COALESCING FILTERS

UD+ Series (9-8.000 l/s / 19-16.952 cfm)
Nautilus filter technology

Atlas Copco

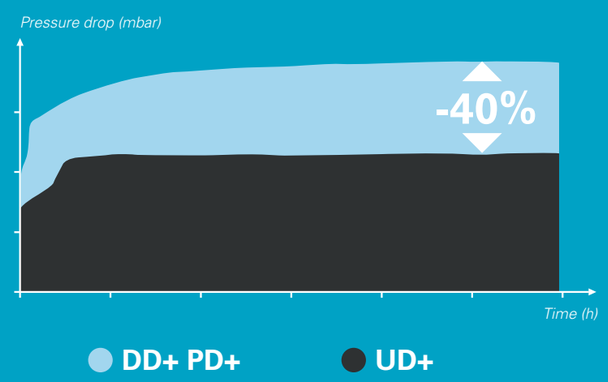
HOW CLEAN IS YOUR AIR?

Your production processes and end products depend on the air purity of the 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 to meet your specific needs.

The two-in-one filter

Unlike currently available technologies, Nautilus filter technology allows significant improvements in energy efficiency, without any compromise on filter performance or reliability. The first filters to make use of this innovative technology are Atlas Copco UD+ filters. These filters combine two filtration steps into one, hereby meeting the high-quality requirements of diverse applications and providing a range of significant benefits:

1. **40% pressure drop reduction**
   UD+ filters provide a significant pressure drop reduction combined with best-in-class filtration efficiency.
2. **Pure air**
   Air quality is equal to that obtained using two filters in line, thanks to the thick filter package of the UD+ filters.
3. **Save energy**
   A 40% lower pressure drop than the conventional DD+/PD+ combination results in 40% higher energy efficiency.
4. **Save space**
   The two-in-one filtration concept reduces installation space and complexity, making UD+ filters particularly suitable for applications where space is at a premium.
5. **Save money**
   Install UD+ filters to enjoy significant cost savings compared to conventional filters.



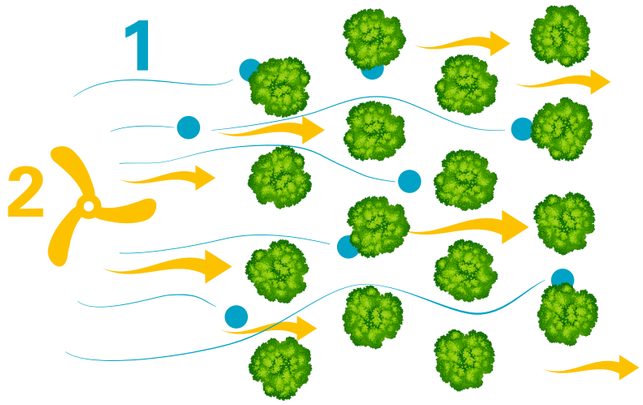
INNOVATIVE TECHNOLOGY, EXCEPTIONAL PRODUCTS

Building on many years of experience and backed by extensive in-house testing, our Atlas Copco engineers gained completely new insights into oil coalescing filtration. The result is our Nautilus filter technology based on unique, low-density filter media, with the sophistication and looks of a nautilus shell.

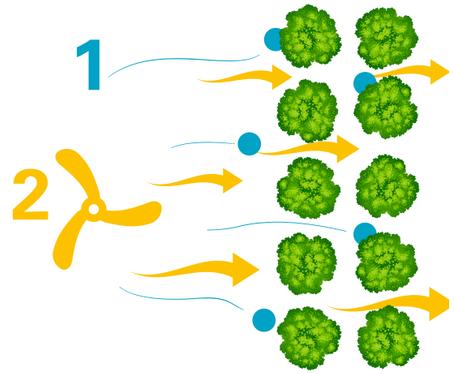
How does Nautilus filter technology work?

