

MADE
IN THE **USA**

HEATED REGENERATIVE COMPRESSED AIR & GAS DRYERS



NORTEC

Compressed Air & Gas Dryers

Why Dry Air?

In today's industrial world, compressed air is considered the fourth utility. And to be used in industrial processes, air must be cleaned. Atmospheric air contains contaminants—dust particles, water vapor, oil, and other impurities. As air is compressed, these contaminants become more concentrated, causing a variety of problems—equipment wear, increased maintenance, lower production efficiency, pipe and line corrosion, and other expensive headaches.

In some industries, even the smallest contaminants in compressed air can cause production problems or errors that can cost thousands of dollars to correct. So dry air is absolutely critical in a modern factory.

Nortec is dedicated to creating the systems needed to dry air so that your production is maximized and your costs are dramatically reduced.

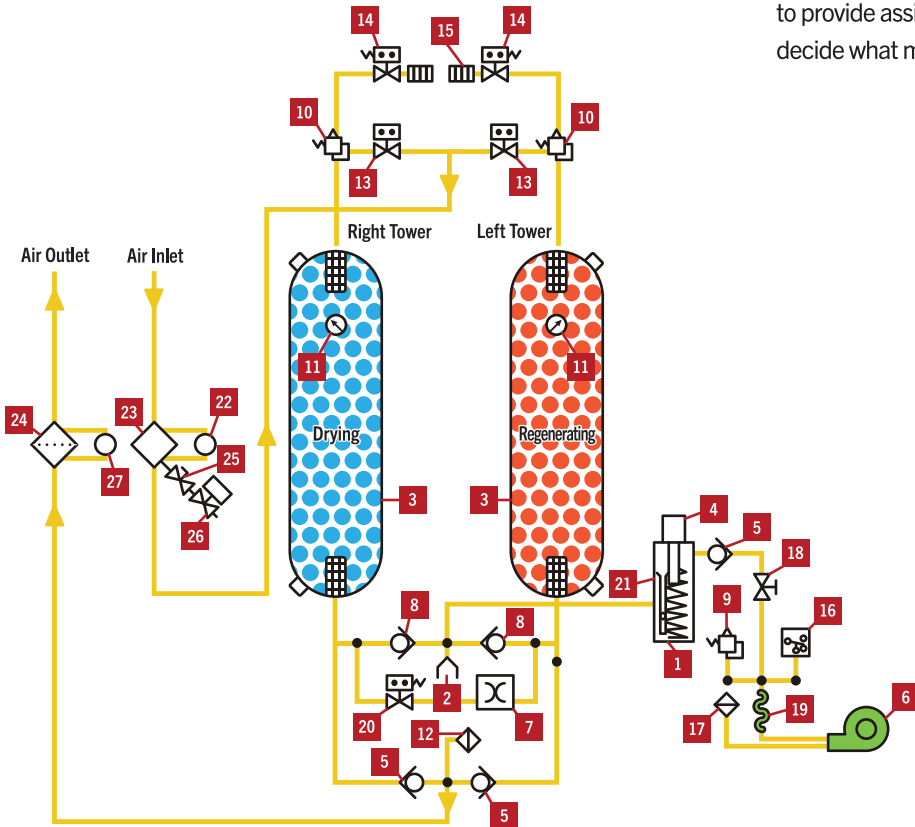
It's Dry Air. Reimagined.

Principle of Desiccant Operation

Nortec offers two types of heated regenerative desiccant dryers: Blower Purge (BPD models) and Externally Heated (EHD Models).

In Blower Purge models, an automatic system using a centrifugal blower and a high-efficiency heater pulls in ambient air and passes it through the heater. This eliminates the need to use valuable compressed dry air for desiccant regeneration. Instead, more compressed air goes to plant operations. The hot air stream from the blower flows opposite to the drying flow direction. Hot air above 400° F regenerates the moisture-laden desiccant bed and strips it completely of moisture. Our advanced control system monitors the dew point and adjusts the heating/regeneration accordingly, thereby providing significant energy savings. The heater circuit is completely insulated, ensuring maximum heating efficiency.

