

Atlas Copco

Compressed Air Filters



Sustainable Productivity

Atlas Copco



How clean is your air?

Your production processes and end products depend on the best quality compressed air. Untreated compressed air may cause extensive damage and lead to serious performance degradation. To protect your investment, equipment and processes, Atlas Copco offers a comprehensive line-up of innovative filtration solutions based on enhanced glass fiber media to meet your specific needs.

POTENTIAL CONTAMINANTS

Compressed air can be contaminated by dirt, water and oil, which can be further divided as follows:

- Dirt: micro-organisms, dust, solid particles, rust particles.
- Water: water vapor, condensed liquid water, water aerosols, acidic condensates.
- Oil: liquid oil, oil aerosol, hydrocarbon vapor.



THE NEED FOR PURITY

If these contaminants are not removed from a compressed air system, they can lead to numerous problems such as:

- Microbiological contamination.
- Corrosion within storage vessels and the distribution system.
- Damaged production equipment.
- Blocked or frozen valves, cylinders, air motors and tools.
- Premature unplanned desiccant changes for adsorption dryers.

Such problems will ultimately lead to inefficient production processes, and spoiled, damaged or to be reworked products. Contamination of compressed air can reduce production efficiency and increase manufacturing costs.





THE ATLAS COPCO SOLUTION

Building on many years of experience in compressed air solutions and continuous in-depth research and development, Atlas Copco offers the widest selection of filtration solutions and application knowledge. Our top-of-the-line DD+, DDp+, PD+, PDp+ and QD+ filters efficiently reduce all types of contamination with minimal pressure drop. These innovative filtration solutions with optimized glass fiber media suit the high-quality requirements of your specific application.

IMMENSE ENERGY SAVINGS

Furthermore, Atlas Copco's filters offer significant energy savings thanks to their optimized air flows and air flow path with low resistance, and housings and cartridges that are engineered for minimal pressure drop.

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How clean is our compressed air?

As compressed air is a critical utility found in most manufacturing facilities which comes into direct or indirect contact with your final products or processes, it is vital to establish a minimum acceptable air purity level. The International Organization for Standardization (ISO) is the world's largest developer and publisher of international standards, and ISO 8573 relates to compressed air. Atlas Copco designs filtration solutions to provide compressed air purity that meets the levels specified in this standard.



COMPRESSED AIR ACCORDING TO ISO 8573-1:2010

ISO 8573-1:2010 specifies purity classes of compressed air with respect to particles, water and oil, independent of the location in the compressed air system at which the air is specified or measured.

PURITY CLASS	Solid particles			Water		Total oil*
	Number of particles per m ³			Pressure dewpoint		Concentration
	0.1-0.5 µm	0.5-1.0 µm	1.0-5.0 µm	°C	°F	mg/m ³
0	As specified by the equipment user or supplier and more stringent than Class 1.					
1	≤ 20,000	≤ 400	≤ 10	≤ -70	≤ -94	≤ 0.01
2	≤ 400,000	≤ 6,000	≤ 100	≤ -40	≤ -40	≤ 0.1
3	-	≤ 90,000	≤ 1,000	≤ -20	≤ -4	≤ 1
4	-	-	≤ 10,000	≤ 3	≤ 37.4	≤ 5
5	-	-	≤ 100,000	≤ 7	≤ 44.6	-
6	≤ 5 mg/m ³			≤ 10	≤ 50.0	-

* Liquid, aerosol and vapor.

ISO 8573-1 CLASS 0 CERTIFICATION

As leader in the field of oil-free air compression technology, Atlas Copco was the first manufacturer to be awarded ISO 8573-1 Class 0 certification for its Z and AQ series of oil-free compressors.

Only oil-free compressors deliver oil-free air.



