

# KSI ECOCLEAN APF

## Compressed Air Filtration



Rev 01\_0225\_NA

High performance filtration and separation for processing of compressed air and compressed gases in industrial supplier quality



### High quality through manufacturer competence

KSI develops and manufactures compressed air filters and filter elements. This ensures complete control to ensure certified KSI industrial equipment quality. Our compressed air treatment components exceed customer expectations. Many years of cooperation with specialists in the market, research institutions as well as our internal development work ensure continuous improvement and technological advancement.

### The KSI ECOCLEAN approach

The combination of operational safety and energy efficiency in one product – this is the **KSI ECOCLEAN** approach, perfectly implemented also for high-performance filter elements.

### The KSI ECOCLEAN APF | APE Plus-Effects +++

- + up to **55 %** less differential pressure loss
  - ▶ significantly reduced energy requirements and thus significantly reduced energy costs
- + **NEW