



## **MEDICAL AIR DRYERS**

MED/MED+ Series (7-145 l/s / 15-307 cfm)



*Atlas Copco*



## ***PURITY AND PRECISION IN CRITICAL HEALTHCARE ENVIRONMENTS***

The critical field of patient care requires ultra-clean, purified, medical air delivered to operating theaters and hospital beds with absolute reliability. The Atlas Copco MED/MED+ series of Medical Air Dryers offers unique multi-stage filtration that converts regular compressed air from any type of compressor into internationally certified medical air. These innovative devices provide clean air for all your medical and surgical applications.

### **Medical air applications:**

- Mechanical ventilation and anesthesia.
- Drug delivery via a nebulizer.
- Testing and drying of medical devices.

### **Surgical air applications:**

- Pneumatic surgical tools (drilling, reaming, sawing, dissecting, tapping and screwing).
- Pneumatic ceiling pendant operation.
- Testing of medical devices.
- High-speed high torque motors.

# MEDICALLY CERTIFIED

The medical sector is more tightly regulated than ever before. Atlas Copco's Medical Air Plant is pre-certified to international regulations including Pharmacopeia and quality norms such as ISO 13485. Pre-certification simplifies organization and inspection by regulatory bodies, saving the hospital time and money. MED/MED+ Medical Air Dryers surpass the requirements of the most demanding standards and regulations such as:

- Medical Device Directive MDD 93/42/EEC.
- EN ISO 7396-1 and ISO 14971.
- Health Technical Memorandums HTM 02-01 and HTM 2022.

Furthermore, they are designed and manufactured according to ISO 9001, ISO 14001 and the ISO 13485 quality management system.



## FEATURES AND BENEFITS

### Unsurpassed Purity

Built to the most exacting standards, the MED/MED+ series is engineered to provide certified medical air even in areas with high ambient pollution. These air dryers ensure high air quality in 'worst case' but real-life pollution scenarios. With the assurance of Atlas Copco's excellent worldwide after-sales service, the MED/MED+ series offers the complete solution for critical air environments.

### Compact operation

The MED/MED+, with its small footprint and integrated design, fits into any space or setting. It comes pre-assembled and ready for use, ensuring minimal installation time and costs.

### Cost-effective

We strive to provide the most cost-efficient solutions. Energy consumption is mainly linked to internal pressure drops and the regeneration process. As such our medical air dryers are designed to keep the pressure drop as low as possible and provide the most efficient regeneration process.

### Energy-efficient

The MED/MED+ series incorporates state-of-the-art energy management control with built-in purge control as standard (optionally available on the MED series). This purge control makes the dryers more efficient, leading to energy savings of up to 90%, depending on installation and usage.

# ASSURED PURITY, PROVEN RELIABILITY

MED/MED+ s provide the ultra clean air you require. Their innovative filtration system is the definitive medical air solution, while a small footprint allows you to make the most of the space available. The MED/MED+ both offer unparalleled air purity through 7 stages of active purification.

1

## Overfilled and spring-loaded high-performance desiccant bags

- Pressure dewpoint of  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$  as standard.
- Filter mat increases silencer lifetime by preventing dust exiting during regeneration.
- Overfilled cartridges protect against desiccant ageing and overflow peaks.

2

## Filters

- Pre-filter(s) at the inlet prevents oil contamination, increasing desiccant lifetime.
- After-filters protect the network against dust, avoiding network contamination.
- Can be mounted directly on the inlet and outlet of the dryer, for low pressure drop.
- Easy to assemble and maintain as no extra piping or filter connections are required.

3

## Unique manifold/valve design

- Large pipe diameter minimizes pressure drop for advanced energy savings.
- Electronically-operated 3/2 valve reduces risk of breakdowns and offers reliable control during airflow fluctuations. With this new design, vessel switching operates unfailingly even in rough conditions.
- Easy service of the moving parts of the valve systems.
- Clever strainer design minimizes pressure drop, regeneration times and energy consumption. Its "swirl" technology ensures optimal distribution of the airflow and decreases wear of the desiccant.





