

## Heatless Modular Desiccant Air Dryers

DSHD SERIES 7 to 40 scfm (12 to 68 nm<sup>3</sup>/h)



# Optimal System Protection

Deltech's DSHD Series Modular Desiccant Air Dryers protect moisture sensitive applications requiring low pressure dew points. Delivers dew points of ISO 8573-1: 2010 Class 1 (-94°F, -70°C) and Class 2 (-40°F, -40°C) with flow rates of 7 to 40 scfm (12 to 68 nm<sup>3</sup>/h). Critical applications include labs, hospitals, pharmaceutical manufacturing and other high-tech installations.

The DSHD Series incorporate a time proven design, with superior features and reliability, in a compact and easy to install package. Standard features include:

## 300 SERIES FILTER PACKAGES STANDARD

- Grade H3 coalescing prefilter captures oil down to 0.008 mg/m<sup>3</sup>
- Grade P3 afterfilter removes solids 1.0 micron and larger

## TECHNOLOGY AT A GLANCE

- Consistent outlet pressure dew points
- Selectable pressure dew point performance for maximum application flexibility
- Minimum purge air usage saves energy
- Desiccant beds sized to prevent fluidization plus slow and complete regeneration prevents desiccant aging
- Non-lubricated, soft seated control valves promotes reliable operation
- Heavy duty purge exhaust muffler for quiet operation

## HIGHLY ACCURATE SOLID STATE TIMER

- Standard 4 minute cycle time delivers ISO Quality Class 2 pressure dew point
- Flow deration delivers ISO Quality Class 1 pressure dew point

## EXTENDED WARRANTY

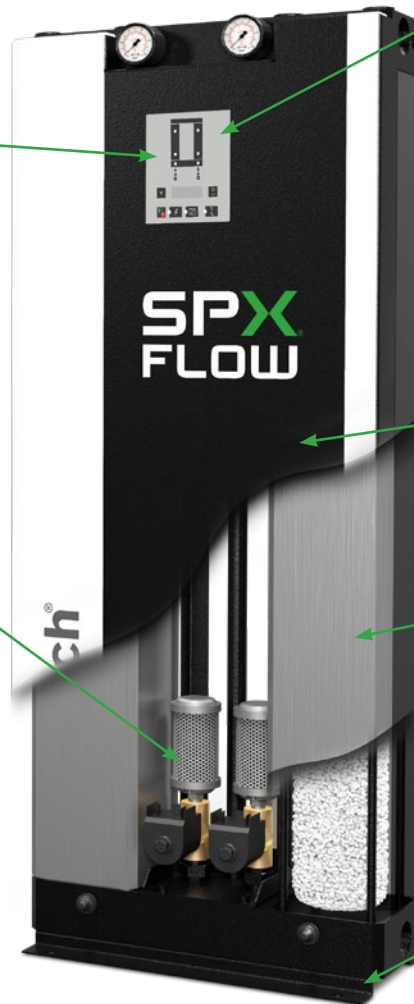
- One-year warranty standard
- Up to five-year warranty with purchase of annual maintenance kit

## FRONT MOUNTED CONTROL PANEL

- Electronic controls to monitor status & operation
- Power on light
- Tower indicator lights
- On-off switch

## SUPREME CRAFTSMANSHIP

- Powder coated cabinet for long term durability
- Fully assembled, piped and wired eases installation
- Extruded aluminum columns to house desiccant cartridges
- Supplied with 6' (1.8 m) power cord
- Flexible installation with multiple inlet/outlet options
- Floor mount support for secure installation



## Product Specifications

MODEL	DIMENSIONS						IN/OUT CONNECTIONS	WEIGHT	
	H		W		D			lbs	kg
	in	mm	in	mm	in	mm	NPT		
<b>DSHD-7</b>	19	494	14	346	7	168	1/2"	77	35
<b>DSHD-13</b>	26	666	14	346	7	168	1/2"	93	42
<b>DSHD-18</b>	35	884	14	346	7	168	1/2"	112	51
<b>DSHD-21</b>	43	1101	14	346	7	168	1/2"	132	60
<b>DSHD-27</b>	39	994	15	383	7	189	1/2"	154	70
<b>DSHD-40</b>	49	1244	15	383	7	189	1/2"	181	82

Dryers are certified for quality and safety to CSA C22.2 No.0-10, C22.2 No.14-18 & UL 508.