IMPORTANT GUIDELINES

When selecting purification equipment for your compressed air system, these are some useful guidelines to consider:

- 1** Each point of use in the system may require a different quality of compressed air, dependent on the application.
- 2** Ensure that the purification equipment being considered will actually provide delivered air purity in accordance with classifications selected from the table above.
- 3** When comparing filters, ensure that they have been tested in accordance with the ISO 8573 and ISO 12500 series of standards.
- 4** The filter performance is highly dependent on the inlet conditions. Keep this in mind when comparing filtration solutions.
- 5** When considering the operational costs of oil coalescence filters, only compare the initial saturated pressure loss, as dry pressure loss is not representative for performance in a normally wet compressed air system.
- 6** For dust filters, mind that the pressure drop rises over time. A low starting pressure drop does not mean it will remain low throughout the filter element's lifetime.
- 7** Consider the total cost of ownership for purification equipment (purchase, operational and maintenance costs).

Your Atlas Copco representative can help you select the most optimal purification equipment for your compressed air system.



High performance filtration

In almost all applications, contamination of the air supply can cause serious performance decline and increase maintenance costs in terms of actual repairs and lost productivity. Atlas Copco's innovative filtration solutions are engineered to cost-effectively provide the best quality air and meet today's increasing quality demands. They are fully certified according to ISO standards by independent laboratories.



For optimal filtration, Atlas Copco filters apply a triple filtration function: inertial impaction, direct interception, and diffusion.



DD+ FILTER RANGE

Coalescing filters for general purpose protection, removing solid particles, liquid water and oil aerosol.

Total Mass Efficiency: 99.3%.

For optimum filtration, a DD+ filter should be preceded by a water separator.



DDp+ FILTER RANGE

Particulate filters for dust protection.

Count Efficiency: 99.92% at most penetrating particle size.

A DDp+ filter should be preceded by a dryer at all times.



PD+ FILTER RANGE

High-efficiency coalescing filters, removing solid particles, liquid water and oil aerosol.

Total Mass Efficiency: 99.92%.

For optimum filtration, a PD+ filter should be preceded by a DD+ filter at all times.



PDp+ FILTER RANGE

High-efficiency particulate filters for dust protection. Count Efficiency: 99.98% at most penetrating particle size.

A PDp+ filter should be preceded by a dryer at all times.



QD+ FILTER RANGE

Activated carbon filter for removal of oil vapor and hydrocarbon odors with a maximum remaining oil content of 0.003 mg/m³ (0.003 ppm).

1,000 hour lifetime.



QDT FILTER RANGE

Activated carbon filter with long lifetime for removal of oil vapor and hydrocarbon odors with a maximum remaining oil content of 0.003 mg/m³ (0.003 ppm).

4,000 hour lifetime.

For optimum filtration, a QD+/QDT filter should be protected by the right pre-filtration including a DD+ and PD+ filter at all times.

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Meeting your every demand

The quality of air required throughout a typical compressed air system varies. With its extensive filter range, Atlas Copco can perfectly match your precise requirements, ensuring that all types of contamination are avoided and costs are reduced to an absolute minimum.

	DDp+	PDp+	DD+	PD+
Filter type	Solid particles	Solid particles	Oil aerosol & solid particles	Oil aerosol & solid particles
Test method	ISO 12500-3	ISO 12500-3	ISO 8573-2, ISO 12500-1	ISO 8573-2, ISO 12500-1
Count efficiency (% at MPPS)	(MPPS=0.1 µm) 99.92	(MPPS=0.06 µm) 99.98	NA	NA
Count efficiency (% at 1 µm)	99.998	> 99.999	NA	NA
Count efficiency (% at 0.01 µm)	99.93	99.995	NA	NA
Max oil carry-over (mg/m³)	NA	NA	0.07*	0.008*
Dry pressure drop (mbar)	85	100	NA	NA
Wet pressure drop (mbar)*	NA	NA	180	215
Wet pressure drop (mbar), in typical compressor installation	NA	NA	160	175 ***
Element service	After 4,000 operating hours or 1 year or pressure drop > 350 mbar	After 4,000 operating hours or 1 year or pressure drop > 350 mbar	After 4,000 operating hours or 1 year	After 4,000 operating hours or 1 year
Precede with	-	DDp+	WSD	WSD & DD+

