

JHS · JHL · JHE Series



Why Do Compressed Air Systems Need Drying?

SPX FLOW provides compressed-air dryers and filters that remove oil, water, dirt, rust and pipe scale. Contaminants found in compressed air can adversely affect all components of an air distribution system, and can cause a malfunction of pneumatic control in the instrument air system.

Properly treated compressed air can improve work efficiency and reduce maintenance. Desiccant and refrigerated type compressed air dryers are used in the control air systems of power plants.

About SPX FLOW

SPX FLOW, Inc. (NYSE:FLOW) is a leading manufacturer of innovative flow technologies, many of which help define the industry standard in the market segments they serve. From its headquarters in Charlotte, North Carolina, it operates a sales and support network, centers of manufacturing excellence, and advanced engineering facilities, throughout the world. Its cutting-edge flow components and process equipment portfolio includes a wide range of pumps, valves, heat exchangers, mixers, homogenizers, separators, filters, UHT, and drying technology that meet many application needs. Its expert engineering capability also makes it a premium supplier of customized solutions and complete, turn-key packages to meet the most exacting of installation demands.

www.spxflow.com

Heatless Desiccant Dryers

THE JHS, JHL & JHE SERIES

Utilizing twin vessels filled with premium grade activated alumina, Jemaco Heatless dryers are available with three application specific control systems designed to meet the needs of specific industrial applications with economy and performance. Industries such as pharmaceutical manufacturing, laboratories, hospitals, microelectronics, food packaging, paper, glass and powder painting with low dew point requirements, utilize heatless desiccant air dryers.

Precision Performance

INDUSTRY-LEADING DESIGN

- Consistent outlet pressure dew points
- Premium grade desiccant beads enhance surface area and have high crush strength
- Large desiccant beds ensure 4.8 seconds of contact time
- Large flow diffusers ensure even flow distribution through the bed and eliminate channeling
- Vessels are designed to prevent fluidization of the desiccant
- Up-flow drying allows water and heavy contaminants to drop out of the air stream
- Simple discharge of contaminants
- Cleanable stainless steel flow diffusers/support screens
- Separate fill and drain ports for ease of desiccant replacement

SAFETY BUILT TO CODE

- Pressure vessels are CRN and ASME Certified
- Heavy-duty mufflers for quiet operation
- NEMA 4 electrical construction is standard
- Pressure relief valves are standard



FOUR DEW POINT OPTIONS PER ISO 8573-1 AIR QUALITY STANDARDS

Specifying a pressure dew point is not simple work for an engineer. Jemaco Heatless dryer designs allow you to optimize performance and dew points in the field to adapt to your environment and meet the following ISO 8573-1 Classes of air quality.

ISO 8573.1 Class	Dew Point		Remaining Moisture		JHS Series	JHL Series	JHE Series
	°F	°C	ppmw	mg/m ³			
1	-100	-73	0.12	0.15	4 min fixed	4 min fixed	-
2	-40	-40	10	12	Demand or 10 min. fixed	10 min. fixed	10 min. fixed
3	-4	-20	81	97	Demand or 16 min. fixed	16 min. fixed	-
4	+38	+3	610	730	Demand or 24 min. fixed	24 min. fixed	-

TARGET THE WEAKEST

Flow direction components, such as switching valves and check valves, are typically the weakest link in any heatless desiccant dryer design. Valve diaphragms tear, check valves break and valve stems leak. Wet air and unplanned maintenance results when you can least afford the downtime, too. That is what makes the simplicity and durability of AccuShift Switching Valves so desirable.

AccuShift Switching Valve cores are precision molded out of virgin nylon for quiet, resilient operation. Durable valve bodies provide broad flow paths to reduce pressure drop and eliminate localized abrasion. Internally powered with 1 moving part, this robust design encases the valve core and replaces common switching valves and check valves. Long life AccuShift Valves target the weakest link to improve your uptime.



