summits
Enabling Innovation. Enhancing Lives.

27+ Years of Excellency

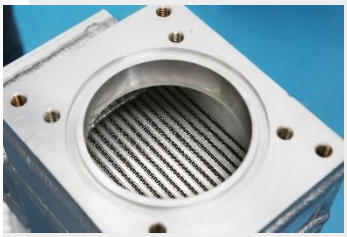
Elix - The Refrigeration air dryers

World-class 3 in 1 PHE for optimum performance
Electronic Load Tracking ensures consistency in dT
Microchannel condenser offers potential savings in Energy
PLC based control & protection

New Dimensions Solutions

GICG
UKAS MANAGEMENT SYSTEMS 0045
ASME U
ASME U2
ASME UM

Elix Hx – World class 3 in 1 PHE



Integrally fused fin eliminates **Contact Resistance** between plate and fin leads to highest heat transfer co-efficient.

Offset fins, besides creating better turbulence for heat exchange, it also acts as good preliminary moisture separator.

Wire mesh demister

Countless impingement surface coalesces the moisture particle and separate it effectively.

Elix+ Exclusive Features

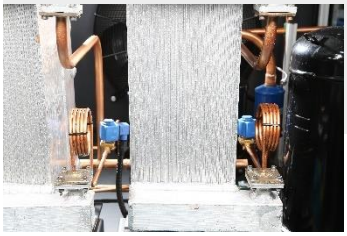
Step cooling for widest operating range

On the 'get-set' even at zero load; Infinite turndown ratio

Flow characteristic plays vital role in the efficiency of Heat transfer. At part load, the flow characteristic changes drastically affecting the efficiency of Heat exchanger.

Summits Modular Cooler configuration & Integrated control make use of **Step cooling technology** to effectively control the flow process inside the cooler and **keep the efficiency at higher level even at part load condition**.

High specific heat capacity of Aluminium adds value to this technology. **Elix+ control** (If opted for) provides energy saving opportunities with this **Step cooling technology. Step cooling** enables faster reaction to the varying load.



Step cooling enable the dryer to run even at 0 to 100% of load; always on the 'get-set' – ready to take the task.

PLC based control and protection

Open platform & fully customizable

Summits Refrigeration dryer uses open platform PLC to control the process.

PLC has numerous facilities including, System monitoring, Preventive maintenance alert and with RS 485 Modbus communication.

Up to 5000cfm: Monochrome + Key pad
6000cfm onwards: Colour + Touch screen

Electronic Load tracking & Control

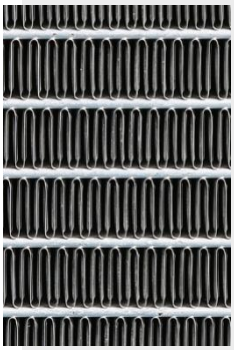
Instantaneous response to abrupt change

With electronically controlled capacity regulating valve (Selected capacity only), Summits Refrigeration air dryer keeps the Pressure dewpoint nearly constant even in wide operating range with quantum jump load variation.

Suction and discharge pressure transmitter for Precise monitoring and control of process parameters & to protect the system as well.

Microchannel condenser

For increased efficiency



- Efficient heat transfer: Metallurgical bond between tubes and fins, eliminates contact resistance leading to 10% increased efficiency.
- Power saving: Reduced fan power consumption & noise level due to 60% less airside pressure-drop.
- Smaller Sizes: 35% smaller in size when compared to conventional Fin and tube condenser.
- Less weight: 68% less than equivalent Fin & Tube coils.
- 30% reduced Refrigerant Charge.

Pacto+, The Smart drain valve

Adds bonus savings

- Every Elix+ dryer is fitted with Pacto+ drain valve.
- Zero air loss condensate removal
- Enabled with BMS connectivity
- Sight glass for level monitoring
- 3 Point Sensing
- 3 Mode of Operation
- 3 Sub-modes

Technical Data:

Sl.No	Model	Air Flow		Width	Depth	Height	Weight	Power Supply	In/Out
		cfm	m3/hr	mm			Kg	v/ph 50 Hz	
1	Elix 001 DA	10	17	360	460	460	31	230/1	1/2”
2	Elix 002 DA	20	34	360	460	460	32	230/1	1/2”
3	Elix 004 DA	40	68	400	520	460	36	230/1	3/4”
4	Elix 006 DA	60	102	400	520	460	37	230/1	3/4”
5	Elix 008 DA	80	136	450	630	550	54	230/1	1"
6	Elix 010 DA	100	170	450	630	550	55	230/1	1"
7	Elix 012 DA	125	212	450	630	550	56	230/1	1"
8	Elix 015 DA	150	255	500	800	820	79	230/1	1-1/2"
9	Elix 020 DA	200	340	500	800	820	90	230/1	1-1/2"
10	Elix 025 DA	250	425	500	800	820	95	230/1	1-1/2"
11	Elix 030 DA	300	510	570	800	950	138	230/1	2"
12	Elix 040 DA	400	680	600	950	1060	142	230/1	2-1/2"
13	Elix 050 DA	500	850	600	950	1060	144	415/3	2-1/2"
14	Elix 060 DA	600	1020	600	950	1060	148	415/3	2-1/2"
15	Elix 080 DA	800	1275	700	950	1450	475	415/3	DN100
16	Elix 100 DA	1000	1700	800	1075	1615	520	415/3	DN100
17	Elix 125 DA	1250	2125	800	1075	1630	530	415/3	DN100
18	Elix+ 160 DA	1600	2550	1000	1600	1630	600	415/3	DN100
19	Elix+ 200 DA	2000	3400	1150	1400	2000	650	415/3	DN150
20	Elix+ 250 DA	2500	4250	1150	1400	2000	655	415/3	DN150
21	Elix+ 300 DA	3000	5100	1150	1700	2000	700	415/3	DN150
22	Elix+ 400 DA	4000	6800	1150	1700	2000	750	415/3	DN200
23	Elix+ 500 DW	5000	8500	1150	1600	2000	980	415/3	DN200
24	Elix+ 600 DW	6000	10200	1500	1900	2100	1250	415/3	DN200
25	Elix+ 700 DW	7000	11900	1800	2500	2100	1550	415/3	DN250
26	Elix+ 800 DW	8000	13600	1800	2600	2100	1750	415/3	DN250
27	Elix+ 900 DW	9000	15300	1800	2600	2100	2250	415/3	DN250
28	Elix+ 999 DW	10000	17000	1800	2600	2100	2500	415/3	DN300

Note:
For more than 10000 cfm, kindly contact our Head office.

Water cooled options are available from 500 cfm onwards.

Air-cooled version can be given for any capacity upon request.

Flow capacities are in accordance with ISO 7183:2007

Selection example

Compressor FAD, cfm	1175
Inlet Air Pressure, bar g	9
Inlet Air Temperature, °C	50
Ambient Temperature, °C	45
Pressure Dew Point, °C	3
Correction factor for	
Inlet Air pressure, Z1	1.17
Inlet Air temp. 50°C, Z2	0.76
Ambient temp. 45°C, Z3	0.93
Pressure Dew point 3°C, Z4	1.00
Multiplication of CF	1.17X0.76X 0.93X1=0.827
Corrected FAD, cfm	1175/0.7068= 1420.8
Model to be chosen	Elix+ 160A

Correction factor and Selection

Inlet Air Pressure, Z1

Inlet Air Pressure, bar g	3	4	5	6	7	8	9	10	12	14	16
Correction Factor, Z3	0.54	0.66	0.76	0.87	1	1.02	1.17	1.26	1.38	1.51	1.65

Boundary Conditions

Operating Parameters	Ideal	Minimum	Maximum
Inlet Air Temperature, °C	45	10	60
Ambient Temperature, °C	40	-5	55
Inlet Air Pressure, bar g	7	2	16
Pressure Dew Point, °C	3	3	10

Inlet Air Temperature, Z2

Inlet Air Temperature, °C	35	35	40	45	50	55	60
Correction Factor, Z1	1.61	1.38	1.22	1.00	0.76	0.6	0.49

Ambient Temperature, Z3

Ambient Temperature, °C	25	30	35	40	45	50	55
Correction Factor, Z2	1.21	1.14	1.07	1.00	0.93	0.85	0.74

Pressure dew point, Z4

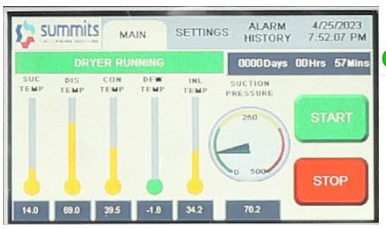
Pressure Dew Point, °C	3	5	7	10
Correction Factor, Z3	1.00	1.14	1.24	1.39

