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# Blower Purge Desiccant Compressed Air Dryer

## HBP Series

500 - 12,000 SCFM
(850 - 20388 $nm^3/h$)

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# HBP Series Blower Purge Desiccant Compressed Air Dryers

## HBP Series Dryers Produce 100% Efficient Air Systems

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.


## ISO 8573.1-2010 Quality Classes

| Class | Solid Particles — Particle Size, d (micron) — Maximum Number of Particles per m³ | | | Humidity & Liquid Water — Pressure Dew Point | | Oil — Total Concentration: Aerosol, Liquid & Vapor | |
|---|---|---|---|---|---|---|---|
| | 0.10 < d ≦ 0.5 | 0.5 < d ≦ 1.0 | 1.0 < d ≦ 5.0 | °C | °F | mg / m³ | 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, Cw g/m³ | | - | - |
| 7 | - | - | - | Cw ≦ 0.5 | | - | - |
| 8 | - | - | - | 0.5 < Cw ≦ 5 | | - | - |
| 9 | - | - | - | 5 < Cw ≦ 10 | | - | - |

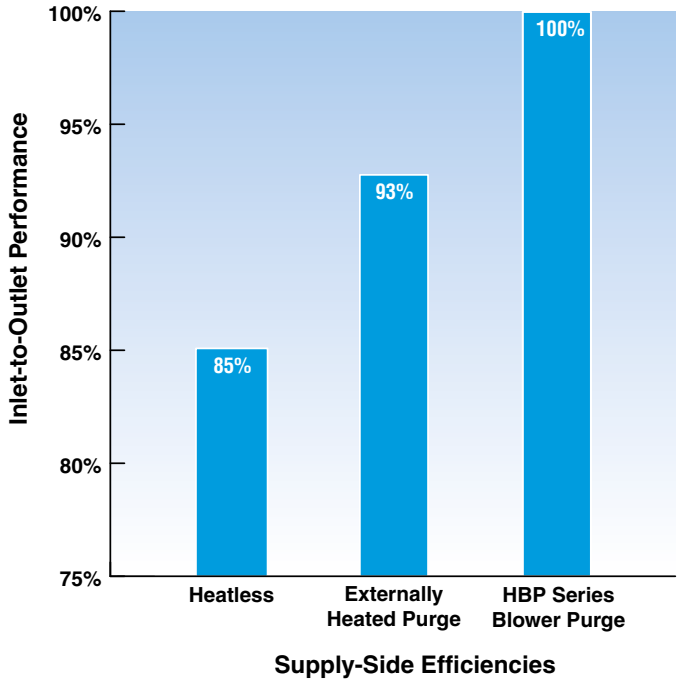
*Per ISO8573-1: 2001(E)*

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

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

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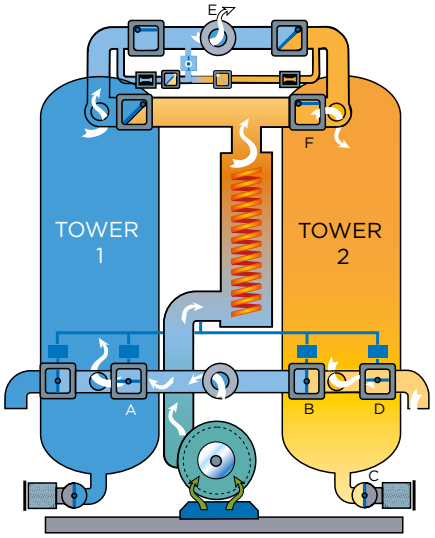
# How it Works

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 air stream. Clean, dry compressed air exits through (E) to feed the air system. Tower 2 (shown in regeneration mode) with 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 air stream 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

Soft-seated check valves for tight shutoff and durability

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

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

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

**Standard Controls**

- Tower Status
- Service Reminder
- Heater On
- Heater Temperature
- Desiccant Bed Temperature
- Failure to Switch
- RS 232

Function indicator LEDs for easy monitoring

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

NEMA 4 Construction

Quiet, energy efficient, high-capacity blowers

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

# HBP Series  Controller Feature List

| | Controller Configuration | | |
|---|---|---|---|
| | Standard | Option A | Option B |
| **Pressure Dew Point** | | | |
| ISO Class 2 -40°F (-40°C) | 3 | 3 | 3 |
| **EMS Control** | | | |
| Automatic Energy Savings | — | 3 | 3 |
| **Vacuum Fluorescent Text** | | | |
| Digital Dew Point Monitoring | — | — | 3 |
| High Humidity Alarm | — | 3 | 3 |
| 2 Line, 16 Characters (high-visibility in darkness or sunlight) | 3 | 3 | 3 |
| **Languages** | | | |
| English, Spanish, French | 3 | 3 | 3 |
| **Power Recovery** | | | |
| Automatic Restart after Power Loss | 3 | 3 | 3 |
| **Dry Contacts** | | | |
| Remote Indication of Alarm | 3 | 3 | 3 |
| **Overlay w/Circuit Graphics & LED Indicators Alarm LEDs with Text Display** | | | |
| Tower Status - (drying switchover heat, cool, etc.) | 3 | 3 | 3 |
| Tower - Switchover, Failure (low heater temp/high heater temp) | 3 | 3 | 3 |
| Sensor Over-range & Under-range | 3 | 3 | 3 |
| Service Reminder | 3 | 3 | 3 |
| **Options** | | | |
| Vessel Insulation | O | O | O |
| Mounted Pre- and Afterfilters | O | O | O |