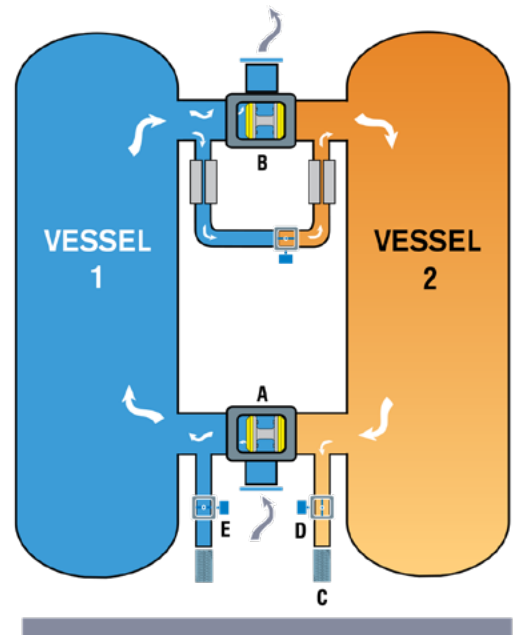
ACCURATE AND DURABLE PROCESS VALVES

- Automatically shift to the low pressure side of the circuit to control process flow
- Life tested to over 500,000 cycles with tough desiccant dust challenge
- Purge/repressurization valves are normally closed, pneumatic piston actuated, Y-angle poppet valves or premium quality butterfly valves
- Position memory ensures drying continues even without power
- Three-way pilot operated solenoid valves manage the pilot air flow to direct the purge/repressurization valves
- Purge pressure adjustment valve

Application Specific Designs

HOW IT WORKS

- Phase 1** Moist, filtered compressed air enters the pressurized on-line desiccant-filled drying Vessel 1 through the AccuShift™ valve (A)
- Phase 2** Up-flow drying enables the desiccant to strip the air stream of moisture. Clean, dry compressed air exits through AccuShift™ valve (B) to feed the air system
- Phase 3** When in regeneration mode, Vessel 2 depressurizes to atmosphere through the muffler (C) when the valve (D) opens
- Phase 4** A portion of dry compressed air (purge air) is diverted before exiting (B) and passes through off-line Vessel 2 and exits at valve (D) to desorb the moisture from the desiccant. Once desorbed, valve (D) closes and Vessel 2 is repressurized
- Phase 5** At vessel shift-over, valve (E) will open, causing AccuShift™ Valves (A & B) to shift
- Phase 6** Vessel 2 will be placed on-line to dry the bed. Operations will switch and Vessel 1 will be regenerated



MATCH PERFORMANCE BY DE MAND

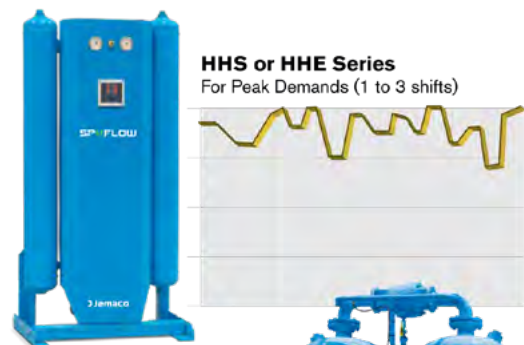
Three user selectable designs engineered to balance economy and performance.

Ideal for applications that operate with a large swing in air demands due to variations in production scheduling or shifts of operation. Some applications operate at a fraction of the flow of the compressor due to air system efficiency improvements. Some applications operate continuously at-or-near full capacity.

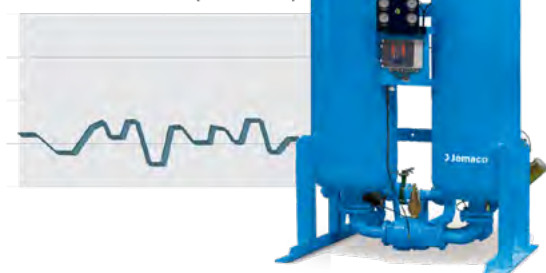
HHS Series
For Fluctuating Demands (1 to 3 shifts)



HHS or HHE Series
For Peak Demands (1 to 3 shifts)



HHS or HHL Series
For Reduced Demands (1 to 3 shifts)



JHS Series Desiccant Dryers

AUTOMATIC SENSATHERM® ENERGY SAVINGS

Jemaco's JHS Series with patented SensaTherm automatically matches purge air to plant air demand. This ensures maximum performance as the saved energy goes right to your bottom line. When operating at reduced capacity, the on-line drying vessel remains active longer, until its full drying capacity is utilized. Desiccant bed temperature changes are constantly monitored within each vessel to precisely manage drying times and reduce purge air consumption.

SensaTherm also measures the increase in desiccant bed temperature (heat of adsorption) during the drying stage and the decrease in desiccant bed temperature (heat of desorption) during the regeneration stage. These temperature changes are accurate indicators of the moisture load on the dryer. This data is interpreted by microprocessor based controls to determine how long a vessel stays on-line during the drying stage.

