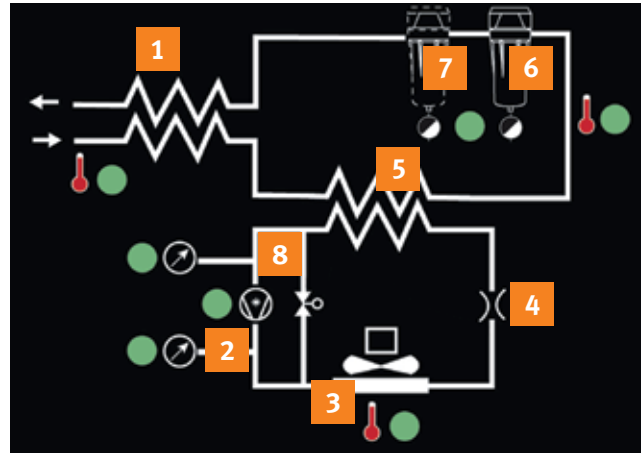


Heat Exchanger

Refrigeration & Air Circuit Diagram

➔ CNC 25–3000

CNC Series dryers enlist proven components and modern materials to deliver the durability you expect from CompAir. Hot, moist incoming compressed air enters the Precooler/Reheater (1) where it is pre-cooled by the cold dehydrated airstream. Environmentally friendly low-pressure refrigerant gas is pressurized in the refrigeration compressor (2). Once compressed into a high-pressure gas, it then flows through the condenser (3) and changes to a cold 35°F liquid. The thermal expansion valve (4) precisely meters the cold liquid refrigerant into the evaporator (5) where the work is done. Hot, saturated compressed air enters the evaporator at the end opposite the incoming liquid refrigerant. The compressed air is chilled as they cross paths. Water is condensed out of the cold exiting air and is efficiently removed in the Separator/3 micron Filter (6). The cold air stream then flows through (7) the Cold Coalescing Oil Removal Filter (optional on models CNC25–CNC3000) where oil droplets and aerosols to 0.008 ppm w/w are captured and removed. The exiting cold, dry compressed air then reenters the Precooler/Reheater (1) where it is reheated by the hot incoming air to prevent pipe sweating in your plant. Finally, the warm refrigerant is now a low-pressure gas and returns to the suction-side (8) of the refrigeration compressor to continue the process.



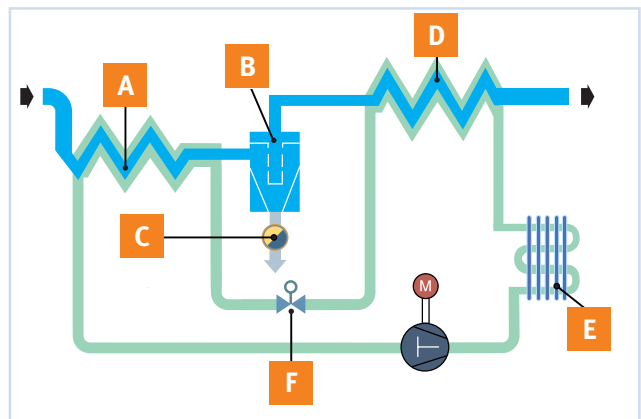
LEGEND:

- | | | | |
|---|----------------------------|---|--|
| 1 | Precooler/Reheater | 6 | Moisture Separator/
3 micron Filter |
| 2 | Refrigeration Compressor | 7 | Optional Cold Coalescing
Oil Removal Filter |
| 3 | Condenser | 8 | Suction-side |
| 4 | Thermal Expansion
Valve | | |
| 5 | Evaporator | | |

➔ CNC 10–15

Warm saturated air enters the Evaporator (A), where it is cooled by an air-to-refrigerant process. Water vapor condenses into a liquid for removal at the moisture separator (B) by an Automatic Drain (C). The cold, dry air is reheated as it passes through the Reheater (D) while the patented Static Condenser (E) radiates waste heat to ambient. This eliminates the need for a cooling fan and prevents pipeline sweating at the air outlet.

A Constant Pressure (F) Expansion Valve (CPEV) modulates the flow of liquid refrigeration to the Evaporator (A). This eliminates freeze-ups and assures continuous, automatic dew point control. The CPEV responds to pressure changes as the refrigerant leaves the Evaporator. This maintains the proper cooling rate under all load conditions. The CPEV is adjusted at the factory to deliver automatic operation.



