



Deltech

AN SPX BRAND

Desiccant Air Drying Technologies

HCS Series

HCL Series

HCT Series



HCS, HCL and HCT Series *Heatless Desiccant Dryers*

Since 1961, compressed air users have relied on Deltech to deliver technology that reduces the cost of operation and improves the reliability of air driven processes in sensitive applications. Demand Deltech for the choices that deliver the optimal solution. Select from 3 application engineered heatless dryer designs that meet the needs of industry with economy and performance. HCS, HCL or HCT Series heatless desiccant dryers provide consistent outlet pressure dew points to -100°F (-73°C).

Microelectronics, food packaging, paper, glass, pharmaceutical, powder painting, hospital laboratories: these industries are a small representative sample of industries utilizing desiccant dryers. They all have one thing in common...they need to save space on the factory/laboratory floor. These sleek designs and compact footprints help engineers address those needs.



Models 40-450

Models 590-3000

Consistent Outlet Pressure Dew Points

Industry-leading Desiccant Beds

- Industrial grade activated alumina desiccant beads offer enhanced surface area and high crush strength which prolongs bed life
- Large desiccant beds ensure 4.8 seconds of contact time.....allows wet, saturated air at the dryer inlet to be dried to the required dew point.
- Industrial Grade Desiccant ensures top performance over expected 3 to 5 years of desiccant bed life
- Large flow diffusers ensure even flow distribution through the bed and eliminate channeling
- Towers are sized so that air velocity through the bed won't fluidize the desiccant which prevents bed movement and desiccant dusting
- Up-flow drying allows water and heavy contaminants to drop out of the air stream as they enter a tower which protects the bed from contamination. This makes it simple to discharge the contaminants when the tower depressurizes
- Cleanable stainless steel flow diffusers/support screens and 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-dryers are shipped with an extra set of mufflers
- 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. HCL and HCS Series dryer designs are optimized to match up to four pressure dew point classes of the ISO 8573.1 Air Quality Standard.

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

AccuShift™ Switching Valves Durability for Decades

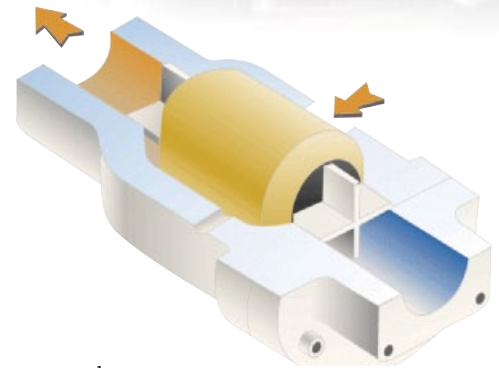
Flow direction components, such as switching valves and check valves, are typically the weakest link in any heatless desiccant dryer design. Valve diaphragms tear, check valves break, and valve stems leak. Wet air and unplanned maintenance results when you can least afford the downtime, too. That is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

AccuShift™ Switching Valve cores are precision molded out of virgin nylon for quiet, resilient operation. Durable cast 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

- AccuShift™ Inlet and Outlet switching valves automatically shift to the low pressure side of the circuit to control process flow
- AccuShift™ valve life tested to over 500,000 cycles with tough desiccant dust challenge
- AccuShift™ position memory ensures drying continues, even with the loss of electrical power to the dryer.
- 5 year AccuShift™ valve replacement warranty*
- Purge/repressurization valves are normally closed, pneumatic piston actuated, Y-angle poppet valves or premium quality butterfly valves.
- Three-way pilot operated solenoid valves manage the pilot air flow to direct the purge/repressurization valves
- Purge pressure adjustment valve

* Dryer must be protected by properly sized Deltech prefilter. Parts and labor covered through first year of warranty, parts only in second through fifth years.



Empower yourself with 3 select designs to choose from that are engineered to balance economy and performance. Why three? Many applications 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. The following table serves as a guide to help determine which design is best suited for your critical application.

