



HANKISON

hankisonintl.com



HPD SERIES

HEATED PURGE

DESICCANT

COMPRESSED

AIR DRYERS

SPX Air Treatment

HPD Series Dryers Slash Purge Air Energy Costs

Since 1948, compressed air users have relied on Hankison to provide compressed air treatment products with integrity. Global demand for Air Quality Class 3 and our advanced Ambient Air Amplification (A³) Purge Technology™ enables us to offer you externally heated purge desiccant dryers with dew point performance guaranteed from 250 to 3,200 scfm.



Model HPD 1050

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.

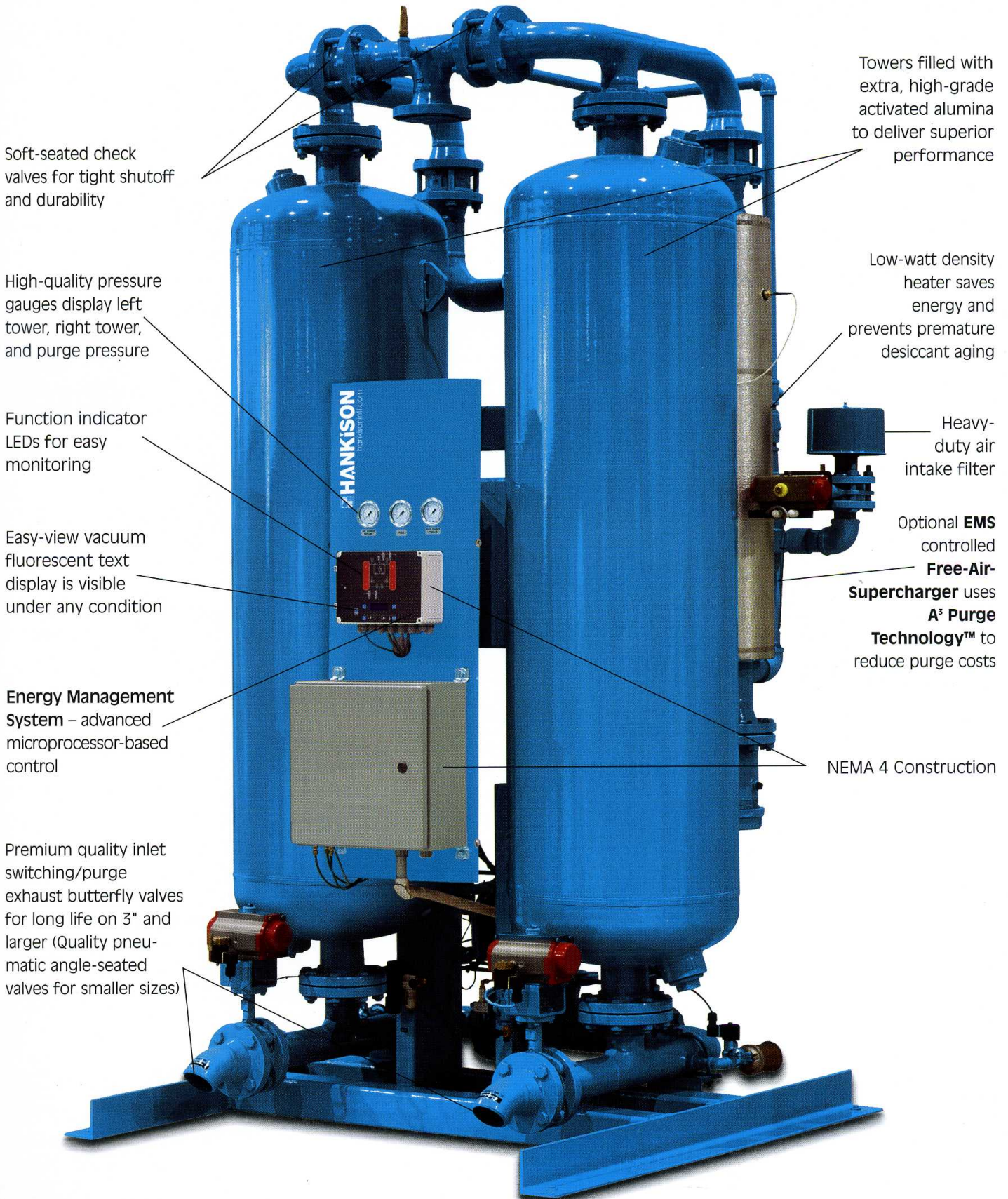
Standard HPD Series Dryers: -4°F to -40°F Pressure Dew Points