	QD+	QDT
Filter type	Oil vapor	Oil vapor
Test method	ISO 8573-5	ISO 8573-5
Count efficiency (% at MPPS)	NA	NA
Count efficiency (% at 1 µm)	NA	NA
Count efficiency (% at 0.01 µm)	NA	NA
Max oil carry-over (mg/m³)	0.003**	0.003**
Dry pressure drop (mbar)	140	350
Wet pressure drop (mbar)*	NA	NA
Wet pressure drop (mbar), in typical compressor installation	NA	NA
Element service	After 1,000 operating hours (at 20°C) or 1 year	After 4,000 operating hours (at 35°C) or 1 year
Precede with	WSD & DD+ & PD+	WSD & DD+ & PD+

* Inlet oil concentration = 10 mg/m³, particle size distribution with mean size as close to MPPS as allowed by ISO, to represent a real compressor's outlet.

** Inlet oil concentration = 0.01 mg/m³.

*** PD+ after DD+

EXTREMELY RELIABLE HOUSINGS

Atlas Copco filter elements are incorporated into solid, durable housings. These housings are designed with a keen eye for serviceability, which makes replacing the filter elements easy.

The threaded range covers from 10 l/s to 550 l/s. A high-pressure range from 15 l/s to 490 l/s is also available.



The flanged range covers from 550 l/s to 8000 l/s.



Fully tested to all relevant ISO standards

Atlas Copco filters are qualified according to the ISO 8573-1:2010 standards. This is the latest edition of the standard. Beware of filters that comply with earlier editions of the standard, such as ISO 8573-1:1991 or ISO 8573-1:2001. These may result in a different, inferior quality of delivered compressed air.

Furthermore, our filters comply with ISO 12500-1:2007 and ISO 12500-3:2009, which specifies the test layout and test procedures required for testing coalescing filters and solid particle filters used in compressed air systems to determine their effectiveness in removing oil aerosols and solid particles.



ISO CERTIFICATION

Atlas Copco's filters have been fully tested and qualified according to the following ISO standards:

- ISO 8573: Compressed air
- ISO 8573-1: Compressed air - Contaminants and purity classes
- ISO 8573-2: Compressed air - Test method for oil aerosol content
- ISO 8573-4: Compressed air - Test method for dust
- ISO 12500: Filters for compressed air - test methods
- ISO 12500-1: Filters for compressed air – test methods – oil aerosols
- ISO 12500-3: Filters for compressed air – test methods – particulates

Tests have been conducted in-house and in external labs, and independently validated by TÜV.

SUITABLE FOR FOOD APPLICATIONS

Compressed air may come into direct or indirect contact with food. When this happens, for example during production or processing, this requires a much higher level of contaminant control. Particular attention needs to be given to contaminants added during the compression and the distribution process, such as bread packaging, fluidized bed in the transfer of flour from a tanker etc. Atlas Copco's filters comply with the bacteriological filtration grade and the British Compressed Air Society (BCAS) Food Grade Compressed Air Code of Practice. Non-contact recommendation is purity class 1:4:1 according to ISO 8573-1:2010.



