



PN16
PN50

Filtration | CLEARPOINT® 3eco Threaded Filter

CLEARPOINT® 3eco: The new high-performance and increased energy efficiency threaded filter generation

Improved Oil Separation Performance

The latest generation of the CLEARPOINT® 3eco compressed air filter series has enabled us to improve our solutions for compressed air filtration and be able to increase the deposition rate for oil aerosols by up to 10 fold. The differential pressure can be simultaneously reduced by up to 50% and the energy efficiency can therefore be considerably optimised. For these reasons we are very pleased to add our ECO-Label on this product.

Energy efficient and safe compressed air filtration

Taking advantage of new material and production technologies as well as a flow-optimised, corrosion-protected housing design, CLEARPOINT® 3eco provides safe and reliable filtration and a qualitative improved compressed air with considerably reduced operating costs.

Three filtration rates fulfil every requirement

The particularly high deposition performance makes it possible to fulfil every compressed air filtration requirement with just 3 filtration rates – C (Coarse), F (Fine) and S (Ultra-fine). The new 3eco-filter has of course also been validated by the independent IUTA Institute according to ISO 12500.

› High-performance filtration

- › Up to 10-fold increased oil aerosol deposition rates
- › Increased process safety
- › Efficient filtration between 30% and 130% for the energy-optimised volume flows

› Optimum energy efficiency

- › Extremely reduced differential pressure
- › Reductions in energy and operating costs
- › Up to 30% higher volume flow

› Application-based

- › Able to fulfil every compressed air filtration requirement with just 3 filtration rates
- › Simplified assembly, installation, service and maintenance
- › Reliable operation
- › Performance range from 35 to 3,120 m³/h at 7 bar

› Tried and tested filter housing

- › Highly qualitative, safe and durable
- › Flow-optimised air circulation
- › Simple, safe and space-saving connection to multiple filters
- › Rapid exchange for filter elements

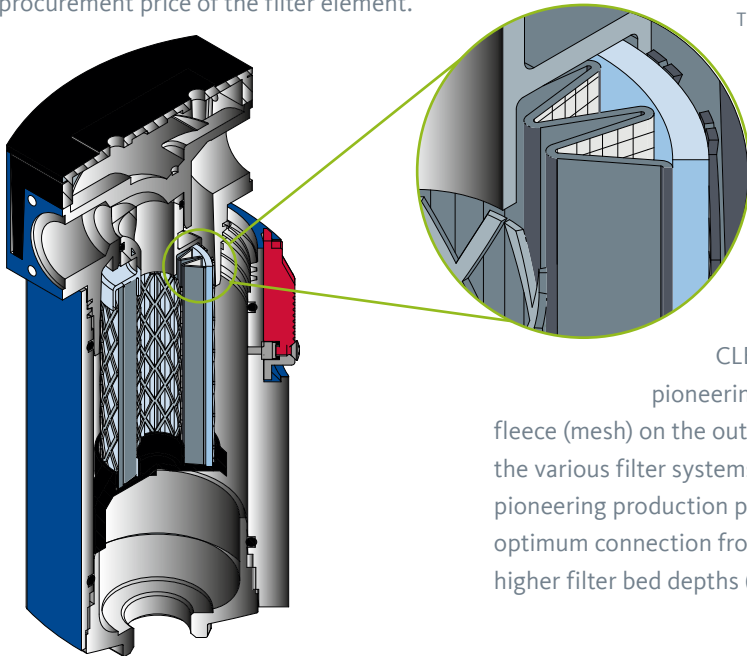
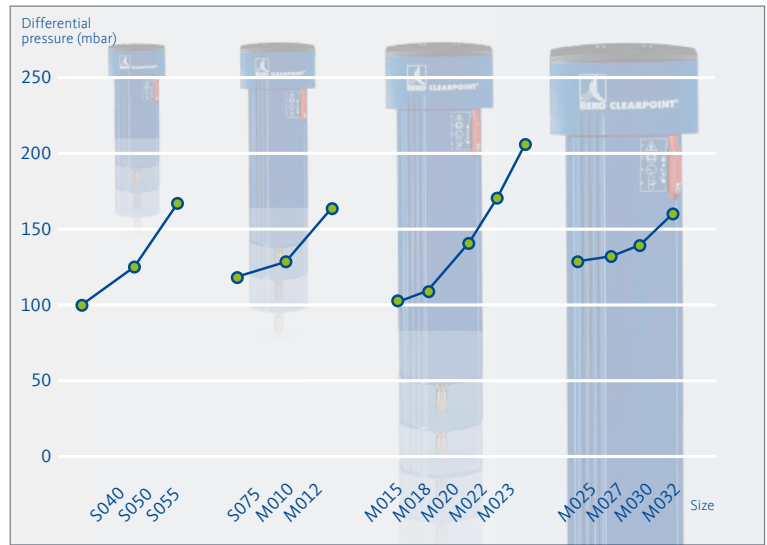