Air Demand Profile	Flow Range	Deltech Solution
 Fluctuating Demands (1 to 3 shifts)	40 - 5,400	HCS Series
 Reduced Demands (1 to 3 shifts)	40 - 5,400	HCS Series or HCL Series
 Peak Demands (1 to 3 shifts)	40 - 5,400	HCS Series, HCL Series or HCT Series

Standard Instrumentation

- Left and right tower pressure gauges
- Purge pressure gauge
- Moisture indicator – alerts operator of elevated dew point
- Throttling valve provides accurate purge pressure adjustment

HCS Series

Automatic Energy Savings with CompuSaveEMS

HCS Series with CompuSaveEMS automatically computes purge air requirements to deliver maximum energy savings in proportion to the demand on the system. The energy savings go right to your bottom line. Controller features vacuum fluorescent text display that communicates energy savings, operating mode and service reminders. Select from one of four ISO 8573.1 pressure dew point settings for seasonal efficiencies.

HCL Series

Load Selectable Savings

HCL Series provides user with load selectable energy savings. Tailor the drying cycles, to match reduced peak air demands. This advanced controller offers 8 capacity settings, in 10 percent increments and, 4 pressure dew point settings to further tune your savings and, adapt to climatic changes in your environment.

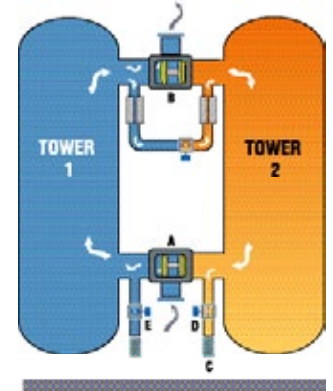
HCT Series

-40°F Dew Point Performance - Pure and Simple

HCT Series presents traditional heatless drying technology. A simple timer based controller delivers precise operation 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.

How They Work

Moist, filtered compressed air enters the pressurized on-line desiccant-filled drying Tower 1 through AccuShift™ valve (A). 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. Tower 2 (when in regeneration mode) depressurizes to atmosphere through muffler (C) when valve (D) opens. A portion of dry compressed air (purge air) is diverted before exiting (B) and passes through off-line Tower 2 and exits at valve (D) to desorb the moisture from the desiccant. Once desorbed, valve (D) closes and Tower 2 is repressurized. At tower shift-over, valve (E) will open, causing AccuShift™ Valves (A & B) to shift. Tower 2 will be placed on-line to dry the bed. Operations will switch and Tower 1 will be regenerated.



HCS Series, CompuSaveEMS Delivers Energy Savings

Deltech's CompuSaveEMS energy saving purge system, mirrors plant air demands to deliver calculated energy savings. When operating at reduced capacity, the on-line drying tower remains active longer, until its full drying capacity is utilized. Desiccant bed temperature readings are constantly monitored to manage drying times and minimize purge air consumption.

CompuSaveEMS detects the rise in desiccant bed temperatures (heat of adsorption) that result during the drying phase. Temperature escalation and dry time provide an indirect measure of extracted water vapor. Advanced microprocessor based controls continuously re-calculate available drying time to manage how long a tower stays active. During the regeneration phase, the stored heat of adsorption is released to improve energy efficiency and prepare the inactive tower for the next cycle. After regeneration, the off-line tower is re-pressurized and, purge air consumption ceases in anticipation of the next drying cycle.

Advantages:

1. The system is based on saving the heat of adsorption - towers switch before heat is lost... maximizing purge air efficiency and minimizing the amount of purge air required.
2. Temperature transducers (thermistors) are used as sensing devices - they are simpler, more reliable, and more rugged than the humidity, pressure, and flow transducers used by others.
3. Sensors used on the CompuSaveEMS system require no calibration.

