

Desiccant Regenerative Dryers

3-10,000 scfm

ASK ABOUT OUR
OIL FREE GUARANTEE!

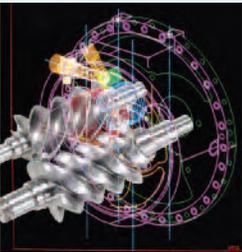


- Desiccant Modular
- Desiccant Heatless
- Desiccant Externally Heated
- Desiccant Blower Purge

Sullair Capabilities

Sullair Leadership

Since 1965, Sullair has been recognized around the world as an



innovator and a leader in rotary screw compression and vacuum technology.

For more than 40 years, Sullair

has designed and manufactured its own rotors and air end assemblies at the corporate headquarters in Michigan City, Indiana.

The award-winning rotary screw design sets the industry standards and delivers the quality and reliability one expects from a leader.



products are known around the world for their universally applicable design, outstanding craftsmanship and superior quality.

Sullair's Statistical Process Control

Sullair's Statistical Process Control (SPC) system monitors rotor quality standards to assure consistent compressor and vacuum performance.

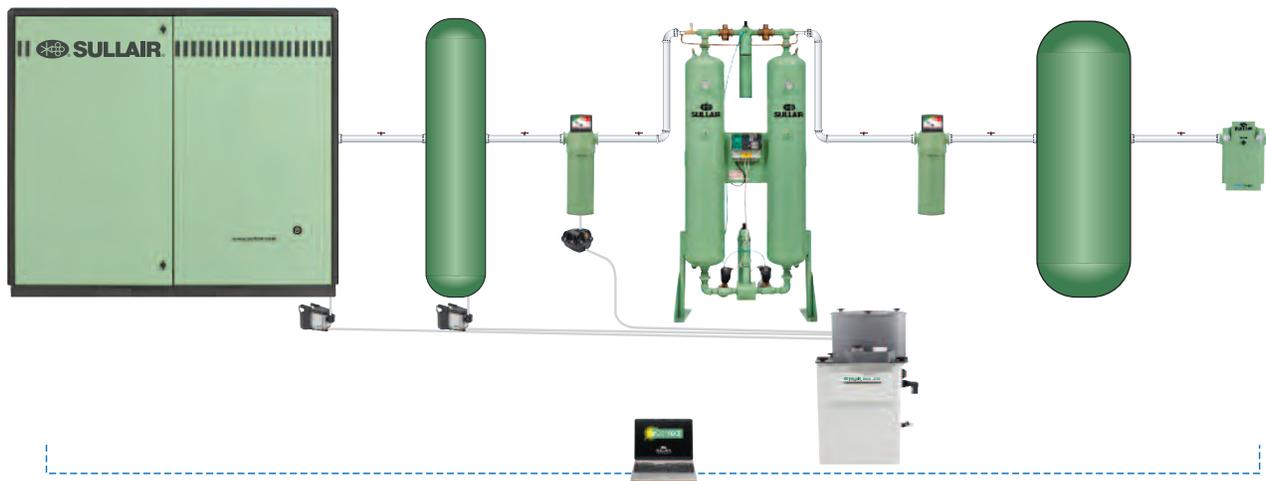
Sullair's Commitment to Innovation

Underlying Sullair's leadership is a dedication to excellence and a commitment to innovation. Sullair is constantly exploring new ideas and seeking new ways to meet industry's need for increasingly energy efficient compressed air and vacuum solutions.

Sullair Technology

Utilizing the most modern technologies, equipment and advanced manufacturing techniques, Sullair designs, manufactures, assembles, and tests the most innovative compressed air and vacuum products in the industry. Sullair

The Sullair Stationary Air Power System



This System includes:

- rotary screw compressor
- wet storage
- desiccant dryer
- filters to meet your requirement
- dry storage
- flow controller
- drains
- oil/water separator
- ethernet-based eConnect™ to monitor and control the entire system

The Importance of Clean, Dry Compressed Air

How much water is too much?

Any amount of water is too much.

Water jeopardizes everything you want your compressed air system to do. It ruins product and fouls processes.

- Relative humidity is the amount of water vapor in air relative to what it could hold at a given temperature
- Moisture in compressed air remains in a vapor state through the compression cycle, so it is not a problem until it leaves the compressor
- Air discharged from a compressor is approximately 150°F to 450°F
- At 75°F and 75% relative humidity, a 75 hp compressor takes in 46 gallons of water vapor in 24 hours. When this air is cooled to approximately 35°F at 100 psig, the water vapor condenses into 46 gallons of liquid!



