AIR DRYERS

Refrigerant, high temperature
and adsorption · +3 °C to −70 °C
pressure dew point · 1.2 to 383 m³/min

GREEN AIR
COMPRESSOR

WATER IS THE PROBLEM

Air coming off a compressor is saturated. As it cools in your pipework the water comes back out of it, and it comes out wherever the pipe is coldest — which is usually the far end of the run, in front of the machine you least want it in.

A dryer lowers the pressure dew point: the temperature at which that water will condense. Get the dew point below the coldest temperature your pipework ever sees and no liquid water forms anywhere in the system. That single number is what decides which dryer you need, and nothing else does.

The dew point decides everything

Not the flow, not the compressor size, not the budget. Specify the coldest point in the system and the dryer follows from it.

Specified at the point of use

The dew point that matters is the one at the machine being fed, not the one printed on the dryer.

Sized for Gulf ambients

Selected against 45 °C ambient and 45 °C inlet, not the 25 °C figure that makes a datasheet look good.

Dew point measured, not indicated

A lamp on a dryer is not evidence. Where it matters we fit an instrument that records.

WHICH DRYER YOU NEED

It is decided by the dew point your process requires and nothing else. Refrigerant dryers reach about plus three degrees, which is enough for anything indoors. Desiccant dryers reach minus forty or minus seventy and are needed where the air goes outside in winter, into a cold store, or into a process that cannot tolerate moisture. Membrane dryers suit small flows and point of use, especially where there is no power supply or where a moving part would be a problem.

Refrigerant

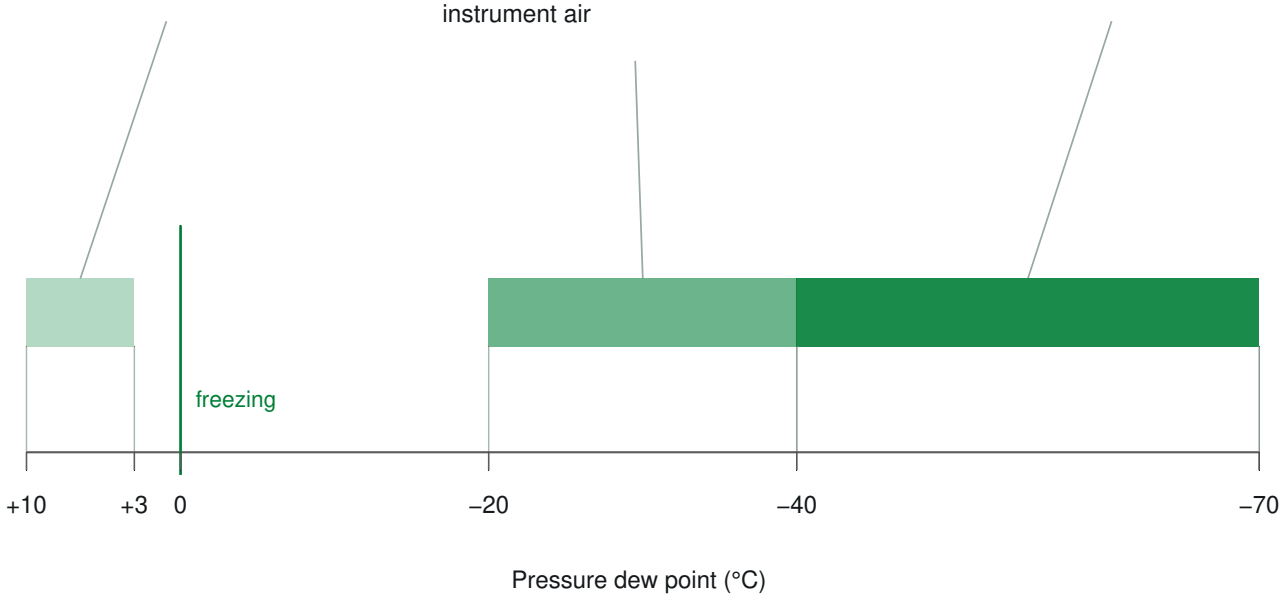
General factory air, packaging, machine air, anything indoors