CLEARPOINT® 3eco – Low Operating Costs by Utilising Optimised Differential Pressure



The decisive factor when evaluating the service life costs for compressed air filters is the energy consumption which occurs during differential pressure. This differential pressure with the new CLEARPOINT® 3eco filter elements is particularly low. The energy consumption resulting from the filter hereby sinks by up to 50 % compared to the CLEARPOINT® 3E filters. The filters can be implemented as designed for energy efficient or performance oriented.

With a typical 30 kWh compressor (300 m³/h) with 8,760 operating hours annually and electricity costs of 10 Cent per kWh, this results in annual savings of up to 185 € per filter. This saving correlates to roughly the procurement price of the filter element.



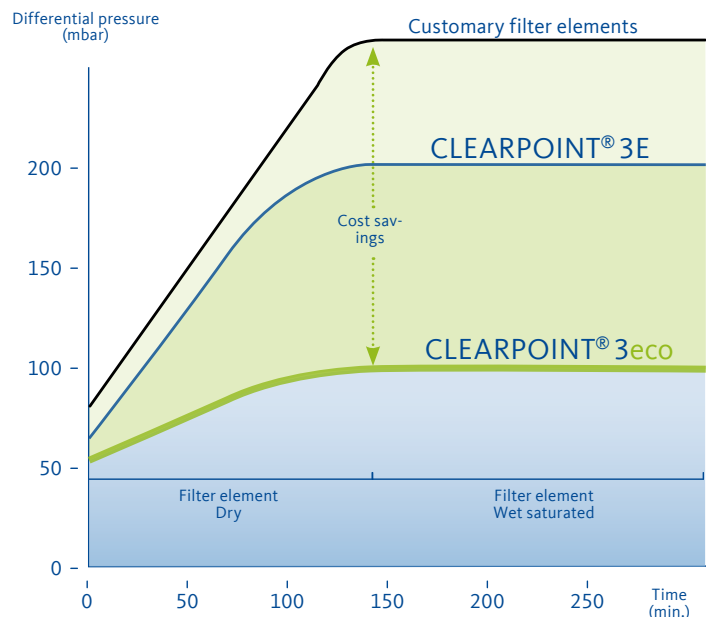
The differential pressure for the new S-Filter in wet-saturated condition for the modular constructed filter dimensions with energy-efficient designed volume flow. The jumps in the curve result from the respective lengths / diameter relationships for the various filter sizes.

New material and production processes make everything possible

The considerable performance increases with the CLEARPOINT® 3eco filters are made possible by utilising pioneering materials: An innovative, open synthetic support fleece (mesh) on the outside of the filter medium ensures the required rigidity for the various filter systems, without thereby reducing the filter surface area. The pioneering production processes by utilising Softpleat technology provide the optimum connection from many surfaces (important for particle deposition) and higher filter bed depths (ensures the deep filtration, especially for oil aerosols).

Considerable cost reductions by utilising the new CLEARPOINT® 3eco Generation

The new CLEARPOINT® 3eco filter lowers the operating costs considerably more when compared to the previous, CLEARPOINT® 3E filters. The annual energy savings are sometimes even higher than the purchasing price for the filter elements. They also increase the process safety and efficiency accordingly.



The operating costs for the CLEARPOINT® 3eco filter can be considerably lowered. The graphic illustrates them on an example of the S040 filter with filter rating S with energy-optimised volume flow.