Ideal for all points of use

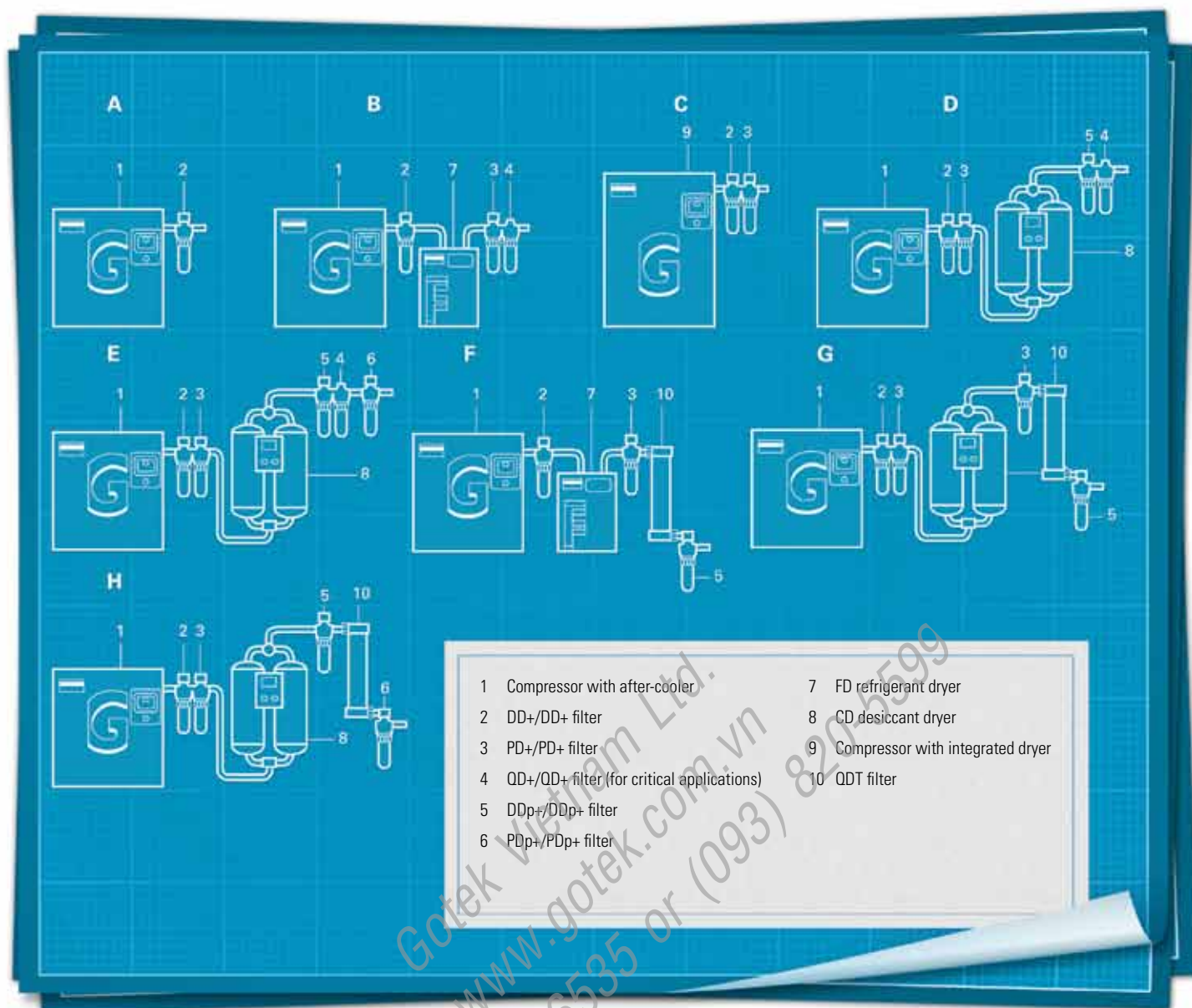
As mentioned earlier, at different points of use, different air qualities might be needed, depending on the application. The various air purity classes are expressed in the table below, which clearly shows the various Atlas Copco filters and dryers that meet all the different classes.

ISO 8573-1:2010 CLASS	Solid particles		Water	Oil
	Wet conditions	Dry conditions		(liquid, aerosol, vapor)
0				Oil-free compressor
1	DD+ & PD+	DDp+ & PDp+	CD/BD/AD/XD desiccant dryer	DD+ & PD+ & QD+/QDT
2	DD+	DDp+	CD/BD/AD/XD/MD/ND desiccant dryer	DD+ & PD+
3	DD+	DDp+	CD/BD/AD/XD/MD/ND desiccant dryer, SD membrane dryer	DD+
4	DD+	DDp+	FD/ID/FX refrigerant dryer, SD membrane dryer	DD+
5	DD+	DDp+	FD/ID/FX refrigerant dryer, SD membrane dryer	-
6	-	-	FD/ID/FX refrigerant dryer, SD membrane dryer	-



Unequalled filter performance

For every required air purity, Atlas Copco delivers a dedicated filtration and dryer solution. Some examples of typical installations are given below. Your service engineer will assist to provide you with a customized solution for each requirement.