4

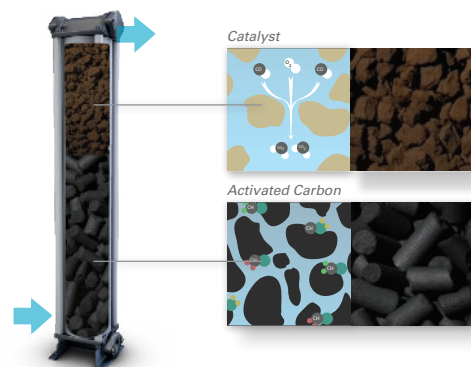
### Advanced control and monitoring system

- Timer control variant cycles defined to reach dewpoint target even at 100% load.
- Auto restart after power failure function with cycle status memory.
- Full status annunciation on LEDs, display and pressure gauges.
- Remote alarm and remote control.
- Purge Saver contact: the dryer can freeze purge cycle in case of unload/stop signal.
- All controls are protected from water and dust thanks to the IP54 cubicle.

5

### Dewpoint Dependent Switching (standard on MED+)

- Real dewpoint monitoring (hygrometer).
- Dewpoint display on controller (and alarm).
- The dryer will only switch to the next tower when the desiccant is saturated (based on dewpoint input). During that period, the dryer consumes no purge.



6

### Dual cleaning stage

- Activated carbon eliminates hydrocarbons (oil vapor, smells).
- A catalyst converts CO into CO<sub>2</sub>.

7

### Electronic water drain (optional)

# A STEP AHEAD IN CONTROL AND MONITORING

Get the most out of your medical air system with our uAIR Medical Air Plant. Our Oil-free Medical Plant is based on dedicated medical compressors ZT MED, advanced medical dryers MED<sup>+</sup> and the ES-Medical Central Controller. The latter offers one central point of control for your whole compressed air network while an Ethernet connection gives you access to valuable information. Controlling and monitoring your system has never been easier.

## ES-Medical Central Controller

A properly managed compressed air network will save energy, reduce maintenance, decrease downtime, increase reliability and improve product quality. Our ES-Medical Central Controller is the most efficient way to monitor and control your medical air plant.

- User-friendly 5.7-inch high-definition color display with clear pictograms and LED indicators.
- Internet-based visualization using a simple Ethernet connection.
- Increased reliability: new, multilingual user interface and durable keyboard.
- Automatic restart after voltage failure.
- Graphical indication ServicePlan.
- Remote monitoring and connectivity functions.
- Easy readout of the CO/ CO<sub>2</sub> sensors.



