SPX®

Heated Purge Desiccant Compressed Air Dryers

HPD SERIES 300 to 3200 scfm (510 to 5437 nm³/h)

Hankison®

Designed for Optimal Performance

Hankison's externally heated purge desiccant dryers offer guaranteed dew point performance, ISO Quality Class 2 air and are equipped with our advanced Ambient Air Amplification (A3) Purge Technology™.

The standard design delivers ISO 8573-1: 2010 dew points between Class 2 and Class 3. Class 2 (-40°F/-40°C) dew points protect against freezing during low ambient conditions and Class 3 (-4°F/-20°C) dew points keep your air system dry during the heat of summer. Applications that require Class 2 (-40°F/-40°C) dew points year round simply need to select the Free-Air (FA) Supercharger option package.

ISO 8573-1: 2010 Quality Classes

To best define the air quality requirements for your specific application, please refer to the table below.

Air Quality Class	Solid Particles Maximum number of particles per m³			Water Vapor Pressure Dew Point		Oil Total Oil Concentration: Aerosol, Liquid & Vapor	
	0.10 - 0.5 micron	0.5 - 1.0 micron	1.0 - 5.0 micron	°C	°F	mg / m³	ppm $_{w/w}$
0	As specified by the equipment user or supplier and more stringent than class 1						
1	≦ 20,000	≦ 400	≦ 10	≦ -70	≦ -94	0.01	0.008
2	≦ 400,000	≦ 6,000	≦ 100	≦ -40	≦ -40	0.1	0.08
3	-	≦ 90,000	≦ 1,000	≦ -20	≦ -4	1	0.8
4	-	-	≦ 10,000	≦ +3	≦ +37	5	4
5	-	-	≦ 100,000	≦ +7	≦ +45	-	-

THE HANKISON GUARANTEE

Hankison guarantees that HPD Series dryers will produce the design dew point while operating continuously at maximum rated flow (100% duty cycle) at CAGI ADF 200 inlet standards of 100°F inlet temperature and 100% relative humidity at 100 psig.

Reduce Purge Air Energy Costs

Eliminate Costly Compressed Air Loss

As energy costs continue to escalate globally sustainability initiatives in plant operations are critical to maintain a competitive advantage.

HPD Series dryers are 100% efficient at delivering full supply-side compressor capacity. Therefore, users benefit from the ability to purchase a less expensive air compressor and a 20% reduction in compressor operating costs.

Eliminate air loss to align supply-side equipment with demand-side requirements to optimize your air system.

Purge Air Operating Cost Comparison

Annual Cost of Compressed Purge Air

(Constant operation at average air demand)

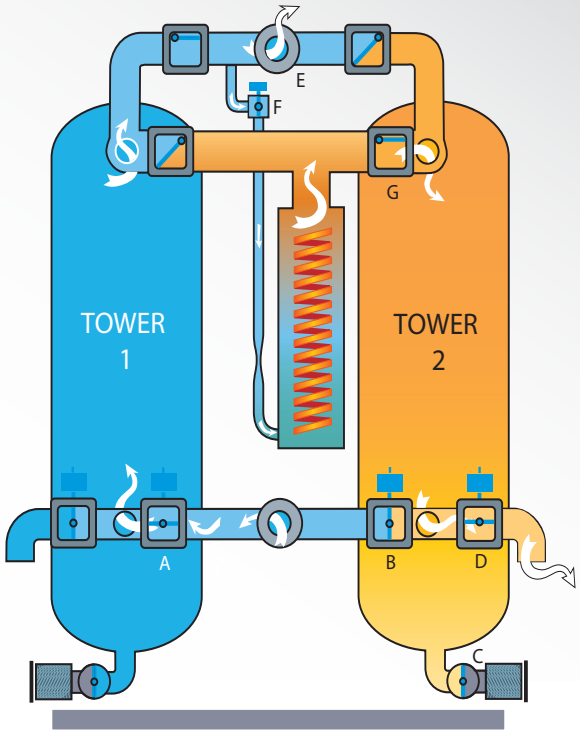
Average Air Demand			Regeneration Cost by Technology[1]		
			Heatless Design	HPD Series	HPD Series w/Free-Air Supercharger
flow	scfm	nm³/h	Industry average 15% purge	Standard 7% purge	6% purge
100%	**1,050**	**1,784**	$20,585	$9,606	$8,234
90%	**945**	**1,606**	$20,585	$9,606	$7,411
75%	**788**	**1,339**	$20,585	$9,606	$6,176
50%	**525**	**892**	$20,585	$9,606	$4,117
35%	**368**	**625**	$20,585	$9,606	$2,882
20%	**210**	**357**	$20,585	$9,606	$1,647