Designed for applications that were previously forced to accept a -40°F pressure dew point when simple protection against seasonal freezing is the issue. The standard design delivers ISO 8573.1 dew points between Class 2 and Class 3 automatically. Class 2 (-40°F) dew points protect against freezing during low ambient conditions and Class 3 (-4°F) dew points keep your air system bone dry during the heat of summer. Applications that require Class 2 (-40°F) dew points year round simply need to select the Free-Air (FA) Supercharger option package.

ISO 8573.1 Air Quality Standards

Quality Classes	Solids	Moisture		Oil	
	max. particle size in microns	Dew Point °C	Dew Point °F	Liquid & Gas mg/m ³	ppmw/w
0	as specified	as specified		as specified	
1	0.1	-70	-94	0.01	0.008
2	1	-40	-40	0.1	0.08
3	5	-20	-4	1	0.8
4	15	3	38	5	4
5	40	7	45	>5	>4
6	—	10	50	—	—

Advanced Design



Soft-seated check valves for tight shutoff and durability

High-quality pressure gauges display left tower, right tower, and purge pressure

Function indicator LEDs for easy monitoring

Easy-view vacuum fluorescent text display is visible under any condition

Energy Management System – advanced microprocessor-based control

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

Towers filled with extra, high-grade activated alumina to deliver superior performance

Low-watt density heater saves energy and prevents premature desiccant aging

Heavy-duty air intake filter

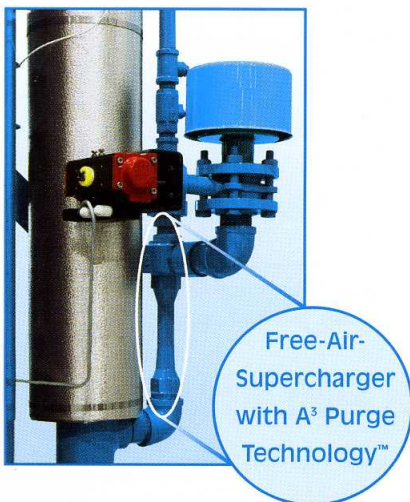
Optional **EMS** controlled **Free-Air-Supercharger** uses **A³ Purge Technology™** to reduce purge costs

NEMA 4 Construction

Energy Savings and -40°F Pressure Dew Points

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.

In fact, an HPD Series dryer with an EMS package may enable the use of a smaller air compressor. Total system efficiency would then be superior due to the linear energy-saving potential of the dryer. Purge air savings of up to 15% are possible in direct proportion to demand when compared to typical heatless designs. Consistent -40°F pressure dew points and fast returns-on-investment are automatic year round.

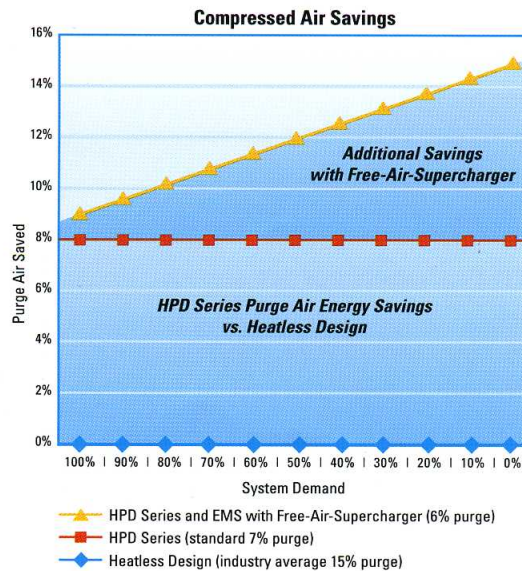


Annual Purge Savings vs. Heatless Design

(1050 scfm System Profile Comparison)

Air Capacity Percent	Air Demand (scfm)	Time (per year)		HPD Series Savings		
		Percent	Hours	Standard Design	Includes Option FA1 or FA2	Savings with FA1 or FA2
100	1050	40	3,504	\$4,391	\$4,940	\$549
90	945	5	438	\$549	\$659	\$110
75	788	15	1,314	\$1,647	\$2,161	\$515
50	525	15	1,314	\$1,647	\$2,470	\$823
35	368	20	1,752	\$2,196	\$3,541	\$1,345
20	210	5	438	\$549	\$947	\$398
Average	555	100	8,760	\$10,979	\$14,718	\$3,740

Annual savings (optional EMS with FA Supercharger vs. standard HPD) **\$3,740**
 EMS option FA1 – payback within 8.2 months



Energy Management System

The EMS uses rugged temperature- & 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.