Heatless and heated adsorption

Outdoor pipework, cold stores, instrument air

Adsorption, low dew point

Pharmaceutical, electronics, breathing air, critical process



- Dew point requirement decides the type
- Refrigerant to about plus three degrees
- Desiccant to minus forty or minus seventy
- Membrane for small flows and point of use
- Specified at the point of use, not the dryer
- Prefiltration included in the design
- Cycling control where load is light
- Dew point measured, not indicated

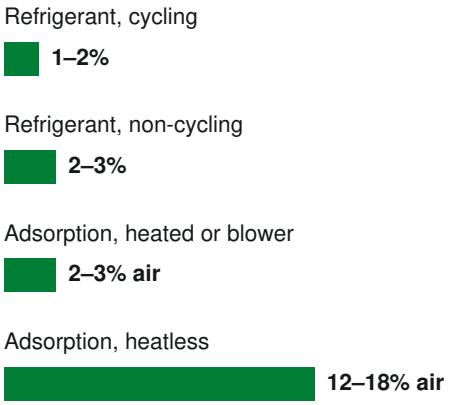
WHAT IT COSTS TO RUN

A refrigerant dryer costs electricity — typically one to two per cent of the compressor's power. A cycling model switches the circuit off at low load, and on a lightly loaded plant that is most of the day.

A desiccant dryer costs purge air, which is compressed air thrown away. A heatless design vents between twelve and eighteen per cent of your flow to regenerate the offline tower. Heated and blower regenerated designs cut that to two or three per cent and spend electricity instead, which is the trade worth doing arithmetic on before buying.

A membrane dryer costs purge air as a fixed share of the flow, which is fine on a small duty and expensive on a large one. And on every type, the pressure drop across the dryer is a running cost too — it is paid for at the compressor, every hour.

What each type costs you, as a share of the compressor's output



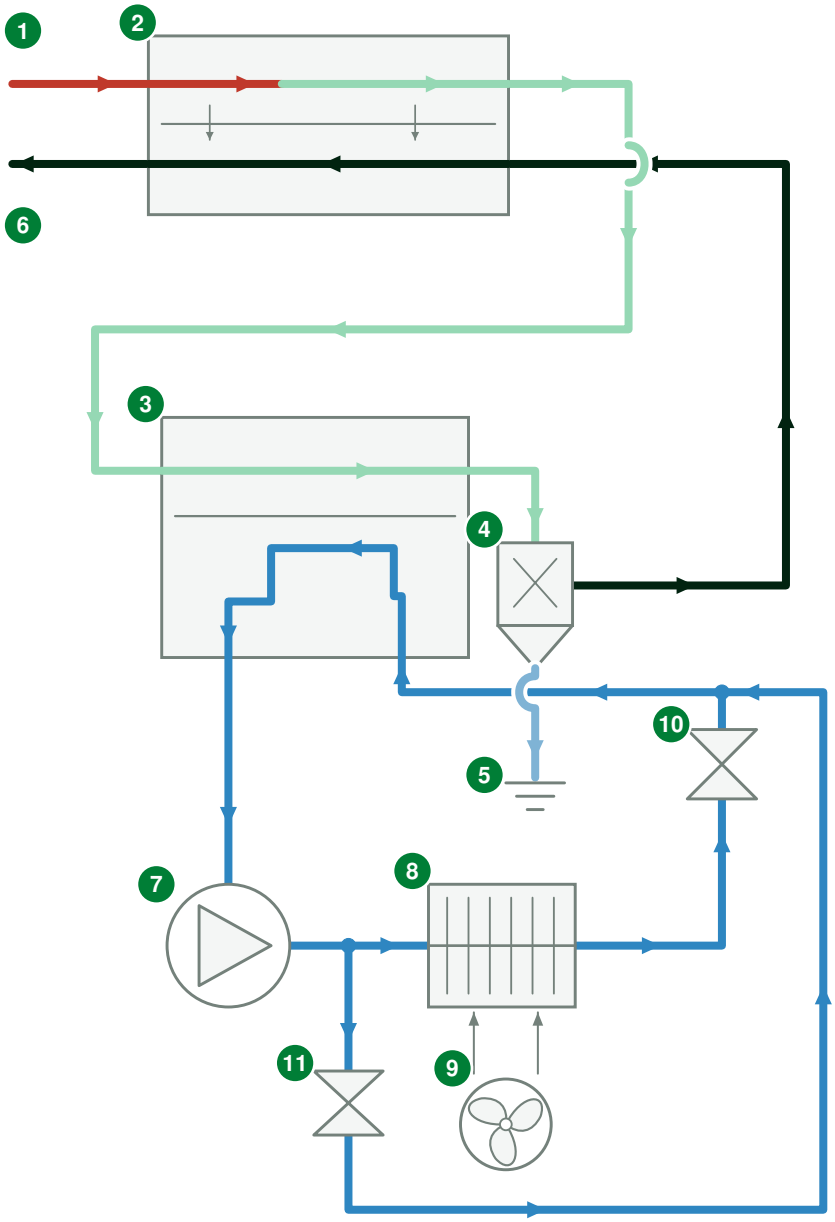
Electricity for the refrigerant types, compressed air for the adsorption types. Both are paid for at the compressor.