[1] *Assumes 8760 hours, 10 cents per KwH, 5 scfm (8.5 nm³/h) per HP*

How It Works

Standard Design

Moist, filtered compressed air enters the pressurized on-line desiccant-filled drying Tower 1 through valve (A). Up-flow drying enables the desiccant to strip the air stream of moisture. Clean, dry compressed air exits through valve (E) to feed the air system. Tower 2 (when in regeneration mode) closes valve (B), then depressurizes to atmosphere through muffler (C). Valves (D & G) open and the heater turns on. A portion of dry compressed air (purge air) is diverted before exiting (E) and passes through the heater. Hot dry purge air desorbs the moisture from the desiccant as it flows down through Tower 2 to exit at valve (D). Once desorbed, the heater turns off and cool dry purge air continues to pass until the desiccant bed is cooled. Finally, valve (D) closes and Tower 2 is repressurized. At a fixed time interval, valve (B) will open and Tower 2 will be placed on-line to dry the bed and valves (A & D) will close. Operations will switch and Tower 1 will be regenerated.



Delivering Innovation Through Design

Superior Design, Premium Performance

- Soft-seated check valves for tight shutoff and durability
- Towers filled with extra, high-grade activated alumina
- Low-watt density heater saves energy and prevents premature desiccant aging
- Heavy-duty air intake filter
- NEMA 4 Construction

Controls and Monitoring Capabilities

- High-quality pressure gauges display left tower, right tower, and purge pressure
- Function indicator LEDs for easy monitoring
- Vacuum fluorescent text display is visible under any condition

Energy Management System

- Features advanced microprocessor-based control to reduce compressed air volume

Long Service Life

- Premium quality inlet switching/purge exhaust butterfly valves on 3" and larger (Quality pneumatic angle-seated valves for smaller sizes)

HPD Series Options

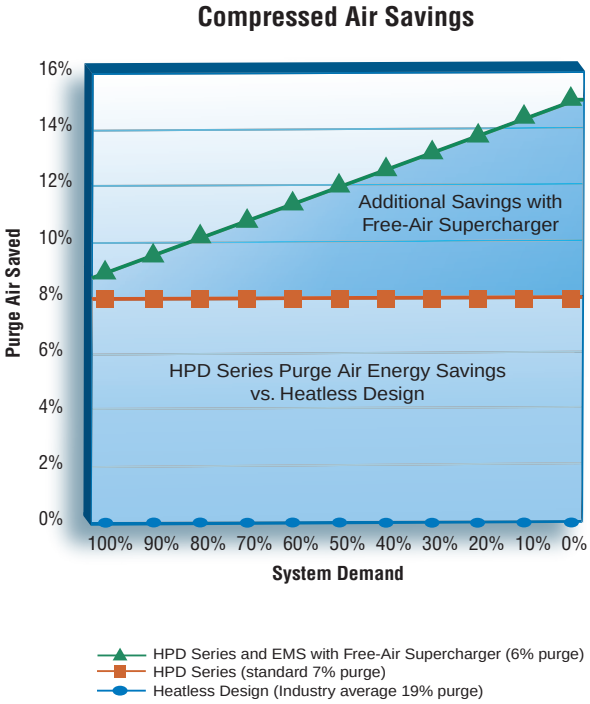
- **Optional EMS controlled Free-Air Supercharger uses A3 Purge Technology™**

Energy Management

Superior System Efficiency

The EMS uses rugged temperature and humidity sensing technology that does not require calibration. Constant desiccant bed monitoring ensures stable dew point control. Algorithm-based A3 Purge Technology™ controls precisely engage the FA Supercharger when needed to manage the bed regeneration cycles and boost the airflow through the tower. Compressed purge air volume is reduced, further optimizing energy conservation.