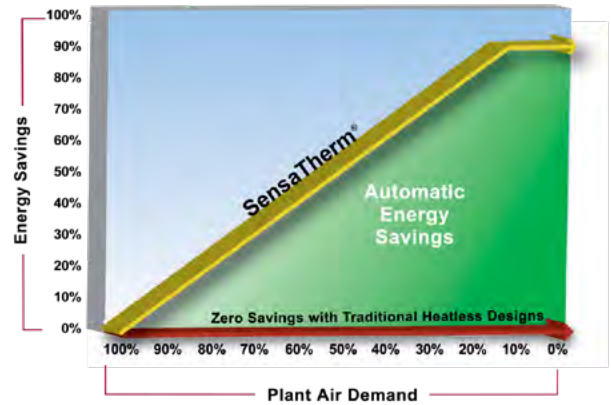
Advantages:

- Temperature transducers (thermistors) are used as sensing devices. They are simpler, more reliable and more rugged than competitive designs.
- Sensors require no calibration.
- The system is based on saving the heat of adsorption, vessels switch before heat is lost maximizing purge air efficiency and minimizing the amount of purge air required.

JHS SERIES CONTROLLER FEATURES:

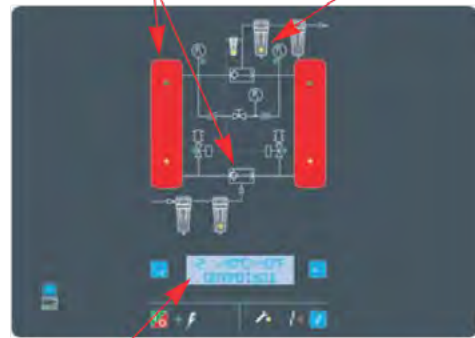
- Choice of four operating modes
- SensaTherm Demand mode
- Switches for On/Off, Alarm and Service reminder reset
- Operational LED lights for power-on, vessel status, valve status, and vessel pressure
- Service reminder LED lights for filters and drains, valves and desiccant. The user selects between a Normal and a Severe service interval
- Alarm LED for vessel switching failure, filter monitor signals, electronic demand drain alarms on filters
- High-visibility Vacuum fluorescent text display communicates energy savings, operating mode and service reminders
- RS-232 communications port is a standard

Superior energy savings and advanced communications capabilities make the JHS Series the best choice.



Maximize your return-on-investment automatically. HHS Series with SensaTherm® delivers energy savings in direct proportion to load variations from your plant air demands, making it the Auditor's Choice.

Full complement of Function Indicator LEDs Filter Service Indicator LEDs



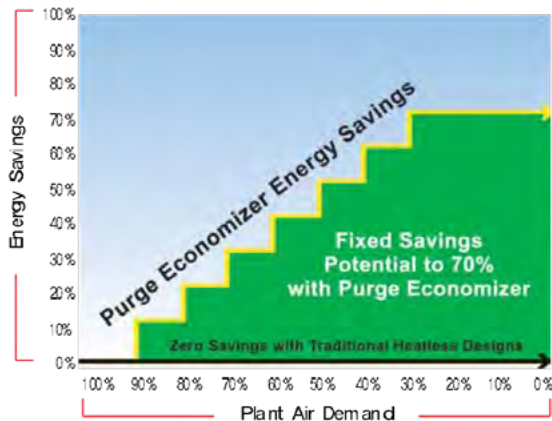
Controller Displays Energy Savings, Cycle Modes, Dew Point Selection, Service Reminders, and Alarm Conditions