In Externally Heated models, purge air is heated then passed over the bed to regenerate it. Nortec systems are custom-designed to provide the best solution for your air-drying needs. Our team is available to provide assistance in design and engineering as well as helping you decide what model is best for your operation.



Dryer Operation (BPD)

- 1 Heater Housing
- 2 Purge Air Thermocouple
- 3 Desiccant Tower
- 4 Heater
- 5 Blower Safety Check Valve
- 6 Blower
- 7 Repressurization Metering Valve
- 8 Purge Check Valve
- 9 Blower Pressure Relief Valve
- 10 Tower Pressure Relief Valve
- 11 Tower Pressure Gauge
- 12 Control Air Filter
- 13 Inlet Valve
- 14 Purge Exhaust Valve
- 15 Purge Exhaust Muffler
- 16 Blower Safety Pressure Switch
- 17 Blower Intake Filter Silencer
- 18 Blower Purge Adjustment Valve
- 19 Blower Flex Connector
- 20 Repressurization Ball Valve
- 21 Heater High Limit Thermocouple
- 22 Press. Diff. Indicator (Coalescer Prefilter)
- 23 Coalescer Inlet Prefilter
- 24 Particulate Outlet After-filter
- 25 Drain Isolation Ball Valve
- 26 Timer Drain
- 27 Press. Diff. Indicator

EXCEPTIONAL ENGINEERING SUPPORT AND EXPERIENCE

Nortec's engineers and experts have been working with dry air systems and chillers for more than three decades. We know how to design and build air/gas dryers and chillers. We've built Refrigerant Systems as large as 20,000 CFM. Desiccant Systems as large as 16,000 CFM. Gas Systems as large as 20,000 CFM. Nortec has remarkable expertise ready to go to work for you.

THE NORTEC HEATED D

Standard Features

- State-of-the-art PLC controller with color touch screen HMI
- High-quality, direct drive, oil-free regenerative blower
- Low watt/density heater
- High-performance, non-lubricated pneumatic butterfly valve (800CFM & up)
- High-quality, non-lubricated pneumatic piston valve (200-600CFM)
- State-of-the-art, flow activated, high-temperature check valve (800CFM & up)
- Fail-safe design in case of power failure
- Stainless steel inlet/outlet diffuser
- Visual alarm status
- Desiccant towers designed and constructed in accordance to ASME & CRN code
- Pressure vessels feature 200PSIG (up to 1500CFM) and 150PSIG (2000CFM & up)
- UL/CUL certified electrical
- Full charge of desiccant (2000CFM & up shipped separately)
- NEMA-4 waterproof & dustproof electrical enclosure
- ASME and CRN certified safety relief valve for each pressure vessel
- Highest quality desiccant (Made in USA)
- Dryer hour meter
- Dryer service hour meter with alarm and reset
- Dryer common alarm with history
- Dryer back-up heatless mode in case of emergency
- Dryer heater back-up safety contactor with MSP switch
- Failure-to-shift alarm in case of valve or pressure failure
- 460 volts, 3-phase 60HZ control power
- Fully field-adjustable heater temperature setpoints

Optional Features

- ⊕ Pre-piped and mounted pre-filter and high temp after-filter
- ⊕ Mounted filter with 3-valve bypass
- ⊕ Duplex pre-filter and duplex after-filter with 9-valve bypass
- ⊕ Energy save demand cycle control with digital dew point display and adjustable setpoint
- ⊕ Tank insulation with safety jacket
- ⊕ Stainless steel control air tubing
- ⊕ Visual moisture indicator
- ⊕ NEMA-7 Class I, DIV.II Group C & D explosion-proof electrical enclosure
- ⊕ Sub-zero package (ambient temperature down to -20°F)
- ⊕ NEMA-4X stainless steel electrical enclosure (waterproof, dustproof & corrosion resistance)
- ⊕ Low-ambient package (+20° to +30°F)
- ⊕ 400/380 volt 3-phase (50HZ) control power
- ⊕ 575 volt 3-phase (60HZ) control power
- ⊕ Fusible disconnect switch



*Shown without tank insulation and safety jacket.