Liquid remaining after the aftercooler: 14.7 gallons (32%)



Liquid remaining after a desiccant dryer: .14 gallon (0.3%)

Desiccant Regenerative Dryers

Sullair offers these configurations of desiccant regenerative dryers

- **DMD – Desiccant Modular Dryer**
3 to 240 scfm
- **DHL – Desiccant Heatless Dryer**
80 to 5,000 scfm
- **DEX – Desiccant Externally Heated Dryer**
200 to 3,500 scfm
- **DBP – Desiccant Blower Purge Dryer**
500 to 10,000 scfm

Desiccant Dryer Features

The Sullair desiccant regenerative dryer family is ideal for outdoor compressed air piping and operations that require an extremely low dew point to -40°F (-4°F and -100°F optional).

By combining the proven benefits of desiccant drying with the most advanced designs, Sullair offers a reliable system to clean and dry compressed air for the most critical applications.



Features of the Sullair Desiccant Dryers



DHL Series Standard Features (80-5,000 scfm)

- Pre- and after-filter pre-piped and mounted
- Field adjustable drying cycle time
- Pilot air filter
- Easy front access control panel
- -40°F pressure dew point
- Fully automatic self contained dryer
- Adjustable purge valves
- High quality valves
- Purge flow indicator
- ASME/CRN code welded pressure vessels
- UL/CUL electrical certified
- Separate drain and fill port
- Robust steel frame with floor stand
- Separate safety pressure relief valve for each tank
- Stainless steel inlet/outlet diffusers

- Tower pressure gauges
- Fail safe design in case of power failure

DHL Series Options

- Demand Cycle Controller
- NEMA 4, 4x enclosure
- High pressure up to 500 psig
- Switching failure alarm
- Pneumatic control timer
- Optional voltage
- High dew point alarm
- Dew point monitoring system
- -4°F and -100°F pressure dew point
- 3 Valve and 9 valve bypass options
- Solid state controller
- Visual moisture indicator
- Low ambient package

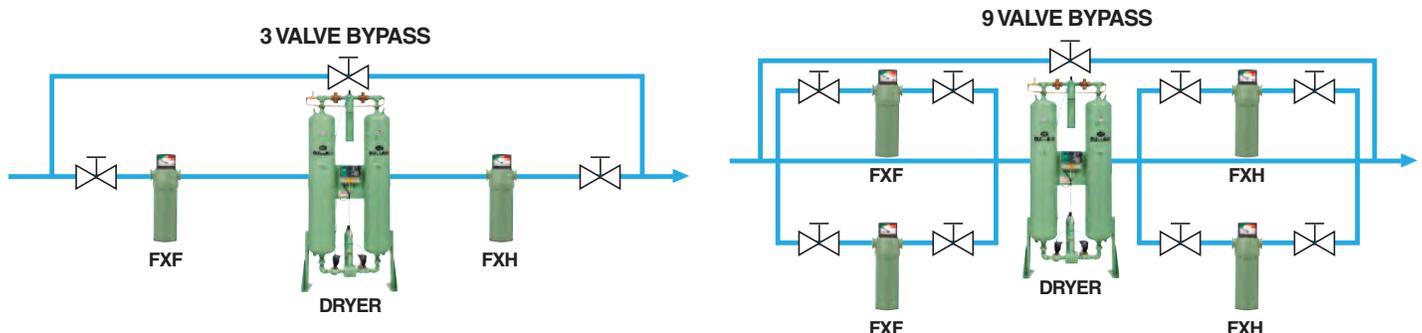


DEX and DBP Series Standard Features (200-10,000 scfm)

- Same high quality standard features as DHL
- Insulated heater housing and piping
- High outlet temperature shut off and alarm
- User-friendly diagnostic control display
- Safety back-up contactors
- PLC control and display
- Thermostatically controlled heating
- Safety heater thermostat
- Low-watt density heater