LEGEND:

- | | | | |
|---|--------------------|---|--------------------------------------|
| A | Evaporator | D | Reheater |
| B | Moisture Separator | E | Static Condenser |
| C | Automatic Drain | F | Constant Pressure
Expansion Valve |

CNC Specifications & Options

CNC Series Refrigerated Dryer-Specifications

Model CNC	Rated Flow ⁽¹⁾	Standard I-controller ^(4 & 5)	Connection (In) ⁽²⁾	Dimensions (IN)			Weight (lbs)	w/Oil removal filter (lbs)	voltages (v/ph/hz)	kW
				H	W ⁽³⁾	D				
10	10	I-Controller Level 1	3/8 OD	14	11	16	64		115/1/60	
15	15		3/8 OD	14	11	16	69			
25	25		1/2 NPT	26	20.5	18	86	147	115/1/60 208-230/1/60 220-240/1/50	.21
35	35		1/2 NPT	26	20.5	18	90	151		.25
50	50		1/2 NPT	26	20.5	18	95	157		.41
75	75		3/4 NPT	26	20.5	18	106	216		.59
100	100		1 NPT	38	29	20	251	258		.93
125	125		1 NPT	38	29	20	273	281	1.28	
150	150		1 NPT	38	29	20	279	287	1.30	
200	200		1-1/2 NPT	39	34	32	425	438	1.26	
250	250		1-1/2 NPT	39	34	32	463	476	1.96	
300	300		1-1/2 NPT	46	35	32	527	540	2.00	
400	400		2 NPT	46	35	32	571	603	2.03	
500	500		2-1/2 NPT	58	32	42	684	716	2.68	
600	600		2-1/2 NPT	58	32	42	646	691	3.06	
750	750		2-1/2 NPT	58	32	42	734	804	4.32	
1000	1000		I-Controller Level 4	3 ANSI flange	85	49	41	1146	1173	208-230/3/60 460/3/60 575/3/60 380-420/3/50
1250	1250	4 ANSI flange		85	49	51	1521	1548	7.29	
1500	1500	4 ANSI flange		85	49	51	1547	1574	9.47	
1750	1750	6 ANSI flange		85	55	60	1940	1994	11.3	
2000	2000	6 ANSI flange		85	55	60	1986	2040	11.5	
2500	2500	6 ANSI flange		85	55	60	2315	2369	15.0	
3000	3000	6 ANSI flange		85	55	60	2646	2700	19.7	

* Consult your local Distributor for information on complete maintenance kits
Refrigerant: CNC10–CNC750 use R-134a, models CNC1000–CNC3000 use R-404a

Maximum operating pressure: 250 PSIG for packages with Controller Level 1: 232 PSIG for packages with Controller Level 4

Maximum operating temperature: 130°F:

(1)Rated Flow Capacity - Conditions for rating dryers are in accordance with CAGI (Compressed Air and Gas Institute) Standard ADF100: Refrigerated Compressed Air Dryers - Methods for Testing and Rating. Conditions for rating above dryers are: compressed air at dryer inlet: 100 psig and 100°F saturated; ambient temperature: 100°F; operating on 60 Hz power supply.

(2)OD connection is tubing: NPT connections are male

(3)Add 2 inches for Inlet/Outlet connections (does not apply to CNC10–CNC15 or CNC1000–CNC3000)

(4)CSA/UL and CE certified

(5)NEMA 1 standard

Option Feature Overview

Oil Removal... this option integrates our factory installed Grade E Cold Coalescing Oil Removal Filter. Oil droplets and aerosols are extracted from the air stream in cleaning it down to 0.008 ppm w/w and solids are retained down to 0.01 micron. CNC Series dryers that include the Cold Coalescing Oil Removal Filter option are also equipped with a dedicated drain trap. Available on models CNC25–CNC3000

Low Ambient... this option protects the dryer from internal damage due to freezing temperatures down to -10°F. Factory installed package includes heat tracing, thermostat and insulation for the separator bowl.

Gauges... four panel mounted gauges: air inlet temperature, air outlet pressure, refrigerant suction pressure and refrigerant head pressure.

Dry Contacts... remote bulb temperature switch with "C"-Form contacts; mounted inside cabinet.