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.

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 switchover 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 switchover will occur and the process will repeat.

Purge Air Operating Cost Comparison

Annual Cost of Compressed Purge Air
(constant operation at average air demand)

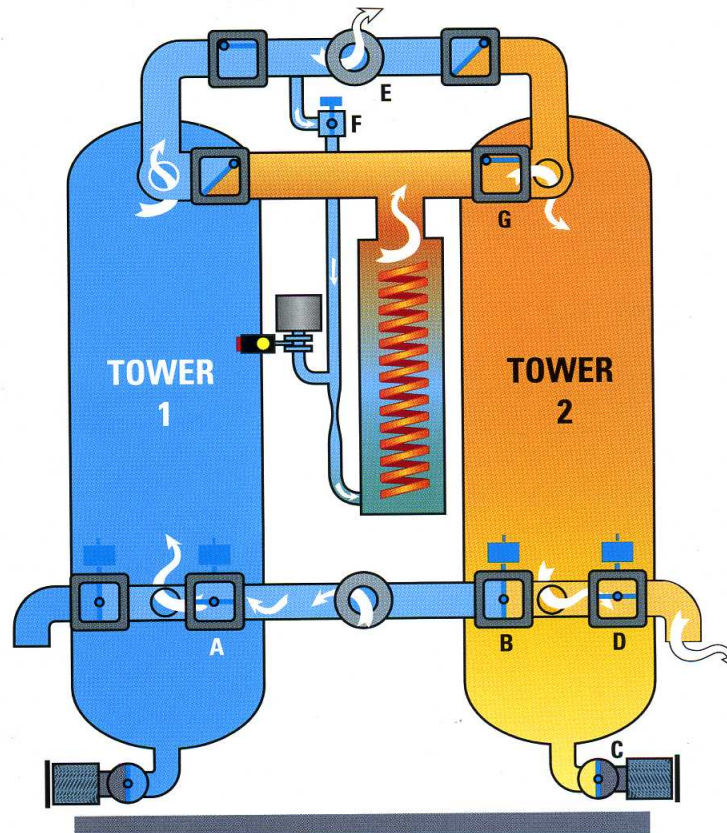
Average Air Demand (flow)	Regeneration Cost by Technology ¹	Regeneration Cost by Technology ¹		
		Heatless Design (industry average 15% purge)	HPD Series (standard 7% purge)	HPD Series w/Free-Air Supercharger 6% purge)
100%	1050	\$20,585	\$9,606	\$8,234
90%	945	\$20,585	\$9,606	\$7,411
75%	788	\$20,585	\$9,606	\$6,176
50%	525	\$20,585	\$9,606	\$4,117
35%	368	\$20,585	\$9,606	\$2,882
20%	210	\$20,585	\$9,606	\$1,647

¹Assumes 8760 hours, 10 cents per Kwh, 5 scfm per HP

Performance Table

Controller	Pressure Dew Point		EMS Energy Savings
	-40°F	-4°F	Automatic
Standard	S	G	—
Optional Free-Air Supercharger	G	—	✓