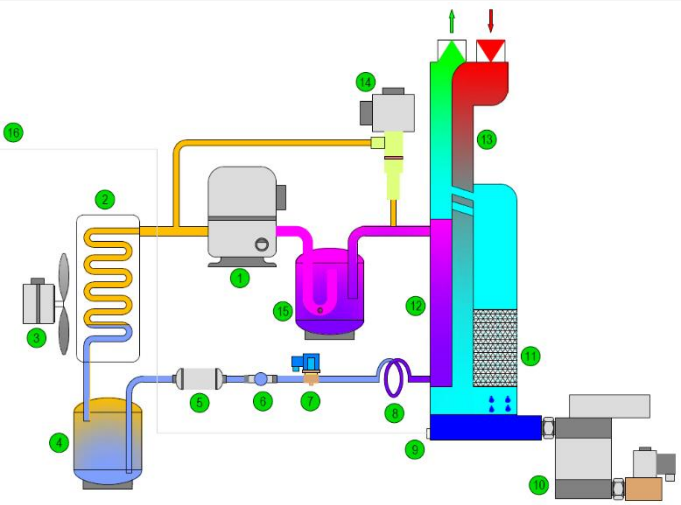
Dryer nominal capacity = $\frac{\text{Compressor actual FAD}}{\text{Z1 x Z2 x Z3 x Z4}}$

Refer Selection example given above

Working of Elix+ Refrigeration air dryer

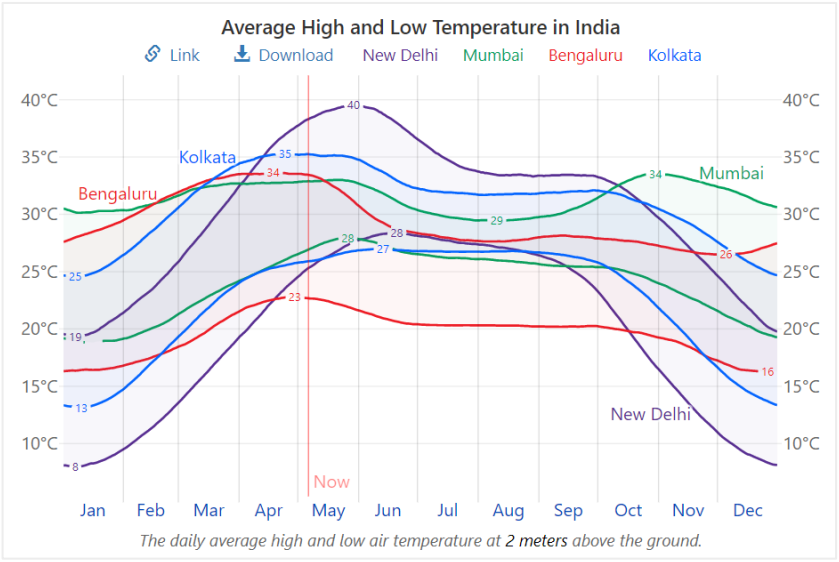
1. Refrigerant compressor
2. Condenser
3. Condenser cooling fan
4. Liquid receiver
5. Filter dryer
6. Liquid line sight glass
7. Solenoid valve
8. Capillary
9. Dew point sensor
10. Zero air loss drain valve
11. Moisture separator
12. Refrigerant to air heat exchanger
13. Air to air heat exchanger
14. Hot gas bypass valve
15. Accumulator
16. Elix+ Controller