DEX and DBP Series Options

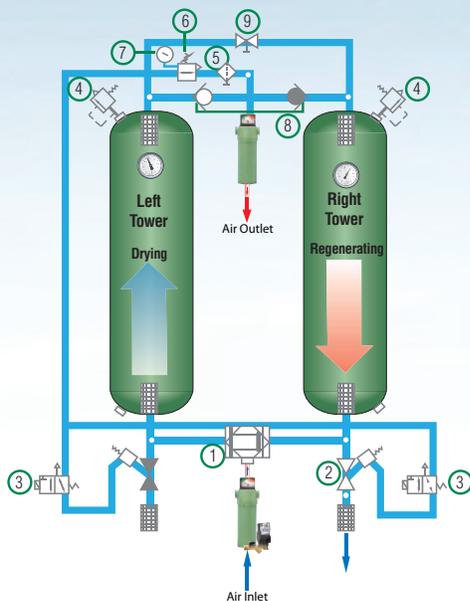
- Demand Cycle Control
- Pre-piped filter and bypass packages
- Low bed temperature shut off with light and contact
- High heater remote temperature alarm
- NEMA 4, 4x enclosures
- Visual moisture indicator
- 3 Valve and 9 valve bypass options
- Optional voltage
- Failure to shift alarm
- -4°F and -100°F pressure dew point
- Purge flow meter
- Dew point monitoring system
- Low ambient package
- Microprocessor based controls/Modbus



Bypasses allow maintenance of the dryer and/or filters without shutting down the entire air system. Other arrangements available on request.

Principle of Operation for Sullair's Desiccant Dryers

Desiccant Heatless



DHL drawing description:

- | | |
|-------------------------------------|----------------------------------|
| 1 Bi-directional inlet piston valve | 5 Control air filter |
| 2 Angle body purge exhaust valve | 6 Control air pressure regulator |
| 3 Purge pilot valve | 7 Pressure gauge |
| 4 Pressure relief valve | 8 Outlet check valve |
| | 9 Purge adjustment valve |

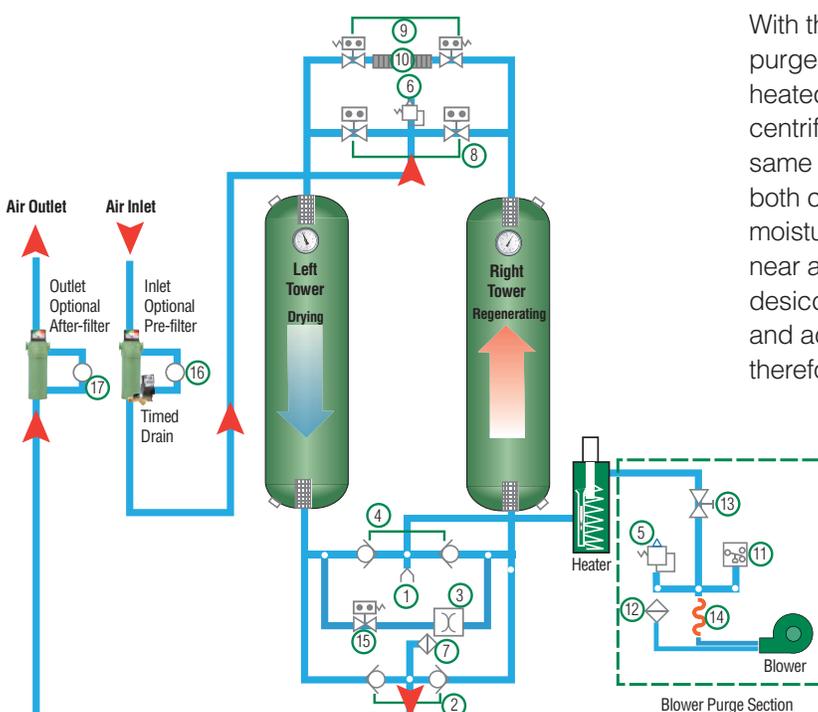
Principle of Operation for Desiccant Heatless Dryers

The dual tower design allows for continuous absorption of water from compressed air by using a hygroscopic high crush strength desiccant. Drying is accomplished by passing compressed air through the desiccant bed absorbing moisture while the other is being simultaneously regenerated with the expanded purge air.

Regeneration of the desiccant is accomplished without the use of heat. The wet bed is dried by diverting a small amount of dry air from the outlet at near atmospheric pressure. The purge flow rate is adjustable to suit the desired dew point. The dry air flows in a counter direction through the wet bed, sweeping all the water vapor previously absorbed by the desiccant.

Sullair ensures pressure equalization in the dual tower prior to switching. This prevents line surge and minimizes desiccant attrition. The tower being reactivated will be gradually re-pressurized at the end of its reactivation cycle before switchover takes place. Purge flow and de-pressurization are in downward direction, counter flow to the drying air flow.