Automatic Energy Savings with JHS Series

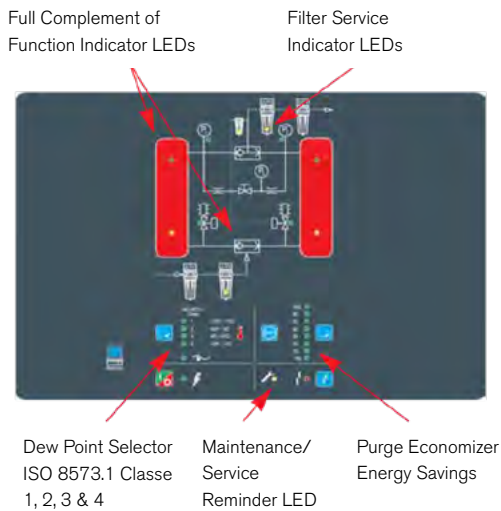
Load	Load Sensatherm Energy Savings						
	21.2	26.3	31.9	38.2	43.8	59.4	84.9
100%	-	-	-	-	-	-	-
95%	\$ 941	\$ 1,167	\$ 1,418	\$ 1,694	\$ 1,945	\$ 2,636	\$ 3,765
90%	1,883	2,335	2,837	3,389	3,891	5,271	7,531
85%	2,824	3,502	4,255	5,083	5,836	7,907	11,296
80%	3,765	4,669	5,673	6,778	7,782	10,543	15,061
75%	4,707	5,836	7,091	8,472	9,727	13,179	18,827
70%	5,648	7,004	8,510	10,166	11,673	15,814	22,592
55%	8,472	10,505	12,764	15,250	17,509	23,722	33,888
40%	11,296	14,007	17,019	20,333	23,345	31,629	45,184
25%	14,120	17,509	21,274	25,416	29,181	39,536	56,480

* Assumes 5 scfm/HP, 8760 hours of operation per year, \$ 0.10 kw/h

JHL Series Desiccant Dryers



Purge Economizer lets you align your purge costs with your air demands to optimize your return-on-investment. Tailor HHL Series dryers to take full advantage of air system efficiency improvements driven by air audit strategies.



Advanced energy saving capabilities and iconic circuit communications make the JHL Series the better alternative.

JHL SERIES

Selectable Purge Economizer Savings

JHL Series provides user selectable energy savings with tailored drying cycles designed to match your peak air demands. Reducing the amount of time the dryer spends purging in the regeneration cycle can save energy. Eight settings (0% to 70% in 10% increments) are furnished for users to lower the purge to match reduced air loads on the dryer. Each energy saving setting has an LED light which will illuminate when it is selected. Simply flip the switch to select the desired energy saving setting. In addition, this state-of-the-art controller offers four pressure dew point settings to further tune your savings and adapt the system to your environment.

JHL CONTROLLER FEATURES:

- Choice of four fixed cycle operating modes corresponding to ISO 8573.1 Air Quality Classes
- Choice of eight Purge Economizer Energy Savings settings
- Switches for On/Off, Alarm and Service reminder reset
- Operational LED lights for power-on, vessel status, valve status, and vessel pressure
- Alarm LED for valve switching failure
- RS-232 communications port is standard
- Service reminder LED lights for filters and drains, valves and desiccant

Energy Saving Settings from JHL Series

Load	Load Sensatherm Energy Savings						
	21.2	26.3	31.9	38.2	43.8	59.4	84.9
100%	-	-	-	-	-	-	-
90%	\$ 1,883	\$ 2,335	\$ 2,837	\$ 3,389	\$ 3,891	\$ 5,271	\$ 7,531
80%	3,765	4,669	5,673	6,778	7,782	10,543	15,061
70%	5,648	7,004	8,510	10,166	11,673	15,814	22,592
60%	7,531	9,338	11,346	13,555	15,563	21,086	30,123
50%	9,413	11,673	14,183	16,944	19,454	26,357	37,653
40%	11,296	14,007	17,019	20,333	23,345	31,629	45,184
30%	13,179	16,342	19,856	23,722	27,236	36,900	52,715

* Assumes 5 scfm/HP, 8760 hours of operation per year, \$ 0.10 kw/h

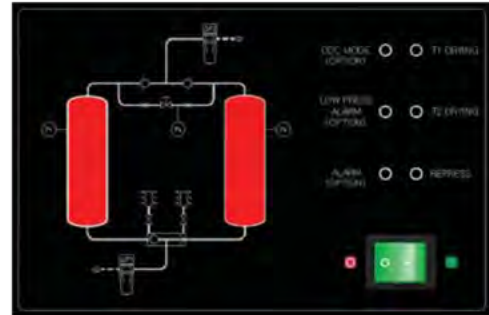
JHE Series Desiccant Dryers

JHE SERIES

Basic Fixed Control - One fixed cycle mode corresponding to ISO 8573.1 Air Quality Class 2

Jemaco's JHE Series is engineered to address the need for raw performance and value. This traditional design uses a simple timer to alternate the flow between the two vessels filled with premium grade desiccant. These are designed to deliver maximum value to applications that operate at-or-near full capacity.

Automatic time controlled bed regeneration cycles offer consistent performance and economy of purchase. While the on-line vessel is drying the air stream, the off-line vessel purges a fixed amount of compressed air to dry the bed and prepares it for the next drying cycle.