CLEARPOINT® 3eco S040 – M032 Threaded Filter:

PN16

		S040	S050	S055	S075	M010	M012	M015	M018	M020	M022	M023	M025	M027	M030	M032
Connection (in inches)		3/8 (1/2)	1/2	1/2	3/4 (1)	1	1	1 1/2 (2)	1 1/2 (2)	2	2	2	2 1/2 (3)	2 1/2 (3)	3	3
Energy optimised	Volume flow 7 bar (m³/h),	35	65	100	150	200	250	320	420	600	780	1020	1300	1620	1940	2400
	Differential pressure in mbar (wet saturated)	C-Degree	ø 50 mbar													
		F-Degree	80	115	150	105	120	165	80	90	120	150	200	100	115	120
S-Degree		100	125	170	120	135	180	100	110	140	170	210	125	130	140	165
Performance-oriented	Volume flow * 7 bar (m³/h),	46	85	130	195	260	325	415	545	780	1015	1325	1690	2100	2520	3120
	Differential pressure in mbar (wet saturated)	C-Degree	ø 70 mbar													
		F-Degree	105	160	230	150	180	230	110	125	180	210	290	140	155	180
S-Degree		125	170	255	175	200	260	130	150	210	250	320	170	185	210	250
Volume (l)		0.25	0.31	0.42	0.87	1.12	1.26	2.52	2.97	3.40	4.23	5.24	13.88	16.49	19.51	23.24
Weight (kg)		0.75	0.85	1.20	1.70	2.10	2.20	4.10	4.50	5.10	6.10	7.10	19.9	22.6	25.9	29.9
Category according to PED 2014/68/EU, Fluid Group 2		-	-	-	-	-	-	-	-	I	I	I	II	II	II	II

* In case of deviating operating pressure, please multiply the stated volume flow with the corresponding correction factor for the actual operating pressure.

Dimensions																
A (mm)	75	75	75	100	100	100	146	146	146	146	146	260	260	260	260	
B (mm)	28	28	28	34	34	34	48	48	48	48	48	77	77	77	77	
C1 (mm)	395	425	480	495	565	600	580	633	683	780	898	886	990	1010	1260	
C2 (mm)	180	210	265	280	350	385	365	418	468	565	683	671	775	895	1045	
D (mm)	150	150	150	150	150	150	160	160	160	160	160	200	200	200	200	

Filtration rate	Oil aerosol			Particle		Class according to ISO 8573-1
	Oil aerosol-deposition rate	Inlet concentration (mg/m³)	Outlet concentration (mg/m³)	Particle deposition	Particle size	
Coarse Filter C	84.00%	30	≤5	99.00%	2.0-5.0 µm	4.-.4
Fine Filter F	99.50%	10	0.05	99.83%	0.5-2.0 µm	2.-.2
Ultra-fine Filter S	99.95%	10	0.005	99.98%	0.1-0.5 µm	1.-.2*

* In order to achieve Class 1.-.1, an additional active carbon filter and dust filter are generally required as the coalescence filter cannot retain the oil vapour.

Filter element temperature resistance: 100 °C wet saturated/ 120 °C dry
Effective filtration at 30% of the nominal/ energy-efficient volume flows

Filtration ratio	C (Coarse)	F (Fine)	S (Ultra-fine)
Initial differential pressure Dry	30 mbar	50 mbar	60 mbar

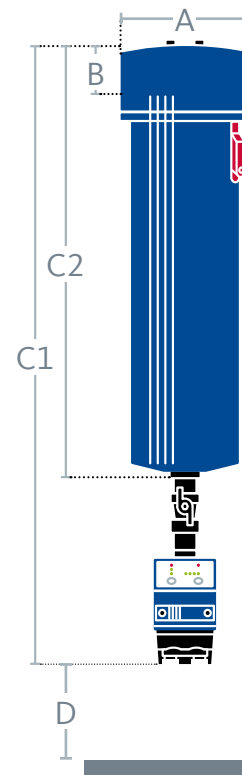
PN16 Correction Factors

bar	0.3	0.6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction factor	0.21	0.29	0.38	0.53	0.65	0.76	0.84	0.92	1	1.07	1.13	1.19	1.25	1.31	1.36	1.41	1.46	1.51

