Atlas Copco

Refrigerant air dryers
FX 1-21 (7-1236 l/s, 14-2516 cfm)

Sustainable Productivity

Atlas Copco

Air treatment – a smart investment

Why invest in dry quality air?

Wherever you go in the world, whatever application you look at, you will find Atlas Copco dryers in silent operation around the clock. Industry leading companies invest in dry quality air, because they know it's the best solution for a long term, trouble-free operation. Why shouldn't you follow their example? No shop is too small, no air requirement too low to benefit from what FX dryers have to offer: simple and reliable operation, excellent protection of your products and systems against damage or corrosion. Size doesn't matter, results do.

FX dryers – the smart choice

The hidden danger of untreated air

When the air that surrounds us is compressed, its vapour and particle concentration increases dramatically. The compression process causes the oil and water vapours to condense into droplets, and then mix with the high concentration of particles. The resulting mixture is an abrasive oily sludge that in many cases is also acidic. Without air treatment equipment, much of this corrosive sludge will enter the compressed air system, corroding the pipe work, damaging pneumatic tools and equipment as well as potentially compromising final product quality.

Poor air quality costs you money

If the corrosive sludge is allowed to enter the compressed air system, it will not be long before problems start to appear. These are some of the most common, and most expensive problems:

- Tools and equipment break down more regularly, experience a shorter lifetime and reduced power.
- The end product, or other materials that come into contact with the contaminated air, can suffer spoilage and quality degradation.
- The compressed air pipe work will corrode, leading to leaks and a loss of valuable compressed air.

As an example, a small leak of just 3 mm is roughly equivalent to wasting 3.7 kW of electricity. In a year, this would cost around €1800 in wasted energy alone.

The simple solution for a costly problem

The FX range of refrigerant dryers offer a reliable, cost effective and simple solution. To avoid condensation and therefore all chance of corrosion and damage, the compressed air needs to be dried, which is exactly what the FX units are designed to do.

These simple reliable units remove water from the air and the risk from your system, ensuring that your money doesn't just disappear into the air!

- Protect your pipes.
- Protect your production.
- Protect your reputation.

Good air quality saves money.
The Atlas Copco FX dryer is the smart choice.

FX refrigerant dryers

The benefits add up

Solid performance
- Steady pressure dew point
- No freezing of condensed moisture
- No chance of moisture entering the compressed air system.

Simple reliability
- Quality components, generously sized
- Simple and proven design
- Effective control system (hot gas bypass).

Easy installation
- Plug and play concept
- Single electrical connection
- All units pre-commissioned
- Self regulating.

Minimal maintenance
- Long service intervals
- Few component replacements
- Ergonomic design for fast access to key components.

Significant cost savings
- Increased reliability and lifetime of tools and equipment
- Reduced pipe work leaks, meaning reduced energy bill
- Fewer repairs to tools, machines and pipe work
- Less inconvenient breakdowns and stoppages
- Minimal chance of product spoilage through moisture carryover.

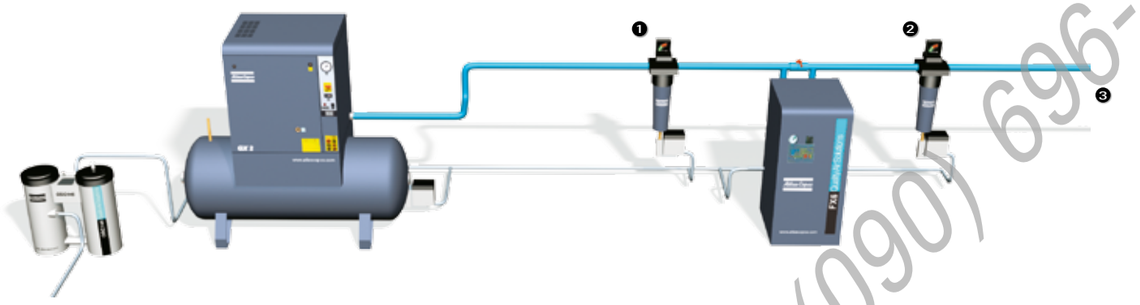
No installation is complete without filtration

Adding filtration to the installation will further increase the quality of the air, resulting in even less chance that tools and machines will be damaged and final product quality compromised.