JHE CONTROLLER FEATURES:

▪ Control Panel overlay with LED's indicating:

- ▶ Power On
- ▶ Left Vessel Drying
- ▶ Right Vessel Drying
- ▶ Lighted On/Off Switch

JHS-JHL-JHE SERIES ENGINEERED-TO-ORDER OPTIONS

- High dew point alarm which includes light and voltage free contacts for remote alarm
- Dew point monitor, includes digital display, voltage-free contacts and recorder output
- Low ambient packages, epoxy paint, severe environment protection
- Oil-free packages with integrated activated carbon vessels



SPACE-SAVING INTEGRATED FILTRATION, NGF SERIES

▪ Optional pre-filter and after-filter packages, featuring Jemaco NGF Series filters, can be pre-installed at the factory.

- ▶ NGF Series Grade H (0.01 micron high efficiency coalescing) pre-filters are recommended
- ▶ NGF Series Grade PD (1 micron fine particulate) after-filters are recommended
- ▶ NGF Series Grade C (oil vapor) are recommended for oil-free air

JHS · JHL JHE Series

Heatless Desiccant
Air Dryers

SPXFLOW

JHS · JHL · JHE Series Specification

Model	Flow Capacity (Nm ³ / min)	Dimensions (mm)			Inlet/Outlet Connections ¹	Weight (kg)
		H	W	D		
JHS/JHL/JHE-1.1	1.13	1,235	884	889	1" PT	166
JHS/JHL/JHE-1.6	1.69	1,616	884	889	1" PT	202
JHS/JHL/JHE-2.5	2.55	2,047	948	889	1" PT	261
JHS/JHL/JHE-3.2	3.26	1,437	1,264	1,041	1" PT	311
JHS/JHL/JHE-4.6	4.67	1,437	1,264	1,041	1" PT	311
JHS/JHL/JHE-7.3	7.37	1,894	1,305	1,041	2" PT	458
JHS/JHL/JHE-10.4	10.48	1,658	1,470	1,062	2" PT	551
JHS/JHL/JHE-12.7	12.74	1,861	1,470	1,075	2" PT	612
JHS/JHL/JHE-16.7	16.71	2,631	1,387	1,295	2" PT	668
JHS/JHL/JHE-21.2	21.24	2,720	1,438	1,295	2" PT	968
JHS/JHL/JHE-26.3	26.33	2,841	1,603	1,499	2" PT	1,095
JHS/JHL/JHE-31.9	32.00	2,924	1,673	1,499	3" FLG	1,304
JHS/JHL/JHE-38.2	38.23	3,051	1,724	1,499	3" FLG	1,688
JHS/JHL/JHE-43.8	43.89	2,980	1,876	1,499	4" FLG	1,890
JHS/JHL/JHE-59.4	59.47	3,026	2,080	1,499	4" FLG	2,004
JHS/JHL/JHE-84.9	84.95	3,180	2,172	1,693	4" FLG	4,087
JHS/JHL/JHE-116.0 ²	116.10	3,158	2,537	2,227	6" FLG	4,500
JHS/JHL/JHE-152.9 ²	152.91	3,158	2,667	2,253	6" FLG	5,445

Maximum Working Pressure: 10.3 bar standard.
17.0 bar optional. Units with higher Maximum Working Pressures are available.

Minimum Operating Pressure: 10.3 bar units - 4.1 bar, 17.0 bar - 8.3 bar)

Maximum Inlet Air or Ambient Air Temperature: 49°C

Pressure Drop at Rated Flow: Less than 0.34 bar

Available Voltages: JHE - 100-120V/1ph/50-60Hz, JHL/JHS - 100-240V/1ph/50-60Hz and 12-24 VDC, NEMA 4 Standard

Dimensions and weights are for reference only. Request certified drawings for construction purposes.

¹ BSP and DIN flanges available

² Supplied with Premium Quality Butterfly Switching Valves

Capacity Correction Factor

Inlet flow capacities are established with inlet conditions as: Inlet air pressure 6.9 bar, inlet temperature saturated at 38 °C.

To determine inlet flow at pressures other than 6.9bar, multiply inlet flow at 7 bar from Product Specifications by the corresponding multiplier in Table 1.

Table 1 – Correction Factors (multipliers) for Inlet Pressure

Operating Pressure	Psig	60	70	80	90	100	110	120	130	140	150	175	200	225	250
	bar	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	17.0
FACTOR		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

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Some specifications in this bulletin may change without notice.

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