The honest advice

Use a desiccant dryer only where you need one. On a large flow the purge air costs more every year than the dryer did to buy, and most plants do not need minus forty anywhere except one or two lines.

HOW A REFRIGERANT DRYER WORKS

Chill the air until the water falls out of it, drain the water away, then warm the air back up with the air that is still coming in. The last step is the one people forget, and it is what stops your pipework sweating.



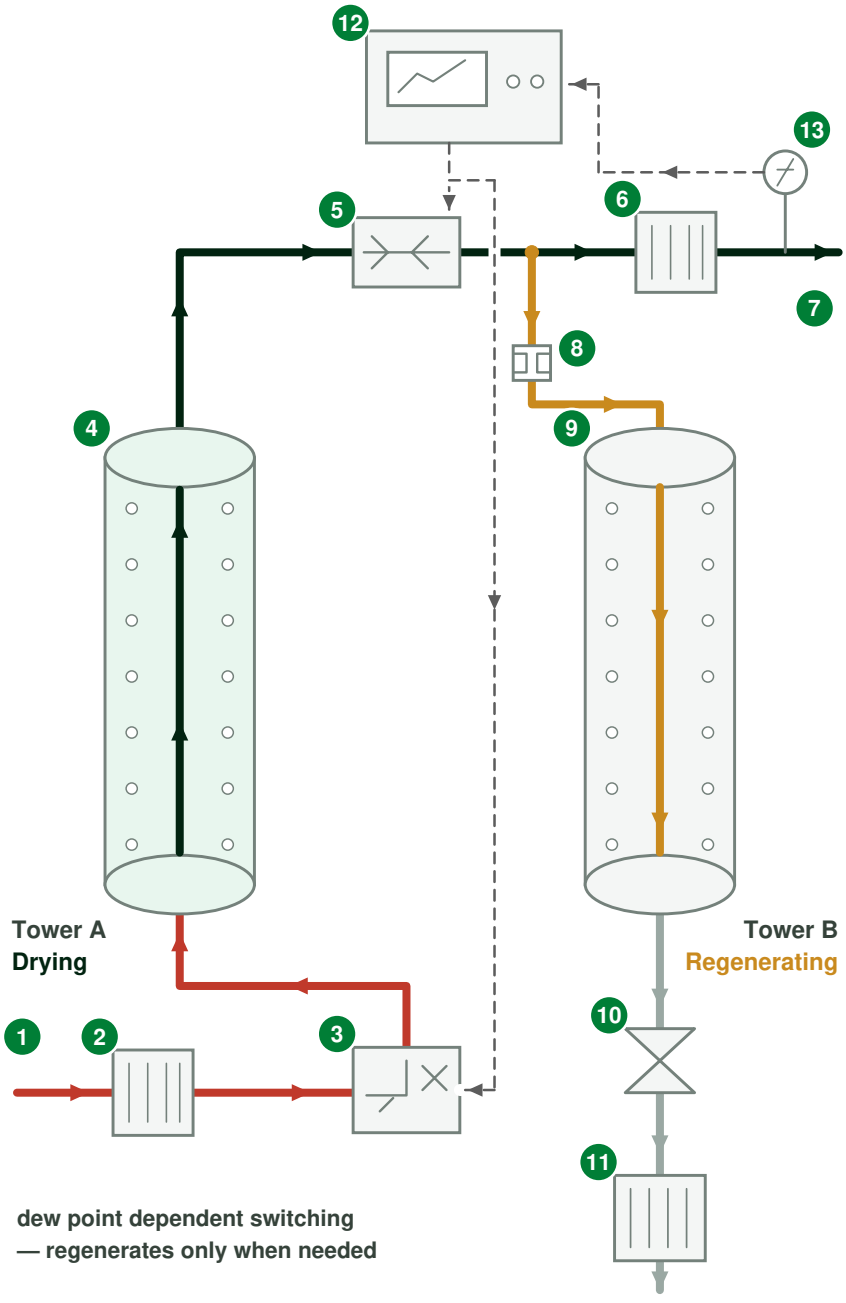
1 Inlet
2 Air-to-air exchanger
3 Evaporator
4 Separator
5 Drain
6 Outlet
7 Refrigerant compressor
8 Condenser
9 Fan
10 Expansion valve
11 Hot gas bypass valve