To explain Nautilus filter technology, we use the metaphor of a forest. The trees are the glass fibers in the filter media – strategically placed so that nothing can get past them. Now think of a balloon – representing the oil and solid particles you want to filter from the air – trying to pass through the forest. The air current will move the balloon and it will get stuck in the leaves of the trees.

Nautilus filter technology



Classic filter technology



1 Nautilus filter technology uses filter media of a lower density than in classic coalescing filter technology. Even though the glass fibers in the filter media are not placed as closely to each other as with classic coalescing filters, the forest is significantly larger, resulting in extremely low oil carry-over. The outcome is The outcome is **BEST-IN-CLASS PERFORMANCE**.

2 Less dense filter media used in Nautilus filter technology ensure much easier passage of the air. This reduces the pressure drop and leads to a filter that is much more energy efficient. Combined with the two-in-one filtration concept, the result is 40% **PRESSURE DROP REDUCTION**.

In classic filter technology sometimes pleated technology is used to reduce the pressure drop. This increases the risk of cracking and therefore the risk of oil carry-over and poor air quality. Nautilus filter technology runs no risk of cracks in the filter media, because the filter media are wrapped around the filter. The result is **PEACE OF MIND**.

HIGH PERFORMANCE AND RELIABLE FILTRATION

7

The double drainage layer (outer protection paper and foam)

- Large drainage capacity which is ideal for variable speed compressors.
- The polyurethane foam avoids oil re-entrainment.

1

High-performance stainless steel filter cores

Ensure ultimate strength and low risk of implosion.

2

Protection paper

Avoids direct contact between filter media and stainless steel filter cores.

3

Epoxy sealed caps

Reliable filtration.

4

Double O-rings (up to UD 550+)

Guarantee proper sealing to reduce leakage risks and increase energy savings.

5

Push-on element

Increased user friendliness and reliability.

6

Thick package of enhanced glass fiber media

- Based on Nautilus filter technology.
- Ensures high filter efficiency, low pressure drop, and guaranteed lifetime performance.

ISO Certification

As leader in the field of oil-free air compression technology, Atlas Copco was the first manufacturer to be awarded ISO 8573-1:2010 Class 0 certification for its Z and AQ series of oil-free compressors. Also for filters Atlas Copco has always been at the forefront when it concerns certification. Our new UD+ filters comply with all applicable ISO standards for filtration, such as ISO 12500-1:2007 and ISO 8573-2:2007.

Whereas normally a DD+/PD+ combination would need to be used, the TÜV certificate clarifies that an air purity of 0,0009 mg/m³ can be reached with only one UD+ filter (as measured under the test conditions according to ISO12500-1:2007). As such, the UD+ filter guarantees best-in-class efficiency, validated by TÜV Rheinland.

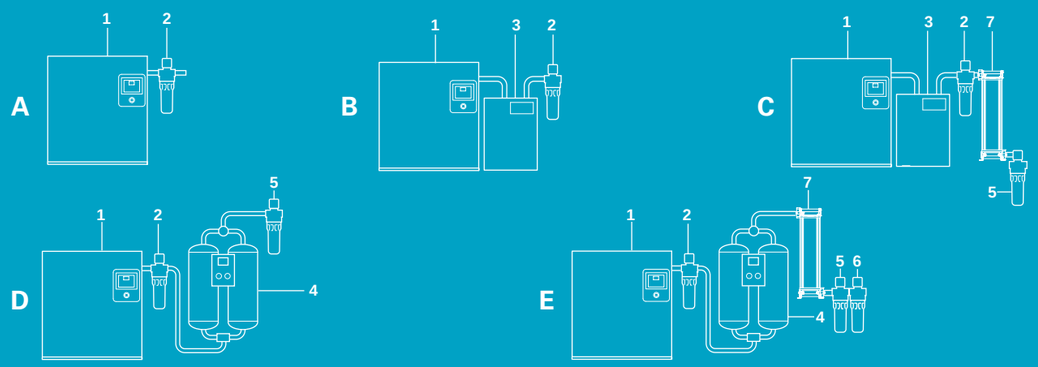
With regards to pressure drop, the TÜV certificate clarifies that 245 mbar can be reached using a UD+ filter. The replacement of a DD+/PD+ combination by a UD+ filter then results in a pressure drop reduction of 40%, which means higher energy efficiency, as validated by TÜV Rheinland.