❶ The prefilter will protect the dryer, and also remove free water, particles to 1 micron and oil to 0.1 mg/m³.

❷ The final filter removes particles to 0.01 micron and oil to 0.01mg/m³.

❸ The final result is dry clean air, which allows you to concentrate on your business, without problems.



FX refrigerant dryers
Industrial performance – simple reliability

Refrigerant circuit

❶ **Refrigerant separator**
ensures that only refrigerant gas can enter the compressor, as liquid would cause damage.

❷ **Refrigerant compressor**
brings the gaseous refrigerant to a high pressure and a high temperature.

❸ **Max. pressure switch**
(only FX 13-21)

❹ **Fan control pressure switch**
(only FX 13-21)

❺ **Condenser fan**

❻ **Condenser**
cools the refrigerant slightly so that it changes from gas to liquid; refrigerant is more effective in the liquid state.

❼ **Capillary filter**
protects the expansion device from harmful particles.

❽ **Capillary tube**
reduces the refrigerant's pressure, thereby lowering its temperature and increasing its cooling capacity; the refrigerant is now almost all liquid, with some residual gas.

❾ **Hot gass bypass**
regulates the amount of refrigerant passing through the air-to-refrigerant heat exchanger, ensuring a stable pressure dewpoint, and eliminating the chance of the condensate freezing.

FX 1-5 **Brazed plate heat exchanger**
FX 6-21 **Aluminium plate heat exchanger**

Air circuit

❿ **Air inlet**
hot saturated air enters the dryer and is cooled by the outgoing air via the air-to-air heat exchanger. Reducing the temperature of the inlet air reduces the load on the refrigerant circuit.

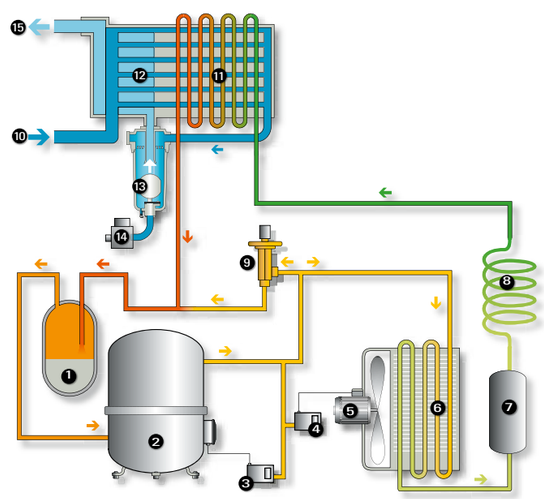
⓫ **Air-to-refrigerant heat exchanger**
transfers heat from the compressed air to the cold refrigerant, forcing water vapour in the compressed air to condense. The more effective the heat transfer, the cooler the air becomes and the more water vapour condenses.

⓬ **Air/ air heat exchanger**

⓭ **Water separator**
collects and drains off condensate from the cooled air flow. The more efficient the separation, the better the pressure dewpoint, as droplets which are not collected revapourise and degrade the pressure dewpoint. The collected droplets are reliably evacuated from the separator through an electronic drain.

⓮ **Automatic drain**

⓯ **Air outlet**
re-heats the outgoing air to prevent condensation on the factory's pipework.