A	General purpose protection (air purity to ISO 8573-1: class 2.-3)
B	High quality air with reduced dew point (air purity to ISO 8573-1: class 1:4:1)
C	General purpose protection and reduced oil concentration (air purity to ISO 8573-1: class 1.-2)
D	High quality air with extremely low dew point (air purity to ISO 8573-1: class 2:2:1)
E	High quality air with extremely low dew point (air purity to ISO 8573-1: class 1:2:1)
F	Upper class quality air with reduced dew point (air purity to ISO 8573-1: class 2:4:1)
G	Upper class quality air with extremely low dew point (air purity to ISO 8573-1: class 2:2:1)
H	Upper class quality air with extremely low dew point (air purity to ISO 8573-1: 1:2:1)

Maximize efficiency, improve reliability, save costs

As the cost of compressed air can represent over 40% of your total energy expenses, conducting an energy efficient strategy is one of your top priorities. Incorporating innovative filter design as well as beneficial cartridge changes, Atlas Copco's filter range offers you real energy savings without compromise in production reliability and efficiency.



Recommended filter cartridge change:

- DD+, PD+, QDT: at least once a year or every 4,000 hours.
- DDp+, PDp+: at least once a year or every 4,000 hours or when the pressure drop reaches 350 mbar.
- QD+: at least once a year or every 1,000 hours.

OPTIMIZING FILTER PERFORMANCE

To obtain supreme air purity, optimal filter performance is the key. As one of the main filter components protecting your compressed air system, the cartridge continuously comes into contact with oily, acidic condensate and dirt particles. To guarantee high filtration capabilities at the

same low energy costs, an annual cartridge change is essential. This not only assures high filter performance with low pressure drop but also safeguards your valuable equipment, production process and, most importantly, your end product.

SUPREME FILTRATION

Designed to meet current and future demands, Atlas Copco's DD+ and PD+ filter ranges feature an exceptional flow path through the housing and cartridge which reduces air turbulence and pressure drops. In addition, it also limits operating pressure and offers you real energy savings without compromise in production reliability and efficiency.



Significant cost savings

Designed to combine maximum contaminant removal efficiency with minimum pressure drop, Atlas Copco's state-of-the-art filters contribute to low energy consumption of your compressed air system. This is possible through their enhanced glass fiber filter media in a deep-wrapped structure, low resistance to the air flow, and the housing and cartridge that are engineered for minimal pressure drop.



CREATE AN ENERGY REDUCTION STRATEGY

Taking technology to a whole new level, Atlas Copco's filter range achieves maximum cost savings, allowing you to conduct a truly efficient energy reduction strategy while maintaining a superb filtration performance.

ENERGY COSTS OF HIGH PRESSURE DROP

A pirate part might be cheaper in actual purchase cost. However, initial purchase cost is not the only cost to consider. Saving energy costs might be less tangible but every mbar pressure drop negatively affects power

consumption and operating cost. For a unit running at 120 l/s at 7 bar and 4,000 hours/year, an additional pressure drop of 200 mbar costs an extra 200 euro per year.

Proven peace of mind

Building on Atlas Copco's know-how and years of experience with compressed air solutions, the entire filter range is produced in-house, on the most advanced production lines, and tested using the most stringent methods in the industry. You can rest assured at all times: severe certification and testing procedures are conducted to ensure air is supplied to the highest standards of quality control.

YOUR PARTNER FOR A TOTAL QUALITY AIR SOLUTION

To further reduce any type of contamination within your process and protect your equipment, Atlas Copco presents a complete range of quality air solutions to meet your every need. This way, only Atlas Copco can ensure 100% quality... not only at the time of delivery, but for many, many years to come. A total quality air solution for any application.



ALL THE ACCESSORIES AND OPTIONS YOU NEED

- Filter connection kit allows easy mounting of filters in series (sizes 10-550 l/s).
- Wall mounting kit simplifies installation (sizes 10-550 l/s).
- Quick coupling for easy connection to drain collector or oil/water separator (sizes 10-550 l/s).
- Voltage-free contact mounted in the differential pressure gauge, to give remote indication of cartridge replacement.
- EWD electronic drain with no loss of compressed air and an alarm function (EWD is optional on sizes 10-550 l/s; standard on sizes $\geq 550F$).





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!