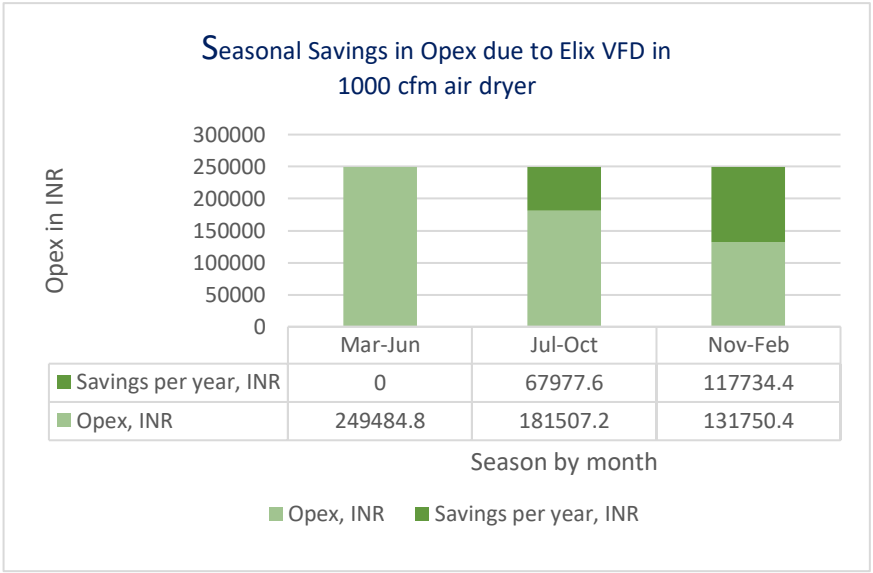




Elix VFD

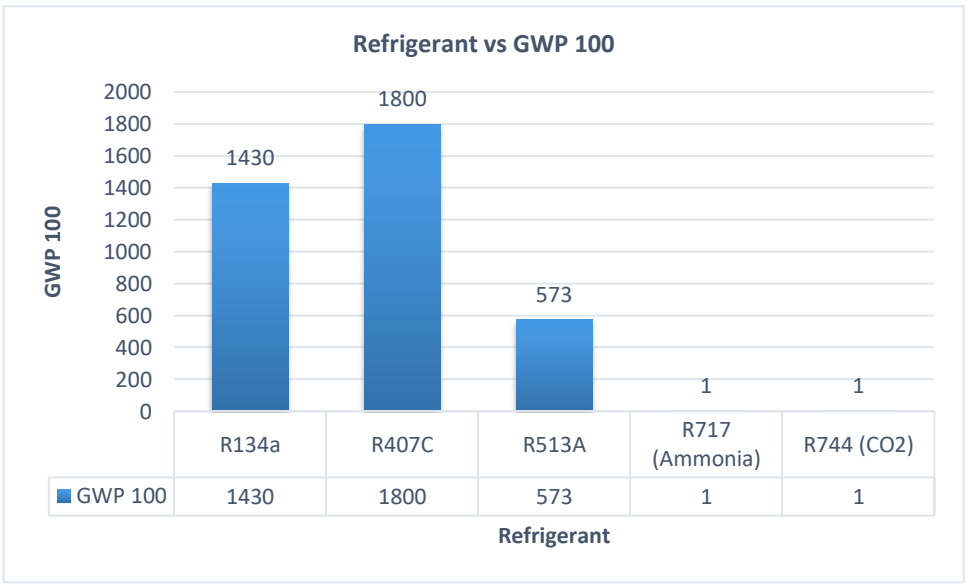
Thanks to Nature for everything & 23.5 degree - We get seasons. With Elix VFD, we spend only the required energy. The graph shows the seasonal variation in ambient temperature. Ambient temperature plays decisive role in Moisture content and Heat load estimation.
50% energy savings is very much possible with Elix VFD.





Elix Eco

Future ready, Planet friendly refrigerant
It's non-flammable, with an ASHRAE* A1 safety classification, and offers additional benefits such as:
Low GWP: A 56% reduction of GWP compared to R-134a.
No stratospheric ozone impacts



*ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers

Manufactured and marketed by
Summits Hygronics Private Limited

Nearest Channel Partner / Business Associate

06/23

27+ YEARS OF EXCELLENCE

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Enabling Innovation. Enhancing Lives.

Adzorb

The Heatless air dryer

NEW DIMENSIONS SOLUTIONS

- Moisture Indicator to ascertain outlet air quality.
- Purge Economizer offers potential savings.
- PLC for precise control and maintenance alerts.
- Oil Check apparatus for air quality validation.
- AVS safeguards your precise equipments at all time.