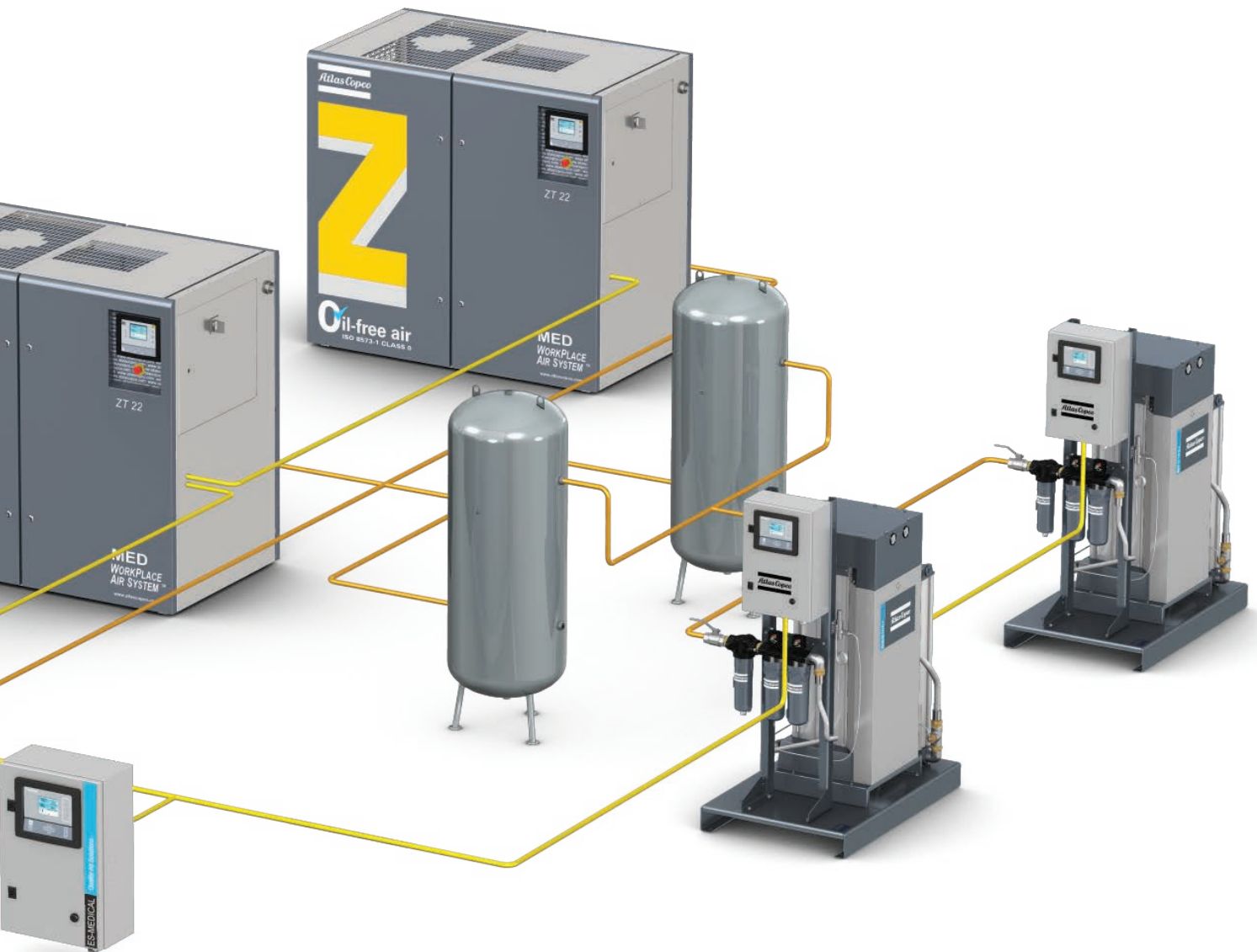
## Real-time monitoring on your desktop

The ES-Medical Central Controller collects all data from your medical air system. Through a website integrated within the Elektronikon<sup>®</sup> module, all data is visualized in real-time, offering you immediate clarification. As these real-time visualization pages are accessed through the hospital's LAN, total data security is assured.

## Advanced Elektronikon® controller

The MED+ with advanced Elektronikon® controller featuring color display offers the following benefits:

- Standard purge control for up to 90% energy savings.
- Connection to ES-Medical Central Controller possible.
- Alarms and warnings on PDP, net pressure and service
- Service warning indications for desiccant, catalyst, filters and water drains.
- Pressure sensor on outlet for full control over the dryer's performance.