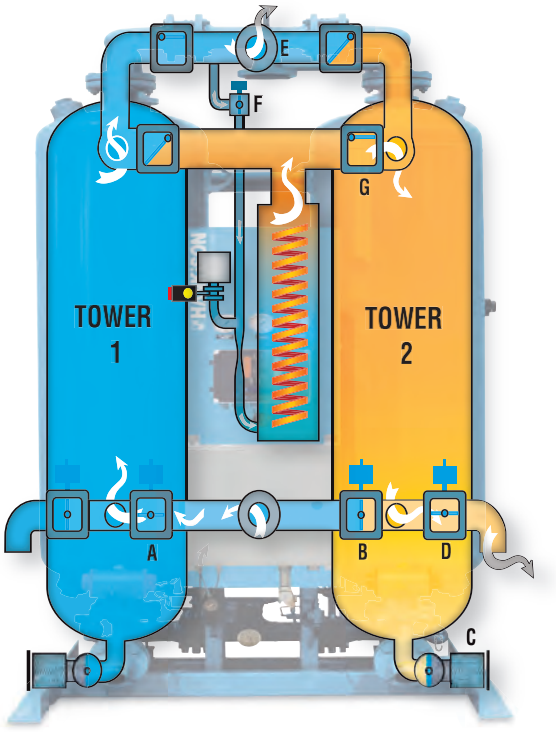
Select an EMS option package for fast returns-on-investment. Energy saving logic controls the A3 Purge Technology™ to synchronize the engagement cycles of the Free-Air-Supercharger (FAS) to mirror plant air demands. This design features a precision venturi blower assembly, engineered to drastically reduce purge air consumption.



How it works

EMS options with FA Supercharger Design

Whereas the standard design operates on a fixed time interval basis, Free-Air Supercharger versions manage the drying and regeneration cycles with precision for systems with variable air demands. The on-line Tower will continue to dry the air stream until the “moisture front” is detected. Only then will the switch-over sequence begin. In regeneration mode the FA Supercharger is engaged and a portion of dry purge air exits valve (F) to be injected into the Y-axis of the FA Supercharger. A3 Purge Technology™ draws ambient air into the X-axis to desorb the desiccant at better than 1:1 amplification. Sensors detect the retreat of the moisture front, disengages the FA Supercharger, eliminates the purge air usage and, initiates the repressurization cycle. The dry, pressurized off-line Tower will remain ready and isolated until sensors detect that the on-line drying Tower is saturated. Then, the switch-over will occur and the process will repeat.



Features and Options

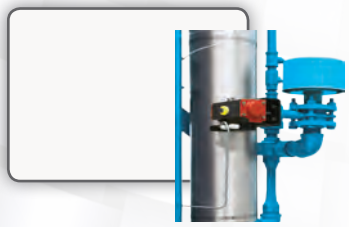
The HPD Series is supported by a complete line of standard features and options making system installation and monitoring easy.

Features

Features		Controller Model		
		Standard	Option FA1	Option FA2
Pressure Dew Point per ISO 8573.1	ISO Class 3: -4°F (-20°C)	G	-	-
	ISO Class 2: -40°F (-40°C)	S	G	G
Free-Air Supercharger	Venturi Blower	-	✓	✓
EMS Control	Automatic Energy Savings	-	✓	✓
	Digital Dew Point Monitoring	-	-	✓
Vacuum Fluorescent Text	2 Line, 16 Characters (high-visibility in darkness or sunlight)	✓	✓	✓
Languages	English, French, and Spanish	✓	✓	✓
Power Recovery	Automatic Restart after Power Loss Remote Indication of Alarm	✓	✓	✓
Dry Contacts	Power On Heater On	✓	✓	✓
Overlay w/ Circuit Graphics & LED Indicators Alarm LEDs with Text Display	Tower Status (drying switch-over heat, cool, etc.) Tower Switch-over Failure (low heater temp/high heater temp) Sensor Over-range & Under-range Service Reminder	✓	✓	✓

S = Seasonal G = Guaranteed ✓ = Included

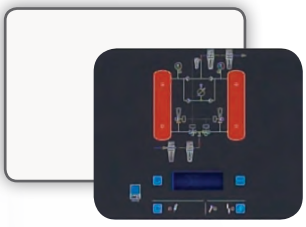
Options



Free-Air (FA) Supercharger EMS Control

Features automatic energy savings with A3 Purge Technology™

- *Optional for FA1 and FA2 models*



Intuitive Operator Interface

System monitoring with interactive display

- *Optional for all models*

High Performance Filtration

Add an HF Series prefilter and/or an HTA afterfilter for optimal performance!