DBP Heated



Principle of Operation for the Desiccant Externally Heated (DEX) and Desiccant Blower Purge (DBP)

With the DEX Dryer series, a small portion of the dry air is purged into a high quality, low watt density heater and heated to approximately 400°F. The DBP Dryer series uses a centrifugal blower to pull ambient air and pass it through the same high quality low density heater (drawing shown). In both cases the heated air has a greater affinity to absorb moisture and when passed through the regenerating tower at near ambient pressure, strips the moisture from the desiccant bed. The advanced controls monitor the dew point and adjust the heating and regeneration accordingly, therefore providing valuable energy savings.

DBP heated drawing description:

- | | |
|------------------------------------|--|
| 1 Purge air thermocouple | 9 Purge exhaust valve |
| 2 Swing check valve | 10 Purge exhaust muffler |
| 3 Re-pressurization metering valve | 11 Blower safety pressure switch |
| 4 Purge check valve | 12 Blower intake filter silencer |
| 5 Blower pressure relief valve | 13 Blower purge adjustment globe valve |
| 6 Tower pressure relief valve | 14 Blower flex connector |
| 7 Control air filter | 15 Re-pressurization ball valve |
| 8 Inlet valve | 16 Pressure diff. indicator |
| | 17 Pressure diff. indicator |

Advantages of Sullair's Heated Desiccant Dryers

Electronic Controller

Sullair's state of the art controllers regulate and monitor the functioning of the desiccant dryers. Simple to use, the operator is able to take advantage of all of the features the controller offers:

- Dew point selection
- Dryer monitoring
- Energy cycle selection
- Diagnostic operations



Optional Demand Cycle Controller - Dew Point Meter

The dew point transmitters are reliable, compact and provide continuous monitoring of the dryer performance. With available options, the monitors can be used as indicators, alarm units or controllers. Its simple but powerful interface permits the user to choose between multiple units, output data to a PC using the serial interface, set alarm levels and do field calibration of the sensor.



Desiccant Absorption

Sullair uses a high quality activated alumina desiccant for all desiccant dryer applications. The desiccant has high crush strength media with a very high surface / volume ratio.



To achieve alternative dew point the Sullair dryer uses a mixture of absorption media "Molecular Sieve" or "Silica gel application."

Butterfly Valve

These versatile valves provide precision control and bubble tight shut off. The digitally controlled actuators have easy PLC interface and feature fast response times. The tongue-and-groove seat design ensures complete isolation of the flowing media from the body and stem. Rugged and reliable, these valves are designed to provide years of trouble free service. The butterfly valve is carbon steel with stainless steel disc and staff.



(800 scfm and above)

High Efficiency Blower

The centrifugal blower is sized optimally to provide continuous air stream to the heater for regeneration.

The blower is equipped with:

- Intake filter
- Muffler for quieter operation
- Safety belt guard and check
- Relief valves for high-pressure safety



Angle Body Piston Valve

The high performance two-way direct acting valves are designed for reliability and durability. The valve uses a profiled disc in conjunction with a high-resolution compact positioned and linear feedback potentiometer to provide precise proportional flow. The stainless steel internals and a tough fiber composite actuator body, along with the use of oversized bearing and Viton seals makes it possible to consistently provide smooth piston movement for an extended time period.



Sullair's Heatless Desiccant Modular Dryers

Desiccant Modular Dryer (DMD) Standard Features

- Completely automatic
- Compact design
- -40°F pressure dew point
- Adjustable wall mounted
- Quick and easy connection
- Long lasting high quality components
- Point of use for smaller compressors

Desiccant Modular Dryer (DMD) Options

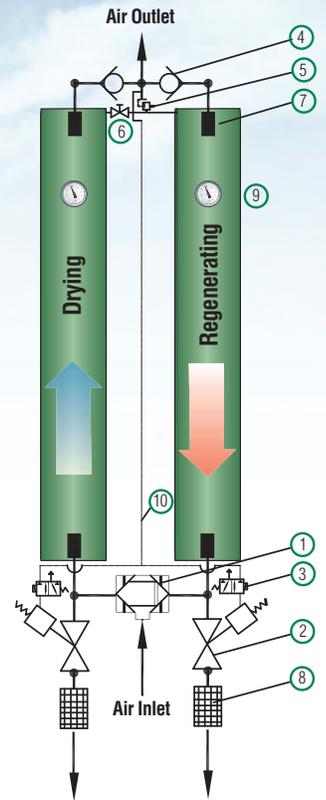
- Pre- and after-filter (shipped loose)
- Mounted filters with three valve bypass
- Visual moisture Indicator
- Energy efficient Demand Cycle Control with dew point monitor
- Dew point monitor
- -4°F and -100°F pressure dew point



Desiccant Modular Dryer

DMD drawing description:

- 1 Inlet valve
- 2 Purge exhaust valve
- 3 Pilot valve
- 4 Outlet check valve
- 5 Pressure relief valve
- 6 Purge adjustment valve
- 7 Stainless steel inlet defuser
- 8 Purge exhaust muffler
- 9 Pressure gauge
- 10 Control air line



Specifications: Desiccant Modular Dryer

Model	scfm	In/Out	Length in	Width in	Height in	Weight lbs	Electrical	Pre-Filter	After-Filter
DMD-3	3	1/2" NPT	13	10	18	38	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-5	5	1/2" NPT	13	10	21	42	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-10	10	1/2" NPT	13	10	32	60	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-15	15	1/2" NPT	15	11	28	68	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-20	20	1/2" NPT	15	11	40	92	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-25	25	1/2" NPT	15	11	46	105	115 - 230 / 1 / 50 & 60 Hz	FXH-25	FXFR-25
DMD-30	30	1/2" NPT	15	11	56	118	115 - 230 / 1 / 50 & 60 Hz	FXH-45	FXFR-45
DMD-40	40	1/2" NPT	17	11	50	143	115 - 230 / 1 / 50 & 60 Hz	FXH-45	FXFR-45
DMD-50	50	1/2" NPT	17	11	56	158	115 - 230 / 1 / 50 & 60 Hz	FXH-65	FXFR-65
DMD-60	60	1/2" NPT	17	11	70	182	115 - 230 / 1 / 50 & 60 Hz	FXH-65	FXFR-65
DMD-75	75	1-1/2" NPT	14	22	56	264	115 - 230 / 1 / 50 & 60 Hz	FXH-130	FXFR-130
DMD-100	100	1-1/2" NPT	14	22	62	292	115 - 230 / 1 / 50 & 60 Hz	FXH-130	FXFR-130
DMD-120	120	1-1/2" NPT	14	22	74	334	115 - 230 / 1 / 50 & 60 Hz	FXH-130	FXFR-130
DMD-180	180	1-1/2" NPT	14	27	64	410	115 - 230 / 1 / 50 & 60 Hz	FXH-240	FXFR-240
DMD-240	240	1-1/2" NPT	14	33	64	517	115 - 230 / 1 / 50 & 60 Hz	FXH-240	FXFR-240

Specifications: Desiccant Heatless Dryer

Model	scfm	In/Out	Length	Width	Height	Weight	Electrical	Pre-Filter	After-Filter
			in	in	in	lbs			
DHL-80	80	3/4" NPT	31	24	84	350	115-1-60	FXH-130	FXFR-130
DHL-100	100	1" NPT	31	24	84	495	115-1-60	FXH-130	FXFR-130
DHL-125	125	1" NPT	31	24	84	580	115-1-60	FXH-130	FXFR-130
DHL-150	150	1" NPT	33	24	84	680	115-1-60	FXH-240	FXFR-240
DHL-200	200	1" NPT	33	24	84	850	115-1-60	FXH-240	FXFR-240
DHL-250	250	1 1/2" NPT	39	24	87	1100	115-1-60	FXH-350	FXFR-350
DHL-300	300	1 1/2" NPT	39	24	87	1250	115-1-60	FXH-350	FXFR-350
DHL-400	400	2" NPT	45	26	85	1650	115-1-60	FXH-475	FXFR-475
DHL-500	500	2" NPT	45	26	85	1980	115-1-60	FXH-700	FXFR-700
DHL-600	600	2" NPT	45	26	85	2250	115-1-60	FXH-700	FXFR-700
DHL-800	800	3" FLG	66	40	93	2550	115-1-60	FXH-925	FXFR-925
DHL-1000	1000	3" FLG	66	40	93	3800	115-1-60	FXH-1350	FXFR-1350
DHL-1250	1250	3" FLG	70	40	93	4100	115-1-60	FXH-1350	FXFR-1350
DHL-1500	1500	3" FLG	70	40	93	4400	115-1-60	FXH-1600	FXFR-1600
DHL-2000	2000	3" FLG	76	40	97	4900	115-1-60	FWH-2500	FWFR-2500
DHL-2500	2500	4" FLG	93	50	109	5900	115-1-60	FWH-2500	FWFR-2500
DHL-3000	3000	4" FLG	93	50	109	7500	115-1-60	FWH-3800	FWFR-3800
DHL-3500	3500	6" FLG	118	64	117	8500	115-1-60	FWH-3800	FWFR-3800
DHL-4000	4000	6" FLG	120	64	122	9500	115-1-60	FWH-5000	FWFR-5000
DHL-4500	4500	6" FLG	120	64	122	11000	115-1-60	FWH-5000	FWFR-5000
DHL-5000	5000	6" FLG	120	64	122	13500	115-1-60	FWH-5000	FWFR-5000