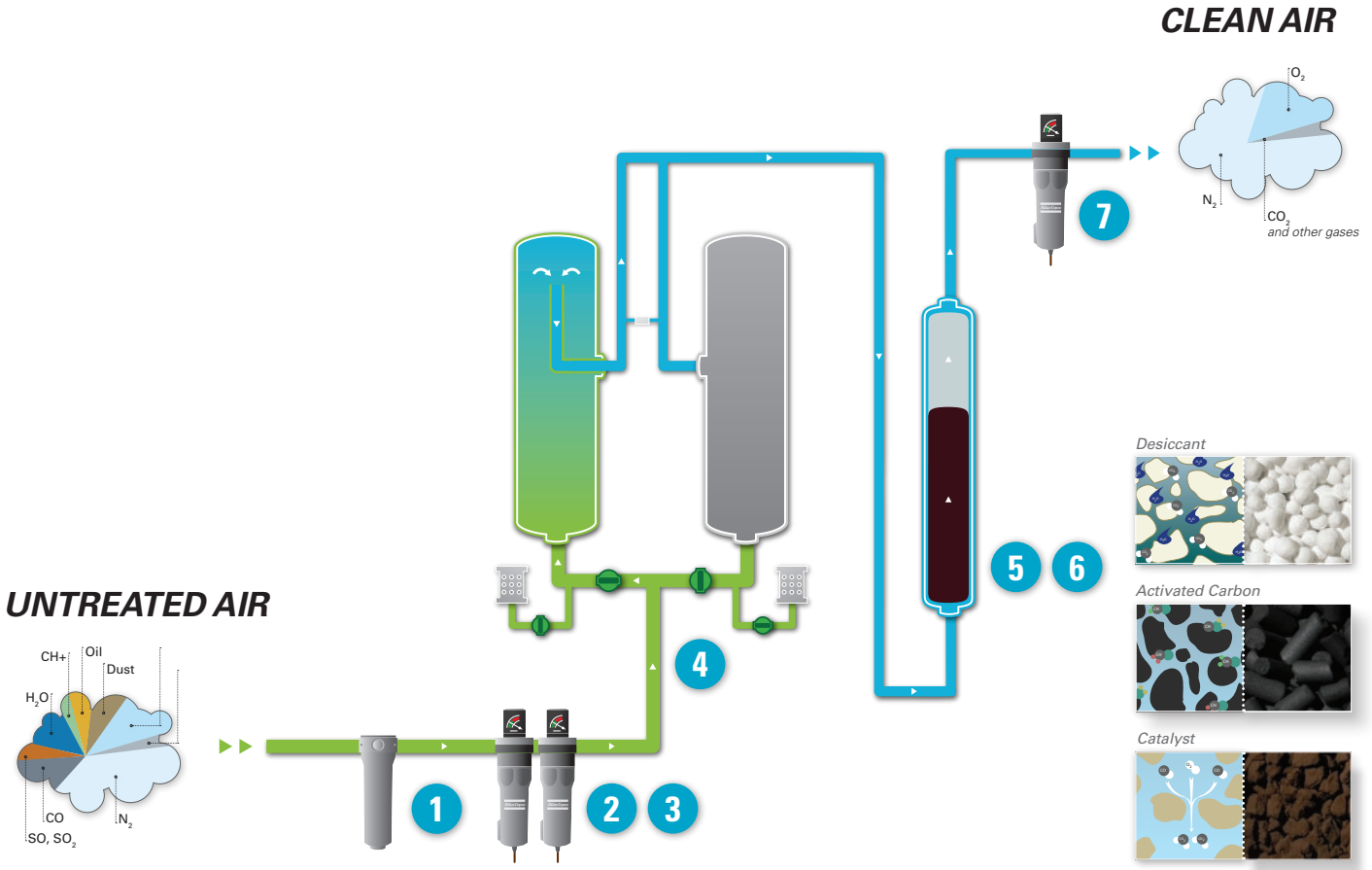


## Peace of mind

By complying with the ISO7396-1 standard, redundancy for both compressors and air dryers is always guaranteed. The result is a completely dependable and energy efficient network, giving you peace of mind and keeping your costs to a minimum.

# SEVEN STEPS TO QUALITY MEDICAL AIR

The MED/MED+'s multi-stage filtration offers unparalleled air purity.



## 1 2 3

A water separator for free water removal together with fine and coarse coalescing filters, remove oil aerosol to less than 0.01 mg/m<sup>3</sup>.

## 4

A heatless desiccant dryer reduces moisture content to a pressure dew point of -40°C/-40°F, removing any risk of condensation, bacteria and mold growth.

## 5 6

A dual cleaning stage includes activated carbon to eliminate hydrocarbons (oil vapor, smells). A catalyst then converts CO into CO<sub>2</sub>.

## 7

A bacterial filter at the exit removes bacteria and particles that may have been introduced in the desiccant stages with a count efficiency of 99.99%.





## Easy to install

Every MED/MED<sup>+</sup> air dryer comes pre-assembled to provide simple installation. The integrated design makes installation less complex and more cost-efficient.

## Pharmacopeia compliant

Built to exceed standards, MED/MED<sup>+</sup> air dryers provide certified breathing air, even in situations with polluted intake air to ensure patient safety at all times. The seven cleaning stages of the MED/MED<sup>+</sup> have been carefully designed to make sure the air quality at the outlet is in compliance with the European Pharmacopeia monograph.

	European Pharmacopeia
O <sub>2</sub>	20.4% < x < 21.4%
CO <sub>2</sub>	<500 ppm
CO	<5 ppm
SO <sub>2</sub>	<1 ppm
NO <sub>x</sub>	<2 ppm
Water vapor	ADP -45°C (-49°F) / PDP -31°C (-23°F)
Oil vapor	<0.1 mg/m <sup>3</sup>
Dirt particles	not specified
Taste and odor	taste and odor free

# COMPACT AND COST-EFFECIVE

We strive to provide the most cost-efficient solutions. This stand-alone medical air dryer with small footprint and integrated design fits into any space or setting. The MED/MED+ comes preassembled and ready for use—ensuring minimal installation time and cost.



## Optimize your system

Some applications may need or may benefit from additional options and more refined control and air treatment systems. To meet these needs, we have developed options and easily integrated compatible equipment.