Wet air in, warm
Air being chilled
Dry air out
Refrigerant
Condensate

The air-to-air exchanger does two jobs at once: it saves most of the cooling energy, and it reheats the air so the pipe downstream stays dry on the outside as well as the inside.

HOW AN ADSORPTION DRYER WORKS

Two towers of desiccant. One dries the air while the other is regenerated, and they change over on a cycle so the supply never stops. Everything else about the design is about doing that without wasting air.



1 Inlet
2 Prefilter
3 Inlet valve block
4 Tower A
5 Outlet valve block
6 Afterfilter
7 Outlet
8 Purge orifice
9 Tower B
10 Purge valve
11 Exhaust silencer
12 Controller
13 Dew point sensor

Wet air in
Dry air out
Purge air, regenerating
Purge vented to atmosphere

On a heatless dryer the amber line is between twelve and eighteen per cent of everything the compressor makes. That is why the dew point sensor pays for itself: it stops the machine regenerating on a timer when it does not need to.

TECHNICAL SPECIFICATIONS

Refrigerant dryers

Model	Power	Flow		Maximum pressure		Dew point	Weight		Dimensions L × W × H
	kW	m³/min	cfm	bar g	psig		kg	lb	mm
GAC-CD 100	1.26	10.00	353	16	232	+3°C	134	295	720 × 750 × 1360
GAC-CD 130	1.67	13.00	459	13	189	+3°C	164	362	720 × 750 × 1361
GAC-CD 160	2.03	15.83	559	13	189	+3°C	168	370	720 × 750 × 1362
GAC-CD 250	2.58	25.00	883	14	203	+3°C	234	516	806 × 1012 × 1539
GAC-CD 430	4.22	43.33	1,530	14	203	+3°C	290	639	806 × 1012 × 1539
GAC-CD 800	6.81	80.00	2,825	14	203	+3°C	465	1,025	880 × 1819 × 1796
GAC-CD 1000	10.9	100.00	3,531	13	189	+3°C	780	1,720	1510 × 1500 × 1555
GAC-CD 1920	16.24	191.67	6,769	13	189	+3°C	1,205	2,657	2270 × 1590 × 1570
GAC-CD 3840	32.48	383.33	13,537	13	189	+3°C	2,410	5,313	4600 × 1590 × 1570

High temperature refrigerant dryers

These take air straight off the compressor at up to 80 °C with no pre-cooler, which is what makes them useful on a skid or in a plant room too hot for a standard dryer. The kilowatt figure is the compressor they suit, not their own consumption.