Guaranteed air purity & energy efficiency

DD+ 0,07 mg/m³ 180 mbar **+** **PD+** 0,008 mg/m³ 215 mbar ▶ **UD+** 0,0009 mg/m³ 245 mbar

A FILTER SOLUTION FOR EVERY AIR PURITY

For every required air purity, Atlas Copco delivers a dedicated filtration and dryer solution. Some examples of typical installations are given below. Our sales engineer will advise you on choosing a customized solution for each requirement.



1. Compressor
2. UD+ filter
3. Refrigerant dryer
4. Desiccant dryer
5. DDp+ filter
6. PDp+ filter
7. QDT filter

A	Compressor - UD+	Air purity class ISO 8573-1:2010 [1:-:2]
B	Compressor - Refrigerant dryer - UD+	Air purity class ISO 8573-1:2010 [1:4:2]
C	Compressor - Refrigerant dryer - UD+ - QDT - DDp+	Air purity class ISO 8573-1:2010 [2:4:1]
D	Compressor - UD+ - Desiccant dryer - DDp+	Air purity class ISO 8573-1:2010 [2:2:2]
E	Compressor - UD+ - Desiccant dryer - QDT - DDp+ - PDp+	Air purity class ISO 8573-1:2010 [1:2:1]

The compressor should be equipped with a liquid water separation system such as an after cooler including drain or a water separator (WSD). No liquid water should enter the filtration system.

Compressed air purity classification ISO 8573-1:2010

PURITY CLASS	Solid particles			Water		Total oil*
	Number of particles per m³			Pressure dewpoint		Concentration
	0,1 < d ≤ 0,5 µm**	0,5 < d ≤ 1,0 µm**	1,0 < d ≤ 5,0 µm**	°C	°F	mg/m³
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/m³			≤ 10	≤ 50	-

** Liquid, aerosol and vapor.*
*** d = diameter of the particle.*

Accessories & Options

- Replacement kit*
- Wall mounting kit*
- Drain quick coupling*
- Voltage-free contact mounted in the differential pressure gauge
- EWD electronic drain (optional on sizes 9-550 l/s, standard on sizes ≥550F)
- Serial connection kit*

The DD+/PD+ replacement kit allows existing customers to upgrade their current filter train to benefit from Nautilus filter technology.
** Up to UD 550+.*

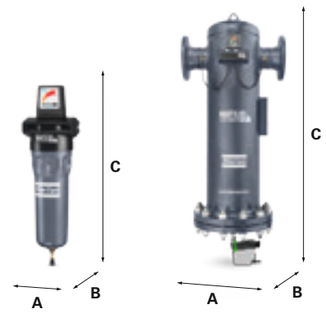
TECHNICAL SPECIFICATIONS

	UD+
Filter type	Oil aerosol and solid particles
Test method	ISO 12500-1:2007, ISO 8573-2:2007
Maximum oil carry-over (mg/m³)	0,0009
Wet pressure drop (mbar)*	245
Wet pressure drop (mbar), in typical compressor installation**	225
Element service	After 4.000 operating hours or 1 year
Precede with	WSD