S – seasonal G – guaranteed ✓ – included



Shown with optional Free-Air Supercharger

HPD Series – Heated Purge Desiccant Compressed Air Dryers

Product Features

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

S – seasonal G – guaranteed ✓ – included

Engineering Data – 250 thru 3200 scfm*

Model	Inlet Flow ¹ @ 100 psig 100°F scfm	Heater Rated Output kW	Average kW	Dimensions inches			Approx. Weight lbs.	Inlet/Outlet Connections inches	HF Series Prefilter Grade 5	HTA Series Afterfilter Particulate
				H	W	D				
HPD-250	250	3.0	1.67	98	48	59	1400	1-1/2" NPT	HF5-32-12-DGL	HTA400
HPD-300	300	4.5	2.00	98	48	59	1400	1-1/2" NPT	HF5-36-12-DGL	HTA400
HPD-400	400	6.0	2.67	105	53	67	1800	1-1/2" NPT	HF5-40-16-DG	HTA400
HPD-500	500	6.0	3.34	105	53	70	1800	2" NPT	HF5-44-20-DG	HTA600
HPD-600	600	8.0	4.01	108	55	71	2000	2" NPT	HF5-44-20-DG	HTA600
HPD-750	750	10.0	5.01	114	60	87	2400	3" FLG	HF5-48-20-DG	HTA1200
HPD-900	900	12.0	6.01	114	60	87	2400	3" FLG	HF5-54-24-G	HTA1200
HPD-1050	1050	14.0	7.01	113	64	84	2900	3" FLG	HF5-56-24-G	HTA1200
HPD-1300	1300	16.0	8.68	118	66	85	3400	3" FLG	HF5-60-24-G	HTA1800
HPD-1500	1500	19.0	10.0	116	88	97	5100	3" FLG	HF5-60-24-G	HTA1800
HPD-1800	1800	23.0	12.0	116	88	97	5100	3" FLG	HF5-60-24-G	HTA1800
HPD-2200	2200	27.5	14.7	124	85	110	7800	4" FLG	HF5-64-4F-G	HTA2400
HPD-2600	2600	32.0	17.4	124	85	110	7800	4" FLG	HF5-68-4F-G	HTA3000
HPD-3200	3200	39.0	21.4	121	97	126	9000	6" FLG	HF5-72-6F-G	HTA4800

¹Performance data per CAGI Standard ADF 200 for Dual-Stage Regenerative Desiccant Compressed Air Dryer. Rating conditions are 100°F (37.8°C) inlet temperature, 100 psig (6.9 bar) inlet pressure, 100% relative humidity, 100°F (37.8°C) ambient temperature, and 5 psi (0.35 bar) 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 (7kgf/cm²) 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 psig (kgf/cm ²)	Inlet Temperature °F (°C)						
	60 (15.6)	70 (21.1)	80 (26.7)	90 (32.2)	100 (37.8)	110 (43.3)	120 (48.9)
60 (4.2)	1.03	1.01	0.99	0.80	0.58	0.43	0.32
70 (4.9)	1.10	1.08	1.07	0.94	0.68	0.50	0.37
80 (5.6)	1.17	1.15	1.14	1.08	0.79	0.58	0.43
90 (6.3)	1.24	1.22	1.20	1.18	0.89	0.66	0.49
100 (7.0)	1.30	1.28	1.26	1.24	1.00	0.74	0.55
110 (7.7)	1.36	1.34	1.32	1.30	1.11	0.82	0.61
120 (8.4)	1.42	1.40	1.38	1.36	1.22	0.90	0.67
130 (9.1)	1.48	1.46	1.44	1.42	1.33	0.99	0.74
140 (9.8)	1.53	1.51	1.49	1.47	1.44	1.07	0.80
150 (10.6)	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 (7kgf/cm²) 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

HPD Models	maximum working pressure	minimum operating pressure	maximum inlet air temp.	minimum inlet air temp.	maximum ambient temp.	minimum ambient temp.
250-3200	150 psig	60 psig	120°F	40°F	120°F	40°F

SPX HANKISON

SPX Air Treatment
 1000 Philadelphia Street
 Canonsburg, PA 15317-1700 U.S.A.
 Phone: 724-745-1555 • Fax: 724-745-6040
 Email: hankison.inquiry@airtreatment.spx.com
www.hankisonintl.com

© 2004 SPX Corporation. All rights reserved.

Improvements and research are continuous at SPX Hankison. Specifications may change without notice.

HPD-300-NA-1





HANKISON

hankisonintl.com



HBP SERIES

BLOWER PURGE

DESICCANT

COMPRESSED

AIR DRYERS

SPX Air Treatment

HBP Series Blower Purge Desiccant Compressed Air Dryers

HBP Series Dryers Produce 100% Efficient Air Systems

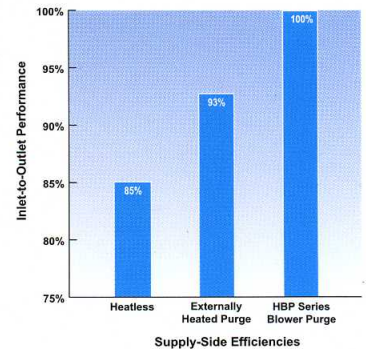
Since 1948, compressed air users have relied on Hankison to provide compressed air treatment solutions for applications around the world. HBP Series dryers improve air system efficiency by the use of a dedicated axial blower, instead of a percentage of dehydrated purge air, to regenerate the off-line desiccant tower. ISO 8573.1 Class 2 (-40°F/-40°C) dew point performance is guaranteed.