Automatic Energy Savings with HCS Series *

Load	Dryer Flow Rates							
	590	750	930	1,130	1,350	1,550	2,100	3,000
100%	-	-	-	-	-	-	-	-
95%	\$ 741	\$ 941	\$ 1,167	\$ 1,418	\$ 1,694	\$ 1,945	\$ 2,636	\$ 3,765
90%	1,481	1,883	2,335	2,837	3,389	3,891	5,271	7,531
85%	2,222	2,824	3,502	4,255	5,083	5,836	7,907	11,296
80%	2,962	3,765	4,669	5,673	6,778	7,782	10,543	15,061
75%	3,703	4,707	5,836	7,091	8,472	9,727	13,179	18,827
70%	4,443	5,648	7,004	8,510	10,166	11,673	15,814	22,592
55%	6,665	8,472	10,505	12,764	15,250	17,509	23,722	33,888
40%	8,886	11,296	14,007	17,019	20,333	23,345	31,629	45,184
25%	11,108	14,120	17,509	21,274	25,416	29,181	39,536	56,480

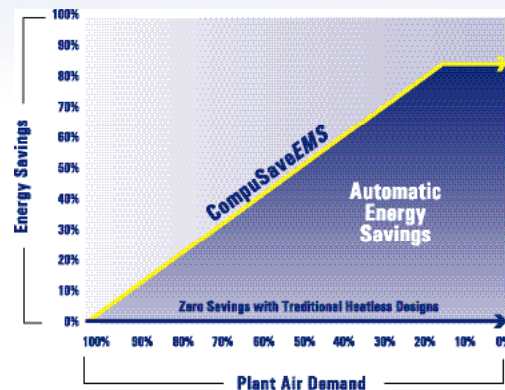
* Based upon 100 psig, 0.10\$/kwh, cost of compressed air at 0.33166\$/1,000 scf, 8,760 hrs/yr.

HCS Series Controller Features:

- Choice of four operating modes (see page 3 for ISO dew point classes)
- CompuSaveEMS Demand mode or fixed cycle mode
- Switches for On/Off, Alarm and Service reminder reset
- Operational LED lights for power-on, tower status, valve status, and tower 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 tower switching failure, filter monitor signals, electronic demand drain alarms
- Vacuum fluorescent text display shows energy savings, operating mode and service reminders
- RS-232 communications port is standard

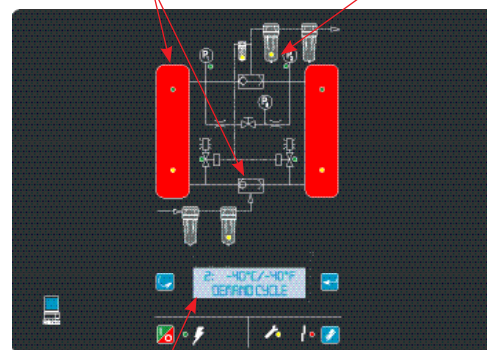
CompuSaveEMS

ENERGY SAVING PURGE SYSTEM



Maximize your return-on-investment automatically. HCS Series with CompuSaveEMS, 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

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

HCL Series

Load Selectable Energy Savings

Eight energy saving selections, in 10% increments, deliver up to 70% in purge air energy savings, to help facilities adapt to reduced plant air demands. Ideal for facilities that are candidates for energy saving air system audits, end users can reduce dryer purge requirements to match reduced plant air loads on the dryer. Each energy saving setting has an LED that illuminates to confirm the percentage of purge air energy being saved.

Energy Saving Settings from HCL Series*

Load	Dryer Flow Rates							
	590	750	930	1,130	1,350	1,550	2,100	3,000
100%	-	-	-	-	-	-	-	-
90%	\$ 1,481	\$ 1,883	\$ 2,335	\$ 2,837	\$ 3,389	\$ 3,891	\$ 5,271	\$ 7,531
80%	2,962	3,765	4,669	5,673	6,778	7,782	10,543	15,061
70%	4,443	5,648	7,004	8,510	10,166	11,673	15,814	22,592
60%	5,924	7,531	9,338	11,346	13,555	15,563	21,086	30,123
50%	7,405	9,413	11,673	14,183	16,944	19,454	26,357	37,653
40%	8,886	11,296	14,007	17,019	20,333	23,345	31,629	45,184
30%	10,367	13,179	16,342	19,856	23,722	27,236	36,900	52,715