** 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 = 3 mg/m³.*

FILTER SIZE	Nominal capacity		Reference pressure		Maximum pressure		Connections	Dimensions						Free space for cartridge replacement		Weight	
								A		B		C		D			
	l/s	cfm	bar(e)	psig	bar(e)	psig		mm	in	mm	in	mm	in	mm	in	kg	lbs
UD 9+	9	19	7	102	16	232	3/8"	90	3,5	61	2,4	268	10,6	75	2,9	1,0	2,2
UD 15+	15	32	7	102	16	232	1/2"	90	3,5	61	2,4	268	10,6	75	2,9	1,1	2,4
UD 25+	25	53	7	102	16	232	1/2"	90	3,5	61	2,4	323	12,8	75	2,9	1,3	2,9
UD 45+	45	95	7	102	16	232	3/4" & 1"	110	4,3	99	3,9	374	14,7	75	2,9	1,6	4,2
UD 60+	60	127	7	102	16	232	1"	110	4,3	99	3,9	414	16,3	75	2,9	2,1	4,6
UD 100+	100	212	7	102	16	232	1"	140	5,5	105	4,0	425	16,7	100	3,9	3,7	8,2
UD 140+	140	297	7	102	16	232	1"-1/2"	140	5,5	105	4,1	520	20,5	100	3,9	4,2	9,3
UD 180+	180	381	7	102	16	232	1"-1/2"	140	5,5	105	4,1	603	23,7	100	3,9	4,5	9,9
UD 220+	220	466	7	102	16	232	1"-1/2"	140	5,5	105	4,1	603	23,7	100	3,9	4,6	10,1
UD 310+	310	657	7	102	16	232	2" & 2"-1/2"	179	7,1	121	4,8	689	27,1	150	5,9	6,9	15,2
UD 425+	425	901	7	102	16	232	3"	210	8,3	128	5,1	791	31,1	200	7,9	11,0	24,2
UD 550+	550	1.165	7	102	16	232	3"	210	8,3	128	5,1	961	37,8	200	7,9	12,6	27,8
UD 550+F	550	1.165	7	102	16	232	DN80	370	14,6	280	11,0	1.295	51,0	1.375	54,1	76,0	167,6
UD 850+F	850	1.801	7	102	16	232	DN100	510	20,1	410	16,1	1.360	53,5	1.500	59,1	141,0	310,9
UD 1100+F	1.100	2.331	7	102	16	232	DN100	510	20,1	410	16,1	1.360	53,5	1.500	59,1	143,0	315,3
UD 1400+F	1.400	2.967	7	102	16	232	DN150	620	24,4	485	19,1	1.480	58,3	1.560	61,4	210,0	463,0
UD 1800+F	1.800	3.814	7	102	16	232	DN150	640	25,2	490	19,3	1.555	61,2	1.640	64,6	176,0	388,0
UD 2200+F	2.200	4.662	7	102	16	232	DN150	640	25,2	490	19,3	1.555	61,2	1.640	64,6	178,0	392,4
UD 3000+F	3.000	6.357	7	102	16	232	DN200	820	32,3	650	17,7	1.745	68,7	1.710	67,3	420,0	925,9
UD 4000+F	4.000	8.476	7	102	16	232	DN200	820	32,3	650	17,7	1.745	68,7	1.710	67,3	428,0	943,6
UD 5000+F	5.000	10.595	7	102	16	232	DN200	820	32,3	650	17,7	1.745	68,7	1.710	67,3	432,0	952,4
UD 6000+F	6.000	12.714	7	102	16	232	DN250	920	36,2	815	32,1	2.085	82,1	1.625	64,0	671,0	1479,3
UD 7000+F	7.000	14.833	7	102	16	232	DN250	920	36,2	815	32,1	2.085	82,1	1.625	64,0	675,0	1488,1
UD 8000+F	8.000	16.952	7	102	16	232	DN300	1.040	40,9	930	36,6	2.070	81,5	1.625	64,0	900,0	1984,2

Inlet pressure (bar)	1	2	3	4	5	6	7	8	10	12	14	16
Inlet pressure (psig)	15	29	44	58	72,5	87	102	116	145	174	203	232
Correction factor	0,38	0,53	0,65	0,75	0,83	0,92	1,00	1,06	1,20	1,31	1,41	1,50



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.

LLOYD'S REGISTER · LRQA
ISO 9001 • ISO 14001
OHSAS 18001

Atlas Copco

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