Capacity Correction Factors

(for all Sullair Desiccant Dryers)

Correction factor for Inlet Air Pressure (F1)

Inlet Pressure	psig	50	60	70	80	90	100	110	120	130	140	150	175	200	225	250
		bar	3.5	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
Factor Pressure: F1		0.56	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

Correction factor for Inlet Air Temperature (F2)

°F	70	80	90	100	105	110	115	120
°C	21	27	32	38	40	43	46	49
Factor: F2	1.12	1.10	1.06	1.00	0.93	0.86	0.80	0.75

Air flow capacity = Nominal capacity of the dryer x Factor F1 x factor F2.

Specifications: Desiccant Externally Heated Dryer

Model	scfm	In/Out	Length	Width	Height	Weight	Electrical	kW	Pre-Filter	After-Filter
			in	in	in	lbs				
DEX-200	200	1" NPT	30	45	87	610	460-3-60	3	FXH-240	FXFRHT-240
DEX-250	250	1-1/2" NPT	35	50	87	810	460-3-60	3	FXH-350	FXFRHT-350
DEX-300	300	2" NPT	40	50	88	1100	460-3-60	5	FXH-350	FXFRHT-475
DEX-400	400	2" NPT	45	45	90	1250	460-3-60	6	FXH-475	FXFRHT-700
DEX-500	500	2" NPT	45	45	90	1600	460-3-60	7	FXH-700	FXFRHT-700
DEX-600	600	3" FLG	45	45	90	1900	460-3-60	9	FXH-700	FXFRHT-700
DEX-800	800	3" FLG	55	50	95	2500	460-3-60	11	FXH-925	FXFRHT-925
DEX-900	900	3" FLG	55	50	95	2800	460-3-60	13	FXH-925	FXFRHT-1350
DEX-1000	1000	3" FLG	65	60	95	3200	460-3-60	15	FXH-1350	FXFRHT-1350
DEX-1250	1250	3" FLG	65	60	95	3500	460-3-60	18	FXH-1350	FWFRHT-1600
DEX-1500	1500	3" FLG	98	70	106	4200	460-3-60	20	FXH-1600	FWFRHT-1900
DEX-2000	2000	4" FLG	110	80	106	4800	460-3-60	25	FWH-2500	FWFRHT-2500
DEX-2500	2500	4" FLG	110	80	106	6200	460-3-60	25	FWH-2500	FWFRHT-2500
DEX-3000	3000	6" FLG	120	85	108	7600	460-3-60	30	FWH-3800	FWFRHT-3800
DEX-3500	3500	6" FLG	120	89	108	8300	460-3-60	38	FWH-3800	FWFRHT-3800

Specifications: Desiccant Blower Purge Dryer

Model	scfm	In/Out	Length	Width	Height	Weight	Electrical	kW	Pre-Filter	After-Filter
			in	in	in	lbs				
DBP-500	500	2" FLG	90	42	90	2890	460-3-60	10	FXH-700	FXFHT-700
DBP-650	650	2" FLG	90	42	90	3500	460-3-60	12	FXH-700	FXFHT-700
DBP-800	800	3" FLG	95	55	105	4500	460-3-60	18	FXH-925	FXFHT-925
DBP-1000	1000	3" FLG	95	55	105	5600	460-3-60	24	FXH-1350	FXFHT-1350
DBP-1250	1250	3" FLG	110	70	109	6400	460-3-60	30	FXH-1350	FXFHT-1350
DBP-1500	1500	3" FLG	110	70	109	8200	460-3-60	36	FXH-1600	FXFHT-1600
DBP-2000	2000	4" FLG	140	75	110	9800	460-3-60	45	FWH-2500	FXFHT-2500
DBP-2500	2500	4" FLG	140	75	110	12500	460-3-60	50	FWH-2500	FXFHT-2500
DBP-3000	3000	6" FLG	140	89	120	15000	460-3-60	55	FWH-3800	FXFHT-3800
DBP-3500	3500	6" FLG	140	89	120	16800	460-3-60	60	FWH-3800	FXFHT-3800
DBP-4000	4000	6" FLG	160	94	122	21000	460-3-60	70	FWH-5000	FXFHT-5000
DBP-5000	5000	6" FLG	180	94	140	27000	460-3-60	80	FWH-5000	FXFHT-5000
DBP-6000	6000	6" FLG	CF	CF	CF	CF	460-3-60	90	FWH-6500	FXFHT-6500
DBP-7000	7000	8" FLG	CF	CF	CF	CF	460-3-60	105	FWH-8300	FXFHT-8300
DBP-7500	7500	8" FLG	CF	CF	CF	CF	460-3-60	125	FWH-8300	FXFHT-8300
DBP-9000	9000	10" FLG	CF	CF	CF	CF	460-3-60	135	FWH-10000	FXFHT-10000
DBP-10000	10000	10" FLG	CF	CF	CF	CF	460-3-60	140	FWH-10000	FXFHT-10000