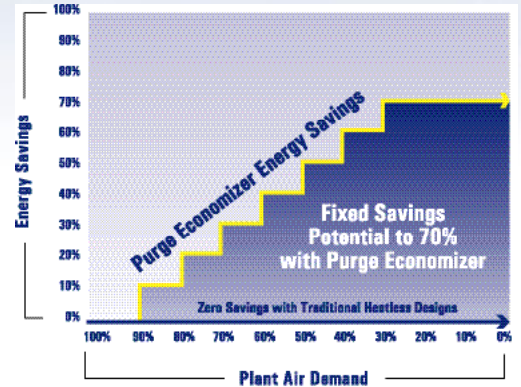
* Based upon 100 psig, 0.10\$/kwh, cost of compressed air at 0.33166\$/1,000 scf, 8,760 hrs/yr.

HCL Controller Features:

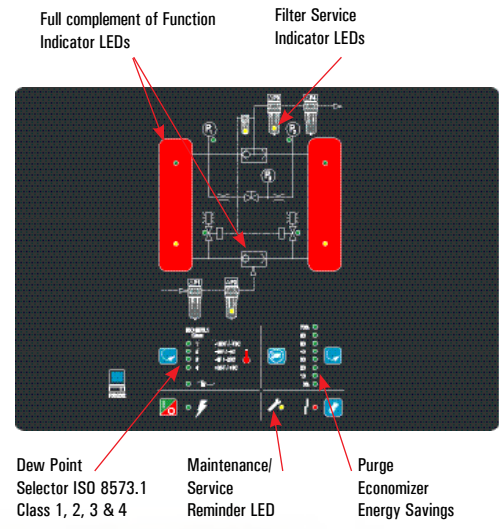
- Choice of four fixed cycle operating modes corresponding to ISO 8573.1 Air Quality Classes (see page 2 for ISO dew point classes and cycle times)
- Choice of eight Purge Economizer Energy Savings settings with an energy saving selector switch
- Switches for ISO Class dew point, On/Off, Alarm and Service reminder reset
- Operational LED lights for power-on, tower status, valve status, and tower 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 valve switching failure
- RS-232 communications port is standard



Purge Economizer lets you align your purge costs with your air demands to optimize your return-on-investment. Tailor HCL 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 HCL Series the better alternative.



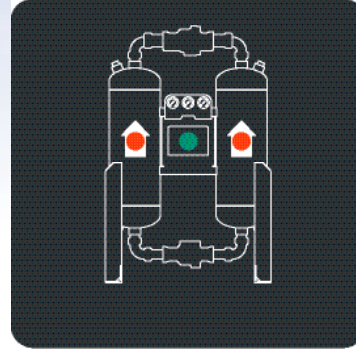
HCT Series

-40°F Dew Point, Pure and Simple

Engineered to address the need for raw performance and value. Traditional design uses a simple timer to alternate flow between the two towers filled with industrial grade desiccant. While the on-line tower is drying the air stream, the off-line tower purges a fixed amount of compressed air to dry the bed and prepare it for the next work cycle.

HCT Controller Features:

- Control Panel overlay with LED's indicating:
 - Power On
 - Left Tower Drying
 - Right Tower Drying



Designed for durability in uncompromising applications, simple visual tower drying indicators make the HCT Series the right choice for those who want reliability without sacrificing pure performance.

HCS, HCL, HCT Series Engineered-to-Order

Options

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

Space-saving Integrated Filtration

Pre-filter and after-filter packages featuring Deltech DF Series coalescing filters can be

pre-installed at the factory to save time and labor

- DF Series Grade D (3 micron bulk liquid) and Grade B (0.008 ppm oil aerosols) pre-filters are recommended for -40°F to +38°F (-40°C to +3°C) dew points
- DF Series Grade C (1 micron particulate) and Grade A (0.0008 ppm oil aerosols) pre-filters are recommended for -100°F (-73°C) dew points
- DF Series Grade Y (1 micron dry particulate) and Grade Z (oil vapor) are the recommended after-filters