The Hankison Guarantee

Hankison guarantees that HBP 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 Energy Consumption

As the air compressor is the most costly system component to purchase and, it uses more electrical energy than the rest of the system combined, it is wise to ensure that the smallest air compressor is installed. HBP 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 Costly Compressed Air Loss

Global competition, spiraling energy costs and, the challenge to "do more, with less" require manufacturers to closely examine operating costs. Compressed air generation tends to be the most costly utility within a facility. Eliminate air loss to align supply-side equipment with demand-side requirements to optimize your air system.

Demand-Side Impact on Supply-Side Dryer Types

Plant Air Demand (scfm)	Dryer Types (efficiency)	Air Volume Required to Meet Demand (scfm)	Air Compressor Needed to Meet Air Volume (HP)	Compressed Purge Air Penalty* (Dollars)	Preferred Supply-Side Solution	
1000	HBP Series Blower Purge (100%)	1,000	200	1,000	\$0	Yes
	Heated Purge (93%)	1,075	250	1250	\$11,436	No
	Heatless (85%)	1,176	250	1250	\$24,506	No

* Assumes 5 scfm/HP, 8760 hours of operation per year, 10 cents per kW/h

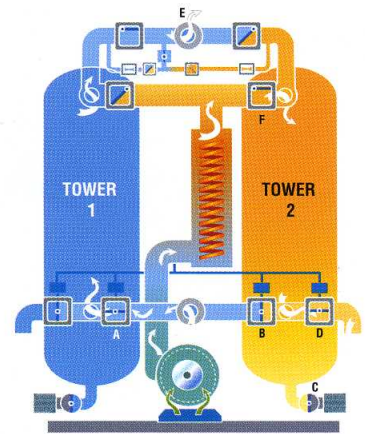
ISO 8573.1 Quality Classes

Class	Solid Particles			Humidity and Liquid Water		Oil	
	Particle Size, d (micron)			Pressure Dew Point		Total concentration, Aerosol, Liquid, and Vapor	
	0.10 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0	°C	°F	mg / m ³	ppm w/w
0	As Specified			As Specified		As Specified	
1	100	1	0	≤ -70	≤ -94	≤ 0.01	≤ 0.008
2	100,000	1,000	10	≤ -40	≤ -40	≤ 0.1	≤ 0.08
3	Not Specified	10,000	500	≤ -20	≤ -4	≤ 1	≤ 0.8
4	Not Specified	Not Specified	1,000	≤ +3	≤ +38	≤ 5	≤ 4
5	Not Specified	Not Specified	20,000	≤ +7	≤ +45		
6				≤ +10	≤ +50		
				Liquid Water Content, C _w g/m ³			
7				C _w ≤ 0.5			
8				0.5 < C _w ≤ 5			
9				5 < C _w ≤ 10			