Correction factor for Inlet Air Pressure (F1)

Inlet Pressure	psig	50	60	70	80	90	100	110	120	130	140	150	175	200	225	250
	bar	3.5	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	17.3
Factor Pressure: F1		0.56	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

Correction factor for Inlet Air Temperature (F2)

	°F	70	80	90	100	105	110	115	120
	°C	21	27	32	38	40	43	46	49
Factor: F2		1.12	1.10	1.06	1.00	0.93	0.86	0.80	0.75

Air flow capacity = Nominal capacity of the dryer x Factor F1 x factor F2.

Sullair Air Quality Guarantee

Two Levels of Air Quality

Sullair recognizes that the requirements for air quality vary according to each compressed air application. For this reason, Sullair provides compressed air systems that achieve two distinct levels of air quality and a guarantee for each.

Sullair Stationary Air Power System

The Sullair Stationary Air Power System matches a Sullair compressor, a Sullair dryer and Sullair filters. Sullair assures that its System will meet specific performance levels throughout its operational life. We offer a one-year test/review period, backed by a purchase refund guarantee, to verify the performance of the Sullair System.

Select the System

Select the air quality level to meet your plant air or process requirements. You

can be assured that the quality of air from the Sullair System you specify will remain consistent for the life of the equipment. Sullair guarantees it... and that's as good as gold.



The Sullair Oil-Free Air Quality Guarantee

The System consists of a Sullair compressor, Sullair dryer, and Sullair filters.

The compressed air from this system contains particulates no larger than .01 micron, including coalesced liquid water and lubricants.

Maximum remaining oil aerosol content is 0.01 parts per million by weight (ppm/w) @ 70°F, including oil vapor. The air from this Sullair System meets the most stringent ISO standard (ISO

8573.1, Class 1 for oil vapor and Class 1 for particulate) for air quality.

The Sullair Critical Air Quality Guarantee

The compressed air from this Sullair System exceeds the ISO standard (ISO 8573.1, Class 1 for oil vapor and Class 1 for particulate). The System includes a Sullair compressor, Sullair dryer, and Sullair filters. The odor-free compressed air from this system contains particulates no larger than 0.01 micron, including water and oil aerosol content of 0.01 parts per million by weight (ppm/w) @ 70°F. The remaining oil vapor content is less than 0.003 ppm/w.

To get more information on Sullair's Air Quality Guarantee, please contact your Sullair distributor.

These Systems are not intended to remove carbon monoxide, methyl isocyanate or other noxious, corrosive or toxic gases, vapors or fumes. The System does not provide breathing air.

The Sullair Warranty

All Inclusive "Peace of Mind" Warranty

Sullair backs our commitment to quality with an unparalleled, non-prorated 5-year warranty (*parts and labor*) on the major components. No other manufacturer offers a warranty that is as all inclusive. (Note: a Sullair pre-filter must be installed upstream of the dryer as a prerequisite for this warranty.)