Technical data 50 Hz

FX refrigerant dryer range 50 Hz

Model	Outlet pressure dewpoint +5 °C/41 °F				Outlet pressure dewpoint +3 °C/37 °F				Maximum working pressure		Electrical supply	Dimensions						Weight		Compr. air connec-tions
	Inlet capacity		Pressure drop		Inlet capacity		Pressure drop					Lenght		Width		Height				
Type	l/s	cfm	bar	psi	l/s	cfm	bar	psi	bar	psi		mm	inch	mm	inch	mm	inch	kg	lb	
FX 1	7	14	0.20	2.88	6	13	0.15	2.18	16	232	230/1/50Hz	500	19.69	350	13.78	484	19.06	19	42	3/4" M
FX 2	12	24	0.33	4.79	10	21	0.25	3.63	16	232	230/1/50Hz	500	19.69	350	13.78	484	19.06	19	42	3/4" M
FX 3	16	35	0.33	4.79	14	30	0.25	3.63	16	232	230/1/50Hz	500	19.69	350	13.78	484	19.06	20	44	3/4" M
FX 4	23	49	0.33	4.79	20	42	0.25	3.63	16	232	230/1/50Hz	500	19.69	350	13.78	484	19.06	25	55	3/4" M
FX 5	35	74	0.40	5.75	30	64	0.30	4.35	16	232	230/1/50Hz	500	19.69	350	13.78	484	19.06	27	60	3/4" M
FX 6	45	95	0.42	6.14	39	83	0.32	4.64	13	189	230/1/50Hz	500	19.69	370	14.57	804	31.65	51	112	1" F
FX 7	58	122	0.50	7.29	50	106	0.38	5.51	13	189	230/1/50Hz	500	19.69	370	14.57	804	31.65	51	112	1" F
FX 8	69	146	0.24	3.45	60	127	0.18	2.61	13	189	230/1/50Hz	560	22.05	460	18.11	829	32.64	61	135	1 1/2" F
FX 9	79	167	0.33	4.79	68	144	0.25	3.63	13	189	230/1/50Hz	560	22.05	460	18.11	829	32.64	68	150	1 1/2" F
FX 10	100	211	0.24	3.45	87	184	0.18	2.61	13	189	230/1/50Hz	560	22.05	460	18.11	829	32.64	73	161	1 1/2" F
FX 11	125	264	0.26	3.84	108	229	0.20	2.90	13	189	230/1/50Hz	560	22.05	580	22.83	939	36.97	90	198	1 1/2" F
FX 12	148	313	0.36	5.18	128	271	0.27	3.92	13	189	230/1/50Hz	560	22.05	580	22.83	939	36.97	90	198	1 1/2" F
FX 13	192	407	0.33	4.79	167	354	0.25	3.63	13	189	400/3/50Hz	898	35.35	735	28.94	1002	39.45	128	282	2" F
FX 14	230	488	0.40	5.80	200	424	0.30	4.35	13	189	400/3/50Hz	898	35.35	735	28.94	1002	39.45	146	322	2" F
FX 15	288	611	0.40	5.80	250	530	0.30	4.35	13	189	400/3/50Hz	898	35.35	735	28.94	1002	39.45	158	348	2" F
FX 16	345	731	0.40	5.80	300	636	0.30	4.35	13	189	400/3/50Hz	898	35.35	735	28.94	1002	39.45	185	408	2" F
FX 17	424	899	0.28	4.07	400	848	0.25	3.63	13	189	400/3/50Hz	1082	42.59	1020	40.15	1560	61.41	325	717	3" F
FX 18	530	1124	0.34	4.89	500	1060	0.30	4.35	13	189	400/3/50Hz	1082	42.59	1020	40.15	1560	61.41	335	739	3" F
FX 19	618	1310	0.39	5.70	583	1236	0.35	5.08	13	189	400/3/50Hz	1082	42.59	1020	40.15	1560	61.41	350	772	3" F
FX 20	883	1872	0.34	4.89	833	1766	0.30	4.35	13	189	400/3/50Hz	2099	82.6	1020	40.15	1560	61.41	550	1213	DN 125
FX 21	1236	2516	0.28	4.07	1166	2374	0.25	3.63	13	189	400/3/50Hz	2099	82.6	1020	40.15	1560	61.41	600	1323	DN 125

Filter selection

Model	Outlet pressure dewpoint +5 °C/41 °F			Outlet pressure dewpoint +3 °C/37 °F		
	Inlet capacity	Pre filter	After filter	Inlet capacity	Pre filter	After filter
	l/s			l/s		
FX 1	7	DD9	PD9	6	DD9	PD9
FX 2	12	DD17	PD17	10	DD17	PD17
FX 3	16	DD17	PD17	14	DD17	PD17
FX 4	23	DD32	PD32	20	DD32	PD32
FX 5	35	DD44	PD44	30	DD32	PD32
FX 6	45	DD44	PD44	39	DD44	PD44
FX 7	58	DD60	PD60	50	DD60	PD60
FX 8	69	DD120	PD120	60	DD60	PD60
FX 9	79	DD120	PD120	68	DD120	PD120
FX 10	100	DD120	PD120	87	DD120	PD120
FX 11	125	DD120	PD120	108	DD120	PD120
FX 12	148	DD150	PD150	128	DD150	PD150
FX 13	192	DD280	PD280	167	DD175	PD175
FX 14	230	DD280	PD280	200	DD280	PD280
FX 15	288	DD280	PD280	250	DD280	PD280
FX 16	345	DD390	PD390	300	DD390	PD390
FX 17	424	DD390	PD390	400	DD390	PD390
FX 18	530	DD520	PD520	500	DD520	PD520
FX 19	618	DD520	PD520	583	DD520	PD520
FX 20	883	DD780	PD780	833	DD780	PD780
FX 21	1236	DD1050	PD1050	1166	DD1050	PD1050