	HP50 S040	HP50 S050	HP50 S055	HP50 S075	HP50 M010	HP50 M012	HP50 M015	HP50 M018	HP50 M020	HP50 M022	HP50 M023
Connection (in inches)	3/8 (1/2)*	1/2	1/2	3/4 (1)*	1	1	1 1/2 (2)*	1 1/2 (2)*	2	2	2
Volume flow rate 50 bar [g]*[m³/h]	130	210	370	490	660	790	1050	1380	1900	2700	3500
Volume (l)	0.25	0.31	0.42	0.87	1.12	1.26	2.52	2.97	3.4	4.23	5.24
Weight (kg)	0.75	0.85	1.2	1.7	2.1	2.2	4.1	4.5	5.1	6.1	7.4
Category according to PED 2014/68/EU Fluid group 2	-	-	-	-	I	I	I	I	I	II	II

Dimensions											
A (mm)	60	60	60	80	80	80	120	120	120	120	120
B (mm)	28	28	28	34	34	34	48	48	48	48	48
C1 (mm)	420	450	505	520	590	625	605	658	708	805	923
C2 (mm)	180	210	265	280	350	385	365	418	468	565	683
D (mm)	180	180	180	180	180	180	180	180	180	180	180

* In case of deviating operating pressure, please multiply the stated volume flow with the corresponding correction factor for the actual operating pressure.



Example of calculation for required filter size When utilising ≠ 7 bar [ü] for PN16-Filter

Volume flow: 480 m³/h
 Operating pressure: 5 bar [g]
 Correction factor: 0.84
 $> 480 \text{ m}^3/\text{h} / 0.84 = 571 \text{ m}^3/\text{h} (7 \text{ bar } [\ddot{u}])$
 >> required filter size: M020

PN50 Correction Factors

bar [g]	20	30	40	50
Correction factor	0.64	0.78	0.90	1

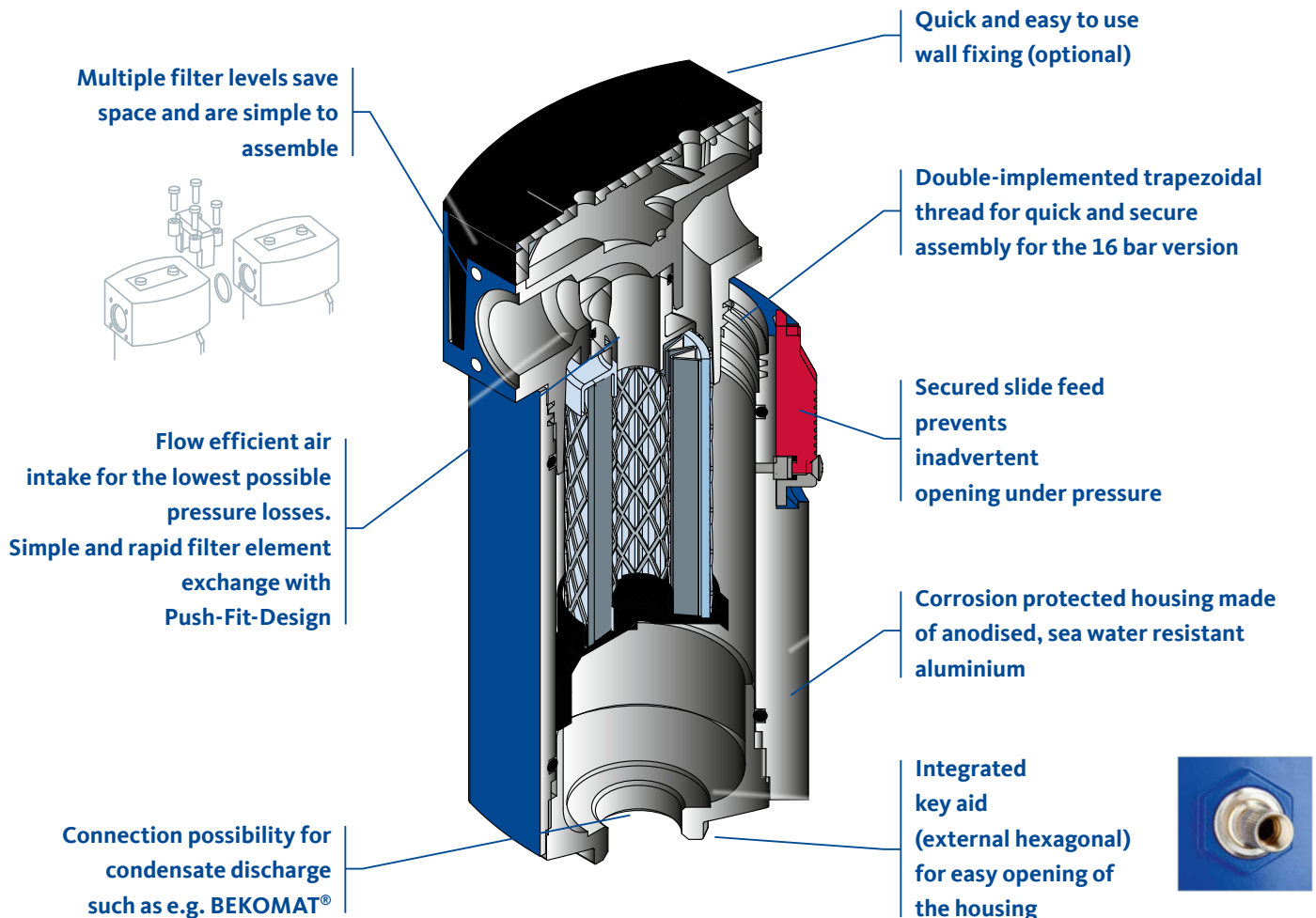
The CLEARPOINT®-compressed air filter is a part of the whole concept for professional compressed air processing. It therefore provides you with all the benefits for more efficiency and