ACCREDITED Management System Certification MSCB-110

ISO 9001: 2015 ISO 14001:2015 ISO 45001:2018

ASME DO$H CE 1282

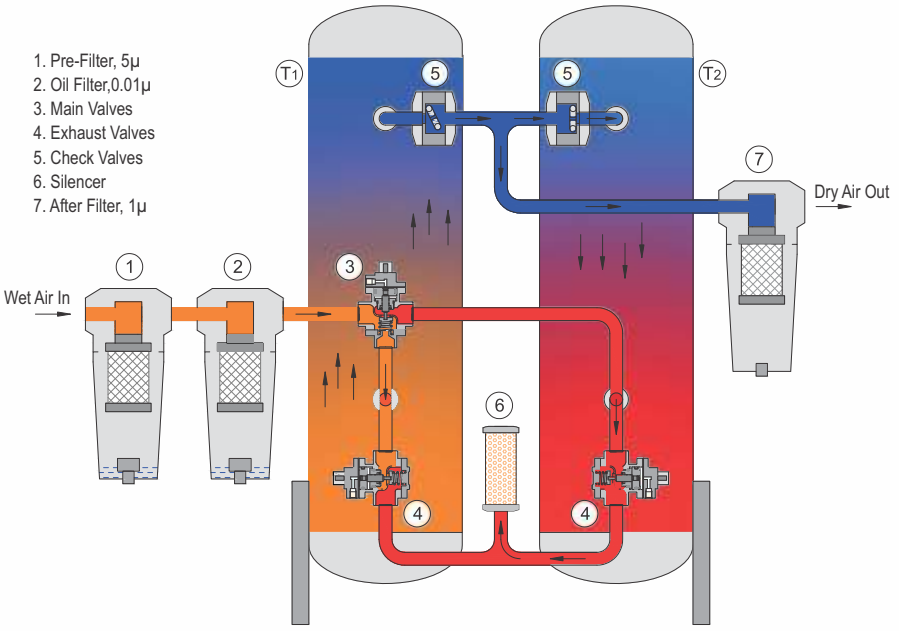
Need of Compressed air dryer:

Compressed air leaving the compressor contains considerable quantities of water vapour, oil & particles. If the untreated air is supplied to distribution lines, then the moisture would condense to liquid water as it gets cooled. The condensed water is a major cause of downtime in compressed air systems as it causes rust, pitting, blockages and freeze ups, which result in component failure and product rejection. The only way to prevent condensation of water in air lines is to lower the dew point of the air in the system. It is less expensive to own and operate an air dryer than to live with the problems.

Adzorb - Operation:

Coalescing filters of 5 micron and 0.01 micron remove bulk moisture and liquid oil from the compressed air. This pre-treated air diffuses to the bottom of the adsorber (T1) and passes through the desiccant bed which adsorbs moisture and dries the air. Dry air leaves the adsorber (T1) and passes through 1 micron dust filter. Thus dry, filtered compressed air is available for precise operation.

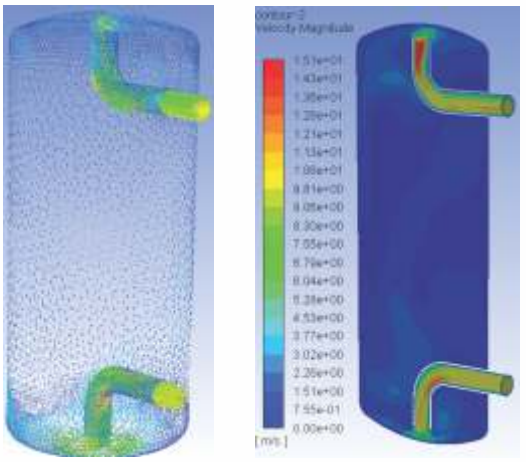
The desiccant can adsorb only certain quantity of moisture and will reach equilibrium after certain time. It can no longer dries the air to the required dew point and hence it should be regenerated to keep the process continuous. To regenerate the first adsorber (T1), partial quantity of dry air coming out of second adsorber (T2) is diverted to first adsorber (T1). This dry air expands to atmospheric pressure and becomes subsaturated. This subsaturated dry air purges out all moisture from the first adsorber (T1) and makes it ready for next adsorption process. All these operations are perfectly performed by valves and controller.



Simulation Driven

Every parameter affecting the reliability is carefully analyzed and culminated using simulation techniques.

This assures effective removal of moisture at every millimeter travel of compressed air during drying process.