Reference conditions:
Ambient temperature: 25 °C
Inlet temperature: 35 °C
Working pressure: 7 bar (g)

Limitations:
Max. ambient temp: 43 °C*
Min. ambient temp: 5 °C
Max. inlet temp: 55 °C**
*46°C for FX 17-21
**60°C for FX 17-21

Notes:
Refrigerant types: R134a for FX 1-5
R404a for FX 6-12
R410A for FX 13-16
R404a for FX 17-21

Technical data 60 Hz

FX refrigerant dryer range 60 Hz

Model	Outlet pressure dewpoint 41 °F/+5 °C				Outlet pressure dewpoint 39 °F/+4 °C				Maximum working pressure		Electrical supply	Dimensions						Weight		Compr. air connec-tions
	Inlet capacity		Pressure drop		Inlet capacity		Pressure drop					Lenght		Width		Height				
Type	l/s	cfm	bar	psi	l/s	cfm	bar	psi	bar	psi		mm	inch	mm	inch	mm	inch	kg	lb	
FX1	7	14	0.20	2.88	6	13	0.15	2.18	13	189	115-230/1/60Hz	500	19.7	350	13.8	484	19.1	19	42	3/4" NPT
FX2	12	24	0.33	4.79	10	21	0.25	3.63	13	189	115-230/1/60Hz	500	19.7	350	13.8	484	19.1	19	42	3/4" NPT
FX3	16	35	0.33	4.79	14	30	0.25	3.63	13	189	115-230/1/60Hz	500	19.7	350	13.8	484	19.1	20	44	3/4" NPT
FX4	23	49	0.33	4.79	20	42	0.25	3.63	13	189	115-230/1/60Hz	500	19.7	350	13.8	484	19.1	25	55	3/4" NPT
FX5	35	74	0.40	5.75	30	64	0.30	4.35	13	189	115-230/1/60Hz	500	19.7	350	13.8	484	19.1	27	60	3/4" NPT
FX6	45	95	0.42	6.14	39	83	0.32	4.64	13	189	115-230/1/60Hz	500	19.7	370	14.6	804	31.7	51	112	1" NPT
FX7	58	122	0.50	7.29	50	106	0.38	5.51	13	189	115-230/1/60Hz	500	19.7	370	14.6	804	31.7	51	112	1" NPT
FX8	69	146	0.24	3.45	60	127	0.18	2.61	13	189	115-230/1/60Hz	560	22.0	460	18.1	829	32.6	61	135	1 1/2" NPT
FX9	79	167	0.33	4.79	68	144	0.25	3.63	13	189	115-230/1/60Hz	560	22.0	460	18.1	829	32.6	68	150	1 1/2" NPT
FX10	100	211	0.24	3.45	87	184	0.18	2.61	13	189	115-230/1/60Hz	560	22.0	460	18.1	829	32.6	73	161	1 1/2" NPT
FX11	125	264	0.26	3.84	108	229	0.20	2.90	13	189	230/1/60Hz	560	22.0	580	22.8	939	37.0	90	198	1 1/2" NPT
FX12	148	313	0.36	5.18	128	271	0.27	3.92	13	189	230/1/60Hz	560	22.0	580	22.8	939	37.0	90	198	1 1/2" NPT
FX13	192	407	0.26	3.77	167	354	0.20	2.90	13	232	460/3/60Hz	898	35.35	735	28.9	1002	36.4	173	381	2" NPT
FX14	230	488	0.33	4.79	200	424	0.25	3.63	13	232	460/3/60Hz	898	35.35	735	28.9	1002	36.4	178	392	2" NPT
FX15	288	611	0.46	6.67	250	530	0.35	5.08	13	232	460/3/60Hz	898	35.35	735	28.9	1002	36.4	183	404	2" NPT
FX16	345	731	0.46	6.67	300	636	0.35	5.08	13	232	460/3/60Hz	898	35.35	735	28.9	1002	36.4	183	404	2" NPT
FX17	424	899	0.28	4.07	400	848	0.25	3.63	13	189	460/3/60Hz	1082	42.6	1020	40.2	1560	61.4	325	717	3" NPT
FX18	530	1124	0.34	4.89	500	1060	0.30	4.35	13	189	460/3/60Hz	1082	42.6	1020	40.2	1560	61.4	335	739	3" NPT
FX19	618	1310	0.39	5.70	583	1236	0.35	5.08	13	189	460/3/60Hz	1082	42.6	1020	40.2	1560	61.4	350	772	3" NPT
FX20	883	1872	0.34	4.89	833	1766	0.30	4.35	13	189	460/3/60Hz	2099	82.6	1020	40.2	1560	61.4	550	1213	Flanged DN 125
FX21	1187	2516	0.28	4.07	1120	2374	0.25	3.63	13	189	460/3/60Hz	2099	82.6	1020	40.2	1560	61.4	600	1323	Flanged DN 125