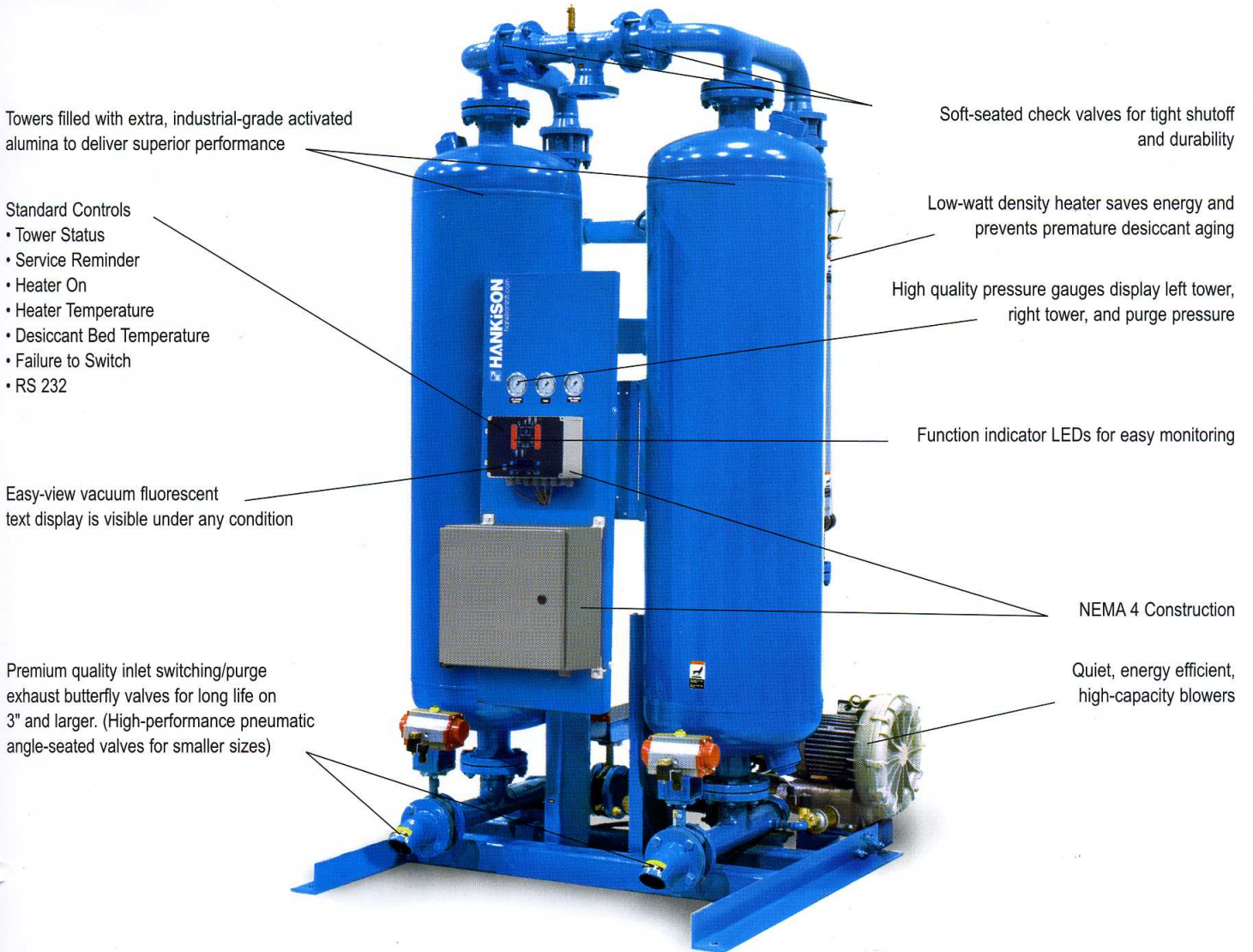
Per ISO8573-1: 2001(E)

How it Works

Filtered compressed air enters on-line desiccant-filled, drying Tower 1 through valve (A). Up-flow drying enables the desiccant to strip moisture from the airstream. Clean, dry compressed air exits through (E) to feed the air system. Tower 2 (shown in regeneration mode) valve (B) closed, depressurizes to atmosphere through muffler (C). Valves (D & F) open and the heater turns on. The high-efficiency blower draws ambient air and feeds it through the heater. The ambient airstream passes through valve (F) and flows downward through the moist desiccant in Tower 2, collecting water vapor before exiting valve (D). Once the desiccant is fully desorbed, the heater turns off. Valves (F & D) close 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 airstream and valve (A) will close. Operations will switch and Tower 1 will be regenerated.



Engineered Efficiency and Performance



HBP Series Features and Specifications

Product Features

Controller	Pressure Dew Point	EMS Control	Vacuum Fluorescent Text			Languages	Power Recovery	Dry Contacts	Overlay w/ Circuit Graphics & LED Indicators Alarm LEDs with Text Display				Options	
Model	ISO Class 2 -40°F (-40°C)	Automatic Energy Savings	Digital Dew Point Monitoring	High Humidity Alarm	2 Line, 16 Characters (high-visibility in darkness or sunlight)	English Spanish French	Automatic Restart after Power Loss	Remote Indication of Alarm	Tower Status (drying switchover heat, cool, etc.)	Tower Switchover Failure (low heater temp/high heater temp)	Sensor Over-range & Under-range	Service Reminder	Vessel Insulation	Mounted Pre- and Afterfilters
Standard	S	-	-	-	S	S	S	S	S	S	S	S	O	O
Option A	S	S	-	S	S	S	S	S	S	S	S	S	O	O
Option B	S	S	S	S	S	S	S	S	S	S	S	S	O	O