Air-Bypass Piping... three valve block and bypass; mounts to inlet/outlet connections; shipped loose. MWP 200psig

NEMA 4 Construction... enhanced environmental and weather protection



CNC Series dryers are equipped with control schemes that are designed to provide you with the most value delivered within each flow range. Engineered with industry leading features, each I-Controller package provides just the right level of benefits to appeal to the most challenging applications and demanding customers.

➔ Instrumentation

Power-on LED and 8 foot grounded power cord are standard on all single-phase 115-volt units. Easy view angular instrumentation panels prominently display all I-Controllers instrumentation packages.

➔ I-Controller Level 1

Standard equipment on models CNC10 through CNC750 includes: On/Off rocker switch, green power on light, temperature indicator. Easy to monitor display panel.

➔ I-Controller Level 4

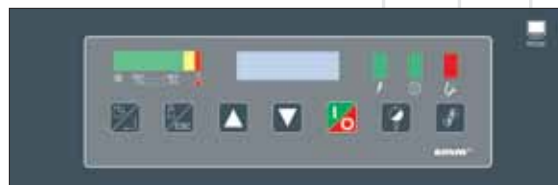
Standard equipment on models CNC1000 through CNC3000 and optional equipment on the CNC200–CNC750 includes: manual mode, schedule mode to synchronize operation to your workday, auto restart, text display window that displays current time, operating mode, total operating hours, hours to service, dew point bar graph LED display, compressor-on light, power-on light, temperature indicator, alarm/service light, reset button, set/run button, programming buttons, on/off button, drain push-to-test button, English, Spanish, German, French and Italian language selectable, RS-232 communication capable, fault condition diagnostics with text display, dry contacts for high dewpoint remote alarm at 55°F. Easy view angular panel.



Standard Level I (CNC10–CNC150)



Standard Level I (CNC200–CNC750)



Standard Level 4 (CNC1000–CNC3000)

Table 1 — Correction Factors (Multipliers) for Inlet Air Temperature & Pressure

Inlet Pressure (PSIG)	Inlet Temperature				
	80°F (27°C)	90°F (32°C)	100°F (38°C)	110°F (43°C)	130°F (54°C)
50	1.35	1.05	0.84	0.69	.44
80	1.50	1.17	0.95	0.79	.52
100	1.55	1.23	1.00	0.82	.56
125	1.63	1.31	1.07	0.91	.61
150	1.70	1.37	1.13	0.95	.64
175	1.75	1.42	1.18	0.99	.68
200	1.80	1.47	1.22	1.03	.72

Table 2 — Correction Factors for Ambient Temperature

Ambient Temperature	80°F (27°C)	90°F (32°C)	100°F (38°C)	110°F (43°C)
Multiplier	1.12	1.06	1.00	0.94

CAPACITY CORRECTION FACTORS

To adjust dryer capacity for conditions other than rated, use Correction Factors (multipliers) from Tables 1 and 2.

Example: What is the capacity of a 1,000 scfm model when the compressed air at the inlet to the dryer is 150 psig and 100°F (38°C), and the ambient temperature is 90°F (32°C)?

Answer: 2,000 scfm (rated flow from Specifications Table) x 1.08 (correction factor for inlet temperature and pressure from Table 1) x 1.06 (correction factor for ambient temperature from Table 2) = 2,290 scfm

50 Hz operation: Deregulate for 50 Hz operation. Apply the correction factor of .8333 to flow temperature and pressure.

Aftermarket Parts & Lubricants

Protect the Investment in CompAir

Regular maintenance and service of CompAir product is critical to the performance and longevity of the equipment. Only CompAir can provide the assurance that the investment will provide a lifetime of productivity.

Reliability

Only CompAir can provide aftermarket parts and services that are engineered for use in CompAir products. The parts and lubricant have been tested under rigorous conditions at the factory to the highest quality standards.

Performance

Only CompAir can provide aftermarket parts designed specifically for the CompAir product. Use of OEM parts ensures that the investment in CompAir will continue to perform year in and year out with the same reliability and efficiency.

Ease of Doing Business

Only CompAir can provide the peace of mind of turning to one supplier and one source for all aftermarket needs. CompAir has the support network in place to handle all customer service, service and technical support needs.

Value

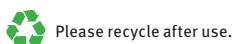
Only CompAir can provide the high quality aftermarket parts and services for the life of the investment in CompAir. Proper care of the CompAir product is vital to the equipment's performance and efficiency. Lean on a trusted source — CompAir.



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