Filter selection

Model	Outlet pressure dewpoint 41 °F/+5 °C			Outlet pressure dewpoint 39 °F/+4 °C		
	Inlet capacity	Pre filter	After filter	Inlet capacity	Pre filter	After filter
	cfm			cfm		
FX 1	7	DD9	PD9	6	DD9	PD9
FX 2	12	DD17	PD17	10	DD17	PD17
FX 3	16	DD17	PD17	14	DD17	PD17
FX 4	23	DD32	PD32	20	DD32	PD32
FX 5	35	DD44	PD44	30	DD32	PD32
FX 6	45	DD44	PD44	39	DD44	PD44
FX 7	58	DD60	PD60	50	DD60	PD60
FX 8	69	DD120	PD120	60	DD60	PD60
FX 9	79	DD120	PD120	68	DD120	PD120
FX 10	100	DD120	PD120	87	DD120	PD120
FX 11	125	DD120	PD120	108	DD120	PD120
FX 12	148	DD150	PD150	128	DD150	PD150
FX 13	192	DD280	PD280	167	DD175	PD175
FX 14	230	DD280	PD280	200	DD280	PD280
FX 15	288	DD280	PD280	250	DD280	PD280
FX 16	345	DD390	PD390	300	DD390	PD390
FX 17	424	DD390	PD390	400	DD390	PD390
FX 18	530	DD520	PD520	500	DD520	PD520
FX 19	618	DD520	PD520	583	DD520	PD520
FX 20	883	DD780	PD780	833	DD780	PD780
FX 21	1236	DD1050	PD1050	1166	DD1050	PD1050

Reference conditions:
Ambient temperature: 100 °F
Inlet temperature: 100 °F
Working pressure: 102 psi (g)

Limitations:
Max. ambient temp.: 110 °F
Min. ambient temp.: 41 °F
Max. inlet temp.: 131 °F
*115°F for FX 17-21
**140°F for FX 17-21

Notes:
Refrigerant types: R134a for FX 1-5
R404a for FX 6-12
R410A for FX 13-16
R404a for FX 17-21

Driven by innovation

With more than 135 years of innovation and experience, Atlas Copco will deliver the products and services to help maximize your company's efficiency and productivity. As an industry leader, we are dedicated to offering high air quality at the lowest possible cost of ownership. Through continuous innovation, we strive to safeguard your bottom line and bring you peace of mind.

Building on interaction

As part of our long-term relationship with our customers, we have accumulated extensive knowledge of a wide diversity of processes, needs and objectives. This gives us the flexibility to adapt and efficiently produce customized compressed air solutions that meet and exceed your expectations.

A committed business partner

With a presence in over 170 countries, we will deliver high-quality customer service anywhere, anytime. Our highly skilled technicians are available 24/7 and are supported by an efficient logistics organization, ensuring fast delivery of genuine spare parts when you need them. We are committed to providing the best possible know-how and technology to help your company produce, grow, and succeed. With Atlas Copco you can rest assured that your superior productivity is our first concern!

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Atlas Copco

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