- *Optional for all models*

Product Specifications

Model	Inlet Flow @ 100 psig (6.7 barg)		Heater Rated Output	Full Load (average)	Dimensions			Inlet/Outlet Connections	Weight	HF Series Prefilter	HTA Series Afterfilter
	scfm	nm³/h	kW	kW	H	W	D	in	lbs	recommended	
						in					
HPD300	300	510	4.5	2.0	98	48	43	1 1/2" NPT	1,400	HF-36-12-DGL	HTA400
HPD400	400	680	6.0	2.7	105	53	50	1 1/2" NPT	1,800	HF5-40-16-DG	HTA400
HPD500	500	850	7.0	3.3	105	53	50	2" NPT	1,800	HF5-44-20-DG	HTA600
HPD 600	600	1,019	8.0	4.0	108	55	50	2" NPT	2,000	HF5-44-20-DG	HTA600
HPD750	750	1,274	10.0	5.0	114	60	62	3" FLG	2,400	HF5-48-20-DG	HTA1200
HPD900	900	1,529	12.0	6.0	114	60	62	3" FLG	2,400	HF5-54-24-G	HTA1200
HPD1050	1,050	1,784	14.0	7.0	113	64	62	3" FLG	2,900	HF5-56-24-G	HTA1200
HPD1300	1,300	2,209	17.0	8.7	118	66	62	3" FLG	3,400	HF5-60-24-G	HTA1800
HPD1500	1,500	2,549	19.0	10.0	116	80	62	3" FLG	5,100	HF5-60-24-G	HTA1800
HPD1800	1,800	3,058	23.0	12.0	116	80	62	3" FLG	5,100	HF5-60-24-G	HTA1800
HPD2200	2,200	3,738	28.0	14.7	124	85	64	4" FLG	7,800	HF5-64-4F-G	HTA2400
HPD2600	2,600	4,417	33.0	17.4	124	85	64	4" FLG	7,800	HF5-68-4F-G	HTA3000
HPD3200	3,200	5,437	40.0	21.4	121	97	64	4" FLG	9,000	HF5-72-6F-G	HTA4800

1 *Performance data per CAGI Standard ADF 200 for Desiccant Compressed Air Dryer. Rating conditions are 100°F (37.8°C) inlet 100 psig (6.7 barg) inlet pressure, 100% relative humidity, 100°F (37.8°C) ambient temperature, and 5 psig (0.35 barg) pressure drop.*

* *Consult factory for larger models.*

Inlet Flow

Inlet Flow capacities shown in the Specifications Table have been established at an inlet pressure of 100 psig (6.7 barg) and a saturated inlet temperature of 100°F (38°C). To determine maximum inlet flow at other conditions, multiply the inlet flow from the Specifications Table by the multiplier from Table 1 that corresponds to your operating conditions.

Table 1

Pressure		Inlet Temperature °F (°C)						
psig	barg	60 (15.6)	70 (21.1)	80 (26.7)	90 (32.2)	100 (37.8)	110 (43.3)	120 (48.9)
60	4.13	1.03	1.01	0.99	0.80	0.58	0.43	0.32
70	4.83	1.10	1.08	1.07	0.94	0.68	0.50	0.37
80	5.52	1.17	1.15	1.14	1.08	0.79	0.58	0.43
90	6.21	1.24	1.22	1.20	1.18	0.89	0.66	0.49
100	6.89	1.30	1.28	1.26	1.24	1.00	0.74	0.55
110	7.58	1.36	1.34	1.32	1.30	1.11	0.82	0.61
120	8.27	1.42	1.40	1.38	1.36	1.22	0.90	0.67
130	8.96	1.48	1.46	1.44	1.42	1.33	0.99	0.74
140	9.65	1.53	1.51	1.49	1.47	1.44	1.07	0.80
150	10.34	1.58	1.56	1.54	1.52	1.50	1.16	0.87

Dew Point

Outlet pressure dew point at rated inlet conditions of 100 psig (6.7 barg) and 100°F (38°C) saturated. Dew point varies slightly at other conditions. Consult the factory to determine exact outlet pressure dew point at your operating conditions.

Operating Conditions

Model	Maximum Working Pressure		Minimum Operating Pressure		Maximum Inlet Air Temperature		Minimum Inlet Air Temperature		Maximum Ambient Temperature		Minimum Ambient Temperature	
	psig	barg	psig	barg	°F	°C	°F	°C	°F	°C	°F	°C
250-3200	150	10.5	60	4.2	120	48.9	40°F	4.4	120°F	48.9	40°F	4.4

HPD Series

300 to 3200 scfm

(510 to 5437 nm³/h)

SPX®

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