Models HCS/HCL/HCT-40-450

Features & Specifications

HCS, HCL and HCT Series Product Specifications

Model	Inlet Flow @ 100 psig (7 bar) scfm	H	Dimensions		Inlet / Outlet Connections ¹	Weight lbs.
			W Inches	D		
HCS/HCL/HCT-40	40	46	32	32	1" NPT	365
HCS/HCL/HCT-60	60	61	32	32	1" NPT	445
HCS/HCL/HCT-90	90	78	32	32	1" NPT	575
HCS/HCL/HCT-115	115	54	44	38	1" NPT	685
HCS/HCL/HCT-165	165	54	44	38	1" NPT	685
HCS/HCL/HCT-260	260	72	48	38	2" NPT	1,010
HCS/HCL/HCT-370	370	63	55	38	2" NPT	1,215
HCS/HCL/HCT-450	450	71	55	38	2" NPT	1,350
HCS/HCL/HCT-590	590	101	52	48	2" NPT	1,473
HCS/HCL/HCT-750	750	104	54	48	2" NPT	2,134
HCS/HCL/HCT-930	930	109	59	56	2" NPT	2,414
HCS/HCL/HCT-1130	1,130	112	63	56	3" ANSI Flg.	2,875
HCS/HCL/HCT-1350	1,350	117	65	56	3" ANSI Flg.	3,722
HCS/HCL/HCT-1550	1,550	115	71	56	4" ANSI Flg.	4,167
HCS/HCL/HCT-2100	2,100	116	79	56	4" ANSI Flg.	4,417
HCS/HCL/HCT-3000	3,000	122	78	65	4" ANSI Flg.	9,010
HCS/HCL/HCT-4100 ²	4,100	122	93	85	6" ANSI Flg.	9,900
HCS/HCL/HCT-5400 ²	5,400	122	102	86	6" ANSI Flg.	12,000

Maximum Working Pressure: 150 psig (10.3 bar) standard. 250 psig (17.0 bar) optional. Units with higher Maximum Working Pressures are available.

Minimum Operating Pressure: 150 psig (10.3 bar) units - 60 psig (4.1 bar). 250 psig (17.0 bar) - 120 psig (8.3 bar).

Maximum Inlet Air or Ambient Air Temperature: 120°F (49°C)

Pressure Drop at Rated Flow: Less than 5 psi (0.34 bar)

Available Voltages: HCT - 100-120V/1ph/50-60Hz, HCS/HCL - 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

Table 1 - Correction Factors

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
Multiplier		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

Inlet Flows

Inlet flow capacities are established in accordance with CAGI (Compressed Air and Gas Institute) standard ADF-200: Inlet air pressure 100 psig (7 bar), inlet temperature saturated at 100°F (38°C). To determine inlet flow at pressures other than 100 psig (7 bar), multiply inlet flow at 100 psig (7 bar) from Product Specifications by the corresponding multiplier in Table 1.

Regeneration Flow Rate

The amount of air used during the regeneration phase consists of the amount used while the purge/repressurization valve is open (purge air) plus the volume of air used to repressurize the tower after the purge/repressurization valve closes. Typically the rate shown is averaged over the cycle time. At 100 psig (7 bar), average air use is 14.4% of the inlet flow capacity (13.7% for purge +0.7% for repressurization) for dryers operating on a 10 minute cycle; 15.5% (13.7% for purge +1.8% for repressurization) for dryers operating on a 4 minute cycle. Instantaneous flow rate (air flowing while the purge/repressurization valve is open) varies with cycle selection, Energy Savings setting, and inlet pressure.



SPX FLOW TECHNOLOGY
1000 PHILADELPHIA STREET
CANONSBURG, PA 15317-1700 U.S.A.
TEL | 724 | 745 | 8647
FAX | 724 | 745 | 4967
deltech.inquiry@spx.com
www.deltech-spx.com
www.spxft.com

SPX FLOW TECHNOLOGY CANADA
1415 CALIFORNIA AVENUE
BROCKVILLE, ON, CANADA, K6V 7H7
TEL | 800 | 267 | 3884
FAX | 613 | 345 | 7240
salescanada@spx.com
www.deltech-spx.com
www.spxft.com



SPX®

Bulletin H Series_01/2011

© 2011 SPX Corporation. All rights reserved.

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