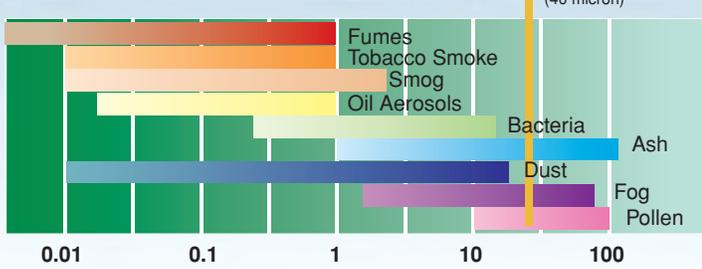


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Approval

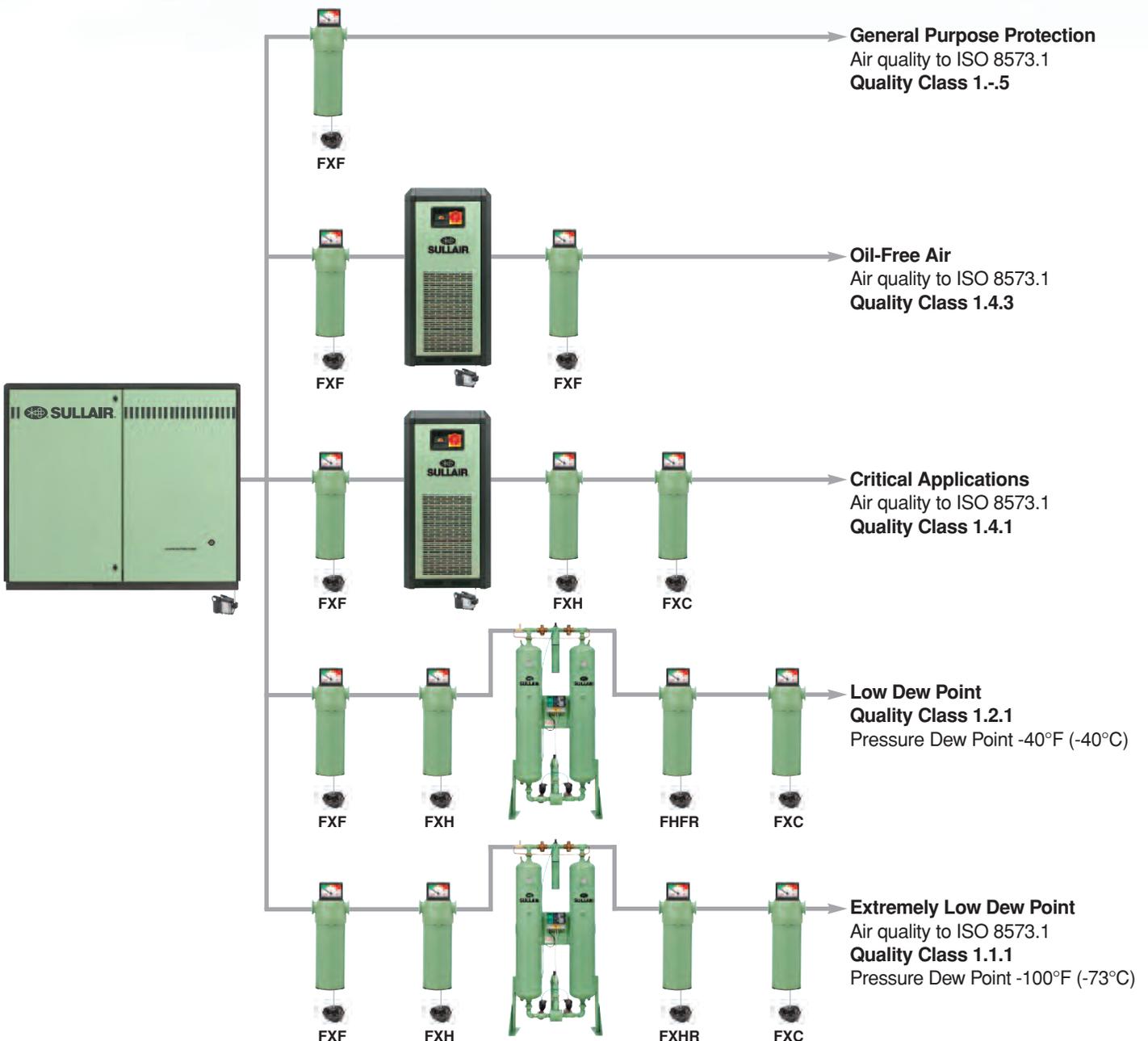


Air Quality Standards ISO 8573.1 Classes

Particle (micron) size of some common substances. Eye Sight Threshold (40 micron)



Class	Solid Particle Maximum number of particles per m ³			Pressure Dew Point °F	Oil (incl. vapor) mg/m ³
	0.1-0.5 micron	0.5-1 micron	1.0-5 micron		
1	100	1	0	-94	0.01
2	100,000	1,000	10	-40	0.1
3	-	10,000	500	-4	1.0
4	-	-	1,000	37	5.0
5	-	-	20,000	45	-
6	-	-	-	50	-



Sullair's Compressed Air Products

www.sullair.com



Fundamental to Sullair's leadership is a dedication to reduce not only the amount of natural resources consumed to create energy, but to minimize environmental impact, in both the manufacture and use of all our products. We are constantly exploring new ideas and seeking new technologies to meet the ever-increasing need for high quality, energy-efficient compressed air products and environmental sustainability.



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