added-value capabilities for function-optimised components in conjunction with compromise-free quality.

Filter levels							
	Water separator CLEARPOINT® W	Coarse Filter CLEARPOINT® C	Fine filter CLEARPOINT® F	Ultra-fine filter CLEARPOINT® S	Active carbon filter CLEARPOINT® A/V	Sterile filter CLEARPOINT® FE...SR	Vapour filter CLEARPOINT® FE...ST
	H ₂ O	25 µm	1 µm	0.01 µm	Oil vapour Odours	Bacteria, viruses, Micro-organisms	25 µm – 1 µm
Compressed air class (ISO 8573-1)		4.-.4	2.-.2	1.-.2*	-.1		
Pressure level max. 16 bar							
50 bar							

* Depending on ambient and operating conditions, Class 1 can also be achieved

The Tried and Tested Filter Housing with the Practice Oriented Details



With System to Required Compressed Air Quality

From the simplest up to high-performance filtration

The required quality class is decisive for the arrangement and combination of the system components as well as regarding the number of, and filtration levels for, the CLEARPOINT® filter.

Coarse filtration / Class 4.-.4 Fluid and solids deposition for non-critical applications	 Water separator CLEARPOINT® W H ₂ O	 Coarse Filter CLEARPOINT® C 25 µm				
Fine filtration / Class 2.-.2 For general deposition of condensate and particles for dryers, valves, tools and other fittings	 Water separator CLEARPOINT® W H ₂ O	 Coarse Filter CLEARPOINT® C 25 µm	 Fine filter CLEARPOINT® F 1 µm			
Ultra-fine filtration / Class 1.-.2* Combination for secure deposition of condensate, oil aerosols and particles, recommended for higher requirements such as e.g. membrane dryers or adsorption dryers	 Water separator CLEARPOINT® W H ₂ O	 Fine filter CLEARPOINT® F 1 µm	 Ultra-fine filter CLEARPOINT® S 0.01 µm			
Oil-free and odour-free air / Class 1.-.1 High-performance filtration for deposition of all pollutants up to and including oil vapours and odours for critical applications (pre-drying the air is necessary)	 Water separator CLEARPOINT® W H ₂ O	 Fine filter CLEARPOINT® F 1 µm	 Ultra-fine filter CLEARPOINT® S 0.01 µm	 Active carbon filter CLEARPOINT® A/V Oil vapour, odours	 Dust filter CLEARPOINT® RS 0.01 µm	 Sterile filter CLEARPOINT® FE...SR Bacteria, viruses, Micro-organisms

type of compressor, type of oil...), Class 1 can also be achieved