Model	Suits compressor		Flow		Connection
	kW	hp	m³/min	cfm	
GA-RD-1.2-1.6	7.5	10	1.2	42	G3/4 in
GA-RD-1.6-1.6	11	15	1.6	57	G3/4 in
GA-RD-2.6-1.6	15	20	2.6	92	G1 in
GA-RD-3.8-1.6	22	30	3.8	134	G1-1/2 in
GA-RD-6.5-1.6	37	50	6.5	230	G1-1/2 in
GA-RD-8.5-1.6	55	75	8.5	300	G2 in
GA-RD-11.5-1.6	75	100	11.5	406	G2 in
GA-RD-13.5-1.6	90	125	13.5	477	G2 in
GA-RD-18.5-1.3	110	150	18.5	653	G2-1/2 in
GA-RD-20.5-1.3	132	175	20.5	724	G3 in
GA-RD-25-1.3	150	200	25	883	G3 in
GA-RD-35-1.3	185	250	35	1,236	G4 in
GA-RD-45-1.3	220	300	45	1,589	DN100
GA-RD-55-1.3	280	375	55	1,942	DN125
GA-RD-65-1.3	355	475	65	2,295	DN125

Flows measured to ISO 7183 at the reference conditions of ISO 1217: inlet air 35 °C, ambient 25 °C, 7 bar g, saturated. Correction factors apply at other conditions and are applied when we size — a dryer selected at 25 °C and installed in a 45 °C plant room will not hold its dew point. Imperial figures are converted from the metric values and rounded. Weights for the high temperature range are available on request.

TECHNICAL SPECIFICATIONS

Heatless adsorption dryers, compact range

Model	Flow		Model	Flow	
	m³/min	cfm		m³/min	cfm
GA-DA-14	1.4	49	GA-DA-165	16.5	583
GA-DA-18	1.8	64	GA-DA-195	19.5	689
GA-DA-26	2.6	92	GA-DA-225	22.5	795
GA-DA-38	3.8	134	GA-DA-285	28.5	1,006
GA-DA-55	5.5	194	GA-DA-360	36	1,271
GA-DA-69	6.9	244	GA-DA-430	43	1,519
GA-DA-85	8.5	300	GA-DA-520	52	1,836
GA-DA-108	10.8	381	GA-DA-630	63	2,225
GA-DA-145	14.5	512	GA-DA-800	80	2,825

Heatless adsorption dryers, large range

Model	Regeneration	Flow		Connection	Dew point	Weight		Dimensions L × W × H
		m³/min	cfm			kg	lb	mm
GAC-AX 67	Heatless	6.7	237	1½ in	−40°C	285	628	2160 × 825 × 530
GAC-AX 125	Heatless	12.5	441	2 in	−40°C	520	1,146	2117 × 970 × 620
GAC-AX 167	Heatless	16.7	590	2 in	−40°C	828	1,825	2131 × 1440 × 1035
GAC-AX 333	Heatless	33.3	1,176	3 in	−40°C	1,500	3,307	2185 × 1928 × 1460
GAC-AX 550	Heatless	55.0	1,942	DN100 PN16	−40°C	2,300	5,071	2349 × 2132 × 1652
GAC-AX 933	Heatless	93.3	3,295	DN150 PN16	−40°C	2,950	6,504	2535 × 2438 × 1791
GAC-AX 1417	Heatless	141.7	5,004	DN150 PN16	−40°C	4,400	9,700	2344 × 2677 × 1945

Dew point −40 °C standard; −70 °C available on request. Flows are at the inlet, before purge. Purge consumption on a heatless design is between twelve and eighteen per cent of the inlet flow; heated and blower regenerated designs reduce this to two or three per cent and are quoted where the flow justifies them. Imperial figures are converted from the metric values and rounded. Weights and dimensions for the compact range are available on request.

Options

- Cycling control
- Dew point dependent switching
- Dew point instrument with recording
- Heated or blower regeneration
- −70 °C dew point desiccant fill
- Cyclone water separator
- Prefilter and afterfilter sets
- Zero-loss condensate drain
- Oil and water separator
- Stainless pipework
- High ambient package
- Remote monitoring

GREEN AIR
COMPRESSOR

TELL US THE COLDEST POINT IN YOUR SYSTEM

That one number decides which dryer you need, and most enquiries do not include it. Tell us where the air goes — indoors, outside, into a cold store, onto product — along with the flow and the pressure you run at, and you get a written recommendation back that names the dryer, gives its figures at your conditions rather than at test conditions, states the filtration it needs either side of it, and sets out delivery and installation. It costs nothing and carries no obligation.

Green Air Compressor

greenaircompressors.com

Monday to Saturday

+971 58 930 8361
+971 58 930 8364
+971 6 530 0590