## Dew Point Performance

ISO CLASS 2		ISO CLASS 1	
Pressure Dew Point	Cycle Time	Pressure Dew Point	Cycle Time
-40°F (-40°C)	8 minutes: 4 minutes drying 4 minutes regenerating	-94°F (-70°C)	4 minutes: 2 minutes drying 2 minutes regenerating

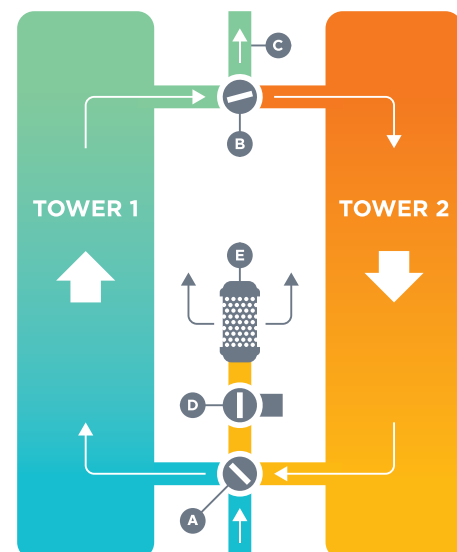
DSHD series dryers operate automatically in producing a dehydrated gas stream

- User selectable ISO 8573.1 : 2010 Compressed Air Quality Class 2 (-40°F, -40°C) and (-94°F, -70°C) Class 1 pressure dew point
- At ISO 7183 (A2) conditions: Remaining water content at Class 1 pressure dew point: 0.002%
- At ISO 7183 (A2) conditions: Remaining water content at Class 2 pressure dew point: 0.2%
- ISO Class 1 requires 86°F (30°C) inlet air temperature

## How It Works

Compressed air enters the dryer and is directed to Tower 1 by valve (A) to be dried, and then to the dryer outlet through shuttle valve (B). A portion of the dried air is throttled to near atmospheric pressure by means of orifice (C). This extremely dry, low pressure air flows through and regenerates the desiccant in Tower 2 and is exhausted through purge/repressurization valve (D) and exhaust muffler (E) to atmosphere. After a set time, the automatic solid state timer closes purge/repressurization valve (D) allowing Tower 2 to repressurize slowly. At the end of 2 minutes, valve (A) shifts and purge/repressurization valve (D) reopens.

The main air flow is now dried by Tower 2 while Tower 1 is being regenerated.





**TABLE 1 - INLET & PURGE FLOWS @ 100 PSIG**

MODEL	INLET FLOW RATING <sup>1</sup> SCFM (NM <sup>3</sup> /H)				PURGE FLOW <sup>2</sup> SCFM (NM <sup>3</sup> /H)			
	-40°F	(-40°C)	-94°F	(-70°C)	Average		Maximum	
<b>DSHD-7</b>	7	12	5	8	1.5	2.3	1.8	2.7
<b>DSHD-13</b>	13	22	9	15	2.7	4.5	3.7	5.1
<b>DSHD-18</b>	18	31	12	20	3.7	5.7	4.4	6.5
<b>DSHD-21</b>	21	36	14	23.5	4.6	7.2	5.4	8.1
<b>DSHD-27</b>	27	46	18	30.5	5.3	8.3	6.2	9.2
<b>DSHD-40</b>	40	68	27	45.5	9.7	15	11.6	16.1

**TABLE 2 - INLET & PURGE FLOW CORRECTION FACTORS**

INLET PRESSURE	psig	50	70	90	100	110	120	130	150
	kg/cm <sup>2</sup>	3.5	4.9	6.3	7	7.7	8.4	9.1	10.5
<b>MULTIPLIER A</b>		0.31	0.54	0.83	1.00	1.09	1.17	1.26	1.44
<b>MULTIPLIER B</b>		0.55	0.73	0.91	1.00	1.09	1.17	1.26	1.44

1 Inlet flows are established in accordance with CAGI (Compressed Air and Gas Institute) standard ADF-200, Dual Stage Regenerative Desiccant Compressed Air Dryers - Methods for Testing and Rating. Conditions for rating dryers are: inlet pressure - 100 psig (7 kg/cm<sup>2</sup>); inlet temperature - saturated at 100°F (38°C).

2 Average Purge Flow is the total amount of air used to purge and repressurize off-stream towers averaged over the cycle time. Maximum Purge Flow is the flow rate through the off-stream tower during that portion of the cycle the purge/repressurization valve is open.

**CAPACITY CORRECTION FACTORS**

- To determine maximum inlet flow at inlet pressures other than 100 psig (7 kg/cm<sup>2</sup>), multiply inlet flow from Table 1 by multiplier A from Table 2 that corresponds to system pressure at inlet of dryer.
- To determine purge flow at inlet pressures other than 100 psig (7 kg/cm<sup>2</sup>), multiply purge flow at 100 psig (7 kg/cm<sup>2</sup>), from Table 1 by multiplier B from Table 2 that corresponds to system pressure at inlet of dryer.
- To determine outlet flow capacity, subtract purge flow from inlet flow.

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