DESICCANT DRYER PERF

Premium Parts



Butterfly Valve

These versatile, high-performance butterfly valves are used by Nortec to provide you with precision control and complete bubble-tight shut off. The digitally controlled actuators provide easy PLC interface and feature fast response time. The tongue-and-groove seat design feature ensures complete isolation of flowing media from the body and stem. Rugged and reliable, these valves are designed to provide years of trouble-free service.



Angle Body Piston Valve

These high-performance, 2-way direct acting valves are designed for reliability and durability. It uses a profiled disc in conjunction with a high-resolution compact positioner and linear feedback potentiometer to provide precise proportional flow. The stainless steel internals and a tough fiber composite actuator body, along with the use of oversized bearing and Viton® seals, make it possible to consistently provide smooth piston movement for years of trouble-free service.



High-Efficiency Blower

The centrifugal blower is sized optimally to provide a continuous stream of air to the heater for regeneration. The blower is equipped with an intake filter, a muffler for quieter operation, and check and relief valves for high-pressure safety.



State-of-the-Art Check Valve

High-temperature, wafer-combination swing check valves are flow activated. The elliptical shape of the inlet port accelerates the inlet media through the valve. The disc's angle and shape allows the air to travel faster around the disc, thus creating lift like an aircraft wing, and opens the valve in full position even at low flow rate.



PERFORMANCE ADVANTAGE

Blower Purge (BPD) Models

Model	Inlet Flow Capacity @100 PSIG CFM	Voltage	Inlet/Outlet Connections	Dimensions L x W x H	Weight (lbs)	Pre-Filter	After-Filter
500-BPD	500	230/460/3/60	2" NPT	71x45x93	1750	NCF-0700	NPF-0700-HT
650-BPD	650	230/460/3/60	2" NPT	71x45x92	2100	NCF-0700	NPF-0700-HT
800-BPD	800	230/460/3/60	3" FLG	93x60x95	5300	NCF-01300	NPF-01300-HT
1000-BPD	1000	230/460/3/60	3" FLG	93x60x95	5500	NCF-01300	NPF-01300-HT
1250-BPD	1250	230/460/3/60	3" FLG	93x60x97	6100	NCF-01300	NPF-01300-HT
1500-BPD	1500	230/460/3/60	3" FLG	93x60x97	6400	NCF-01600	NPF-01600-HT
2000-BPD	2000	230/460/3/60	4" FLG	106x65x113	7700	NCFL-02500	NPF-02500-HT
2500-BPD	2500	230/460/3/60	4" FLG	106x65x113	8500	NCFL-02500	NPF-02500-HT
3000-BPD	3000	230/460/3/60	6" FLG	130x82x134	10700	NCFL-03000	NPFL-03000-HT
4000-BPD	4000	230/460/3/60	6" FLG	130x82x134	12600	NCFL-04000	NPFL-04000-HT
5000-BPD	5000	230/460/3/60	6" FLG	129x81x134	13600	NCFL-05000	NPFL-05000-HT
6000-BPD	6000	230/460/3/60	6" FLG	132x83x134	15000	NCFL-06000	NPFL-06000-HT
7000-BPD	7000	230/460/3/60	8" FLG	175x87x134	26000	NCFL-08000	NPFL-08000-HT
8000-BPD	8000	230/460/3/60	8" FLG	200x88x144	29000	NCFL-08000	NPFL-08000-HT
9000-BPD	9000	230/460/3/60	10" FLG	218x88x151	32000	NCFL-10000	NPFL-10000-HT
10000-BPD	10000	230/460/3/60	10" FLG	218x88x151	36000	NCFL-10000	NPFL-10000-HT

Correction Factor for Inlet Air Temperature

°F	70	80	90	100	105	110	115	120
°C	21	27	32	38	40	43	45	49
Factor F2	1.12	1.01	1.06	1	0.93	0.86	0.80	0.75