S=Standard O=Option

Engineering Data

Model	Inlet Flow @ 100 psig, 100°F ¹ scfm		Heater		Dimensions			Inlet/Outlet Connections	Approx. Weight	HF Series Prefilter (recommended)	HTA Series Afterfilter
	Blower	Output	Rated Output	Full Load (average)	W	D	H				
HBP500	500	1.6	10	10	53	70	105	2" NPT	1866	HF5-44-20-DG	HTA600
HBP600	600	2.5	12	12	55	71	108	2" NPT	2111	HF5-44-20-DG	HTA600
HBP750	750	2.2	14	14	60	83	114	3" FLG	2456	HF5-48-20-DG	HTA1200
HBP900	900	2.0	16	16	60	83	114	3" FLG	2472	HF5-54-24-G	HTA1200
HBP1050	1050	2.8	19	19	64	84	113	3" FLG	2981	HF5-56-24-G	HTA1200
HBP1300	1300	5.3	23	25	66	85	118	3" FLG	3576	HF5-60-24-G	HTA1800
HBP1500	1500	7.5	28	32	80	93	116	3" FLG	5359	HF5-60-24-G	HTS1800
HBP1800	1800	7.0	32	35	80	93	116	3" FLG	5359	HF5-60-24-G	HTA1800
HBP2200	2200	5.6	39	41	85	104	124	4" FLG	8018	HF5-64-4F-G	HTA2400
HBP2600	2600	10.3	45	50	85	104	124	4" FLG	8123	HF5-68-4F-G	HTA3000
HBP3200	3200	2.8	53	52	97	117	121	6" FLG	9333	HF5-72-6F-G	HTA4800
HBP3600	3600	4.0	58	59	97	117	121	6" FLG	9833	HF5-72-6F-G	HTA4800
HBP4300	4300	4.4	70	70	105	130	124	6" FLG	12350	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 (6.9 bar) inlet pressure, 100% relative humidity, 100°F (37.8°C) ambient temperature, and 5 psi (0.35 bar) pressure drop.

* Consult factory for larger models.

Table 1

Pressure psig (kgf/cm ²)	Inlet Temperature °F (°C)						
	60 (15.6)	70 (21.1)	80 (26.7)	90 (32.2)	100 (37.8)	110 (43.3)	120 (48.9)
60 (4.2)	1.03	1.01	0.99	0.80	0.58	0.43	0.32
70 (4.9)	1.10	1.08	1.07	0.94	0.68	0.50	0.37
80 (5.6)	1.17	1.15	1.14	1.08	0.79	0.58	0.43
90 (6.3)	1.24	1.22	1.20	1.18	0.89	0.66	0.49
100 (7.0)	1.30	1.28	1.26	1.24	1.00	0.74	0.55
110 (7.7)	1.36	1.34	1.32	1.30	1.11	0.82	0.61
120 (8.4)	1.42	1.40	1.38	1.36	1.22	0.90	0.67
130 (9.1)	1.48	1.46	1.44	1.42	1.33	0.99	0.74
140 (9.8)	1.53	1.51	1.49	1.47	1.44	1.07	0.80
150 (10.6)	1.58	1.56	1.54	1.52	1.50	1.16	0.87

Inlet Flow

Inlet Flow capacities shown in the Specifications Table have been established at an inlet pressure of 100 psig (7kgf/cm²) 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.

Dew Point

Outlet pressure dew point at rated inlet conditions of 100 psig (7kgf/cm²) 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

HBP Model	max. working press.	min. operating press.	max. inlet air temp.	min. inlet air temp.	max. ambient temp.	min. ambient temp.
	psig	psig	°F	°F	°F	°F
500-4300	150	60	120°F	40°F	120°F	40°F

SPX HANKISON

SPX Air Treatment
1000 Philadelphia Street
Canonsburg, PA 15317-1700 U.S.A.
Phone: 724-745-1555 • Fax: 724-745-6040
Email: hankison.inquiry@airtreatment.spx.com
www.hankisonintl.com

©2005 SPX Air Treatment. All rights reserved. Inv# HBP-300-NA-2

Improvements and research are continuous at SPX Hankison
Specifications may change without notice.