*3- Standard  O - Option*

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## Engineering Data

| Model | Inlet Flow @100 psig, 100°F[1] | Blower | Heater | Full Load (Average) | Dimensions Inches | | | Inlet/Outlet Connections | Approx Weight | HF Series Prefilter | HTA Series Afterfilter |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCFM | KW | KW | KW | H | W | D | IN | LB | (Recommended) | (Recommended) |
| **HBP500** | 500 | 1.6 | 10 | 10 | 105 | 53 | 70 | 2" NPT | 1866 | F13-CF-G1 | HTA600 |
| **HBP600** | 600 | 2.5 | 12 | 13 | 108 | 55 | 71 | 2" NPT | 2111 | F14-CF-G1 | HTA600 |
| **HBP750** | 750 | 2.2 | 14 | 15 | 114 | 60 | 83 | 3" FLG | 2456 | F14-CF-G1 | HTA1200 |
| **HBP900** | 900 | 2 | 17 | 16 | 114 | 60 | 83 | 3" FLG | 2472 | F15-CF-G1 | HTA1200 |
| **HBP1050** | 1050 | 2.8 | 19 | 19 | 113 | 64 | 84 | 3" FLG | 2981 | F15-CF-G1 | HTA1200 |
| **HBP1300** | 1300 | 5.3 | 23 | 26 | 118 | 66 | 85 | 3" FLG | 3576 | F17-CF-G1 | HTA1800 |
| **HBP1500** | 1500 | 7.5 | 28 | 33 | 116 | 80 | 93 | 3" FLG | 5359 | F17-CF-G1 | HTA1800 |
| **HBP1800** | 1800 | 7 | 33 | 36 | 116 | 80 | 93 | 3" FLG | 5359 | HF5-60-24-G | HTA1800 |
| **HBP2200** | 2200 | 5.6 | 40 | 42 | 124 | 85 | 104 | 4" FLG | 8018 | HF5-64-4F-G | HTA2400 |
| **HBP2600** | 2600 | 10.3 | 45 | 51 | 124 | 85 | 104 | 4" FLG | 8123 | HF5-68-4F-G | HTA3000 |
| **HBP3200** | 3200 | 2.8 | 53 | 53 | 121 | 97 | 117 | 6"FLG | 9333 | HF5-72-6F-G | HTA4800 |
| **HBP3600** | 3600 | 4 | 58 | 59 | 128 | 97 | 117 | 6"FLG | 9833 | HF5-72-6F-G | HTA4800 |
| **HBP4300** | 4300 | 4.4 | 70 | 71 | 124 | 105 | 130 | 6"FLG | 12350 | HF5-72-6F-G | HTA4800 |
| **HBP5000** | 5000 | 14.9 | 100 | 101 | 144 | 145 | 90 | 6"FLG | 16600 | HF5-72-6F-G | HTA6600 |
| **HBP6000** | 6000 | 18.6 | 117 | 125 | 152 | 178 | 89 | 6"FLG | 21200 | HF5-76-6F-G | HTA6600 |
| **HBP7000** | 7000 | 29.8 | 141 | 152 | 178 | 173 | 94 | 8"FLG | 24500 | HF5-76-6F-G | HTA8400 |
| **HBP8000** | 8000 | 22.3 | 174 | 174 | 181 | 196 | 96 | 8"FLG | 31300 | HF5-80-6F-G | HTA8400 |
| **HBP9000** | 9000 | 22.3 | 174 | 174 | 181 | 196 | 96 | 8"FLG | 31300 | HF5-84-8F-G | HTA11400 |
| **HBP10000** | 10000 | 37.2 | 208 | 217 | 184 | 203 | 101 | 8"FLG | 35650 | HF5-84-8F-G | HTA11400 |
| **HBP12000** | 12000 | 55.9 | 236 | 257 | 190 | 205 | 115 | 10"FLG | 38000 | HF5-88-8F-G | CF |

[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

| Pressure | Inlet Temperature °F (°C) | | | | | | |
|---|---|---|---|---|---|---|---|
| psig (kgf/cm²) | 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 | 0.8 | 0.58 | 0.43 | 0.32 |
| **70 (4.9)** | 1.1 | 1.08 | 1.07 | 0.94 | 0.68 | 0.5 | 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 | 1.2 | 1.18 | 0.89 | 0.66 | 0.49 |
| **100 (7.0)** | 1.3 | 1.28 | 1.26 | 1.24 | 1 | 0.74 | 0.55 |
| **110 (7.7)** | 1.36 | 1.34 | 1.32 | 1.3 | 1.11 | 0.82 | 0.61 |
| **120 (8.4)** | 1.42 | 1.4 | 1.38 | 1.36 | 1.22 | 0.9 | 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 | 0.8 |
| **150 (10.6)** | 1.58 | 1.56 | 1.54 | 1.52 | 1.5 | 1.16 | 0.87 |

### Inlet Flow

Inlet Flow (scfm) capacities shown in the Engineering Data 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 Engineering Data 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 Models | Max. Working Press. | Min. Operating Press. | Max. Inlet Air Temp. | Min. Inlet Air Temp. | Max. Ambient Air Temp. | Min. Ambient Air Temp. |
|---|---|---|---|---|---|---|
| **500-4300** | 150 psig | 60 psig | 120°F | 40°F | 120°F | 40°F |

# Blower Purge Desiccant Compressed Air Dryer

## HBP Series

500 - 12,000 SCFM (850 - 20388 $nm^3/h$)

Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region.

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