Velocity vector and Velocity contour of flow

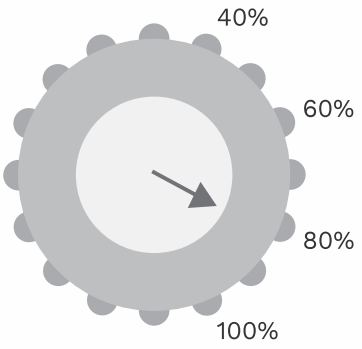
Adzorb – Engineered the best

Pleated filter media

Pleated Borosilicate depth filter. media in all micron filters removes bulk moisture and oil completely and enhance the life of desiccant.

Active ceramic bed

Ceramic bed protects the desiccant against direct impingement of air stream coming out of the diffuser and reduces attrition loss.



Purge Economizer

Purge Economizer offers potential savings during varying load conditions.

Moisture indicator

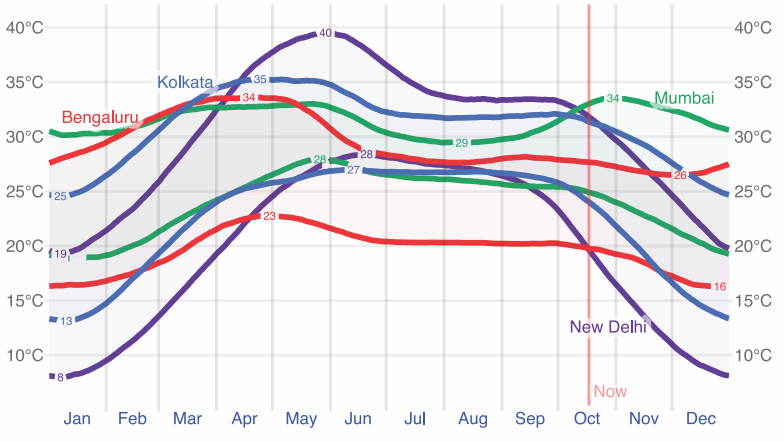
Inbuilt Moisture indicator helps to ascertain outlet air quality instantly in terms of moisture content.

No air loss drain valve

Inbuilt no air loss drain valve at Pre & Oil filter helps to drain the contamination periodically and saves energy.

Adzorbplus The All-round Performer

Average High and Low Temperature in India



The daily average high and low air temperature at **2 meters** above the ground

Thanks to the wonders of nature, including the Earth's tilt of 23.5 degrees, which brings us the gift of changing seasons. The graph beside illustrates the fluctuation in ambient temperature across the seasons. Ambient temperature plays a decisive role in moisture content present in the compressed air.

The temperature of the ambient air directly influences the temperature of the compressed air. As the compressed air gets cooler, its moisture content decreases. A reduced moisture content offers the possibility to prolong adsorption time, consequently conserving valuable purge air.

Adzorbplus air dryer supported with Dewpoint meter & DDS (Dewpoint dependent switching system) has potential to save up to 50% of purge-air even if dryer is operated at 100% of its rated flow.

Add-ons with Ordering code

Advanced PLC with numerous facilities, Controls, Maintenance alerts and compatible to industries required communication protocols, RS485 Modbus, BMS, IOT, Ethernet and Industry 4.0

Ordering code: 006MI0031 R00
Online **Dewpoint meter** monitors outlet air quality 24/7. Dew point based purge ensures right quantity of purge according to the end point consumption.

Ordering code: 002KS0150 R00
Oil check apparatus helps to measure the oil content in the outlet air down to 0.1 to 0.2mg/m3.

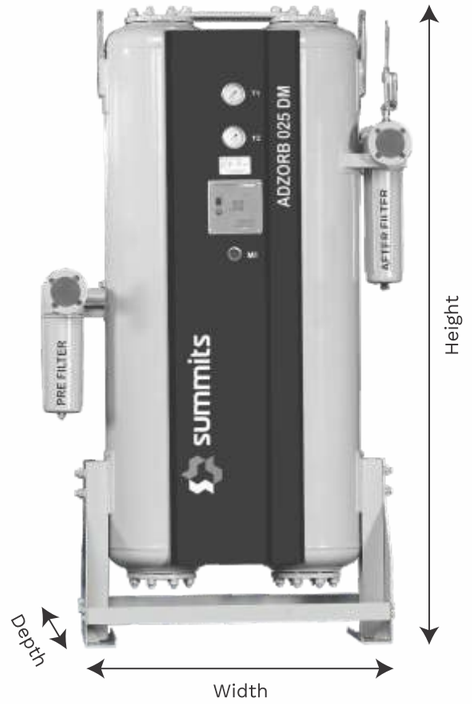
Ordering code: 002KS0148 R00
Autovent system (AVS) prevents untreated air entries to the application.