OPTION	MED	MED+
EWD on filters and water drain	○	○
Inlet solenoid for remote control	-	○
NPT connection	-	○
QDT quality indicator	○	○
Catalyst (CO to CO <sub>2</sub> )	○	○
CO sensor	○	○
CO <sub>2</sub> sensor	○	○
O <sub>2</sub> sensor	○	-
Overflow protection (nozzle)	○	○
Gateway (Profibus, Modbus)	-	○

- : Not available

○ : Optional

# TECHNICAL SPECIFICATIONS

Type	Inlet pressure		Max. inlet flow			Purge	Pressure drop	
	bar(e)	psig	l/s	m <sup>3</sup> /h	cfm	%	dP, mbar	psi
MED 7 MED 7+	7	102	7.0	25.2	14.8	18.0	515	7.5
	10	145	8.4	30.2	17.8	15.4	515	7.5
	13	188	9.5	34.0	20.0	13.8	515	7.5
MED 15 MED 15+	7	102	15.0	54.0	31.8	18.0	530	7.7
	10	145	18.0	64.8	38.1	15.4	530	7.7
	13	188	20.3	72.9	42.9	13.8	530	7.7
MED 25 MED 25+	7	102	25.0	90.0	53.0	18.0	560	8.1
	10	145	30.0	108.0	63.6	15.4	560	8.1
	13	188	33.8	122	71.5	13.8	560	8.1
MED 35 MED 35+	7	102	35.0	126.0	74.2	18.0	595	8.6
	10	145	42.0	151.0	89.0	15.4	595	8.6
	13	188	47.3	170.0	100.0	13.8	595	8.6
MED 45 MED 45+	7	102	45.0	162.0	95.3	18.0	820	11.9
	10	145	54.0	194.0	114.0	15.4	820	11.9
	13	188	60.8	219.0	129.0	13.8	820	11.9
MED 65 MED 65+	7	102	65.0	234.0	138.0	18.0	660	9.6
	10	145	78.0	281.0	165.0	15.4	660	9.6
	13	188	87.8	316.0	186.0	13.8	660	9.6
MED 80 MED 80+	7	102	80.0	288.0	170.0	18.0	700	10.2
	10	145	96.0	346.0	203.0	15.4	700	10.2
	13	188	108.0	389.0	229.0	13.8	700	10.2
MED 100 MED 100+	7	102	100.0	360.0	212.0	18.0	820	11.9
	10	145	120.0	432.0	254.0	15.4	820	11.9
	13	188	135.0	486.0	286.0	13.8	820	11.9
MED 145 MED 145+	7	102	145.0	522.0	307.0	18.0	800	11.6
	10	145	174.0	626.0	369.0	15.4	800	11.6
	13	188	196.0	705.0	415.0	13.8	800	11.6

Flow mentioned is the maximum inlet flow to the MED/MED+.  
 Dryer unit performance measured according to ISO 7183, latest edition.  
 Quality of air measured according to ISO 8573-2, Ed. 1, 1996, ISO 8573-4, Ed. 1, 2001 and ISO 8573-5, Ed. 1, 2001 for filter used.

Reference conditions:  
 Compressed air inlet temperature: 35°C/100°F  
 Ambient temperature: 25°C/77°F  
 Inlet relative humidity: 100%.  
 Nominal working pressure: 7.5 bar(e)/109 psig, 10 bar(e)/145 psig and 12.5 bar(e)/181 psig respectively.

Limitations of operation:  
 Maximum/minimum ambient temperature: 40°C/1°C, 104°F/34°F  
 Maximum inlet compressed air temperature: 45°C/113°F  
 Maximum inlet pressure: 16 bar(e)/232 psig for 13 bar units.  
 Maximum pressure: 11 bar(e)/160 psig for 7.5 bar and 10 bar units.

Type	MED/MED+				
	Weight	Length	Width	Height	Connection
	kg	mm	mm	mm	
MED 7 MED 7+	140	650	1115	1204	1/2"
	169			1580	
MED 15 MED 15+	143	650	1115	1204	1/2"
	172			1580	
MED 25 MED 25+	143	650	1115	1204	1/2"
	172			1580	
MED 35 MED 35+	145	650	1115	1249	1"
	174			1580	
MED 45 MED 45+	159	650	1115	1419	1"
	188			1580	
MED 65 MED 65+	223	650	1115	1749	1"
	252			1840	
MED 80 MED 80+	244	850	1300	1419	1"
	273			1840	
MED 100 MED 100+	304	850	1300	1599	1 1/2"
	333			1840	
MED 145 MED 145+	359	850	1300	2019	1 1/2"
	388				

## ***COMMITTED TO SUSTAINABLE PRODUCTIVITY***

We stand by our responsibilities towards our customers, towards the environment and the people around us. We make performance stand the test of time. This is what we call – Sustainable Productivity.



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