Correction Factor for Inlet Air Pressure

Inlet Pressure	PSIG	50	60	70	80	90	100	110	120	130	140	150	175	200	225	250
	BARG	3.5	4.1	4.8	5.5	6.2	6.9	7.6	8.3	9.0	9.7	10.3	12.1	13.8	15.5	17.3
Factor F1		0.56	0.65	0.74	0.83	0.91	1.00	1.04	1.08	1.12	1.16	1.20	1.29	1.37	1.45	1.52

Externally Heated (EHD) Models

Model	Inlet Flow Capacity @100 PSIG CFM	Inlet/Outlet Connections	Dimensions L x W x H	Weight (lbs)	Pre-Filter	After-Filter
150-EHD	150	1" NPT	38x42x86	750	NCF-0200	NPF-0200-HT
200-EHD	200	1" NPT	38x42x86	810	NCF-0200	NPF-0200-HT
250-EHD	250	1.5" NPT	43x33x89	850	NCF-0300	NPF-0300-HT
300-EHD	300	1.5" NPT	43x33x89	1150	NCF-0300	NPF-0300-HT
375-EHD	400	2" NPT	47x44x91	1400	NCF-0500	NPF-0500-HT
500-EHD	500	2" NPT	47x45x91	1550	NCF-0700	NPF-0700-HT
650-EHD	650	2" NPT	46x45x91	1850	NCF-0700	NPF-0700-HT
800-EHD	800	3" FLG	80x60x95	3850	NCFL-01300	NPFL-01300-HT
1000-EHD	1000	3" FLG	80x60x95	4190	NCFL-01300	NPFL-01300-HT
1250-EHD	1250	3" FLG	80x60x95	4550	NCFL-01300	NPFL-01300-HT
1500-EHD	1500	3" FLG	80x60x95	5360	NCFL-01600	NPFL-01600-HT
2000-EHD	2000	3" FLG	85x66x113	8900	NCFL-02500	NPFL-02500-HT
2500-EHD	2500	4" FLG	85x66x113	9100	NCFL-02500	NPFL-02500-HT
3000-EHD	3000	6" FLG	125x82x118	10600	NCFL-03000	NPFL-03000-HT

How To Find Air Flow Capacity:

Air flow capacity = Nominal capacity of dryer x Factor F1 x Factor F2

Example: A 500-BPD has a nominal capacity of 500 SCFM. What is the maximum allowable flow through the dryer at following operating conditions?

Air Inlet Pressure: 110 PSIG (7.6 BARG) **F1 = 1.04**
 Air Inlet Temperature: 105° F (40.50° C) **F2 = 0.93**

Air flow capacity = **500 x F1 x F2**
 Air flow capacity = **500 x 1.04 x 0.93 = 483.6 SCFM**

This is the maximum air flow rate that the dryer can accept under those operating conditions.

How To Select a Suitable Dryer For Given Capacity:

Minimum Std. Air Flow = Design Air Flow / Factor F1 / Factor F2

Example: Given the operating parameters below, find a suitable dryer.

Design Flow Rate: 950 SCFM
 Inlet Air Pressure: 110 PSIG **F1 = 1.04**
 Inlet Air Temperature: 105° F **F2 = 0.93**

Minimum Std. Air Flow = **950/1.04/0.93 = 982.22**

Therefore the model suitable for the conditions above is 1000-BPD.

DRY AIR REIMAGINED

Nortec was founded in 2008 based on three key Pillars of Performance:

1. **Quality** - Quality is the foremost goal in all our products. We specifically design our products to provide exceptional performance and to stand the test of time—a must for every industry.
2. **Service** - Our goal is perfection, supporting every customer in any area that is needed.
3. **Innovation and Design** - We push ourselves to be the best with current industry expectations and continuously improve to create better processes and products.



Regenerative Desiccant Compressed Air Dryers



Refrigerated Compressed Air Dryers



Industrial Process Chillers (5-500 Ton)



Gas Dryers



Aftercoolers & Separators



Closed Loop Fluid Cooler & Pumping Station



NORTEC

Compressed Air & Gas Dryers