Ordering code: 002KS0149 R00
Differential pressure gauge in Micron filter guides us to replace elements at the right time.

Adzorbplus – Flowrates and Dimension data:

S.no	Product Model	FAD, cfm	In/Out	Width mm	Depth mm	Height mm	Weight kg
1	Adzorb 004 CM	40	G1/2	600	400	1740	210
2	Adzorb 006 CM	60	G3/4	600	400	1800	240
3	Adzorb 008 CM	80	G1	700	450	1600	290
4	Adzorb 010 CM	100	G1	700	450	1780	320
5	Adzorb 012 CM	120	G1	760	450	1550	370
6	Adzorb 015 CM	150	G1-1/2	760	450	1750	415
7	Adzorb 020 CM	200	G1-1/2	880	450	1650	450
8	Adzorb 025 CM	250	G1-1/2	880	450	1900	520
9	Adzorb 030 CM	300	G1-1/2	1300	600	1720	640
10	Adzorb 035 CM	350	G2	1300	600	1850	700
11	Adzorb 040 CM	400	G2	1400	650	1700	740
12	Adzorb 050 CM	500	G2	1500	900	1850	1100
13	Adzorb 060 CM	600	80 NB	1500	900	2000	1250
14	Adzorb 075 CM	750	80 NB	1650	1000	1850	1410
15	Adzorb 100 CM	1000	80 NB	2000	1200	2000	2050
16	Adzorb 125 CM	1250	80 NB	2300	1200	2200	2250

FAD (Free Air Delivery) is based ISO 7183-2007.
In/Out Flange (NB) conforms to ASME B16.5 CL 150 LBS SORF
For ordering add suffix of Pressure and Dewpoint; Refer Nomenclature.
Summits can deliver ultra high pressure dryer up to 400 bar g working pressure.
Please contact the factory for any high pressure requirements.



Common technical data:

Pressure	:	7 to 12 bar g
Inlet Temp.	:	45°C
Ambient temp.	:	40°C
Air humidity	:	100% at 45°C
Installation	:	Indoor
Power supply	:	230VAC 50Hz

Nomenclature:

Adzorb 010 CL →
Adzorb: Series name
010 x 10 = 100 cfm
C : 12 bar g
L: -40°C pdp.

Pressure Correction factor

Operating Pressure, bar g	5	6	7	10	12
Correction factor, Z1	0.747	0.837	1	1.17	1.27

Temperature Correction factor (Z1)

Inlet Air Temperature, °C	45	50	55	60
Correction Factor, Z2	1	0.774	0.604	0.475

$$\text{Dryer nominal capacity} = \frac{\text{Compressor actual FAD}}{Z1 \times Z2}$$

Pressure variants	Dew point variants
C: 7.0 to 12.0 bar g	M: -20°C pdp (ISO 8573-1:2010, Table 2, Class 3)
D: 12.1 to 16.0 bar g	L: -40°C pdp (ISO 8573-1:2010, Table 2, Class 2)
E: 16.1 to 40 bar g	Others upon request
F: 40.1 to 70 bar g	

Selection example

Compressor FAD, cfm	525
Inlet Pressure, bar g	5
Inlet Air temperature, °C	50
Pressure Correction Factor Z1	0.747
Temperature Correction Factor Z2	0.774
Required dryer capacity, cfm	525 / (0.747 x 0.774) = 908
Model to be Chosen	Adzorb 100 CM

Variants & Features

Scope	Adzorb	Adzorbplus
Pre-filter	√	√
Oil filter	√	√
Adsorber (2 nos.)	√	√
Dust filter	√	√
Moisture indicator	√	√
Purge economiser	√	√
PLC	--	√
DDS	--	√
Add-on components		
Dew point meter	√	√
Oil check apparatus	√	√
Autovent system (AVS)	--	√
Differential pressure gauge	√	√

Harvesting the elements of air through innovation for

Manufactured and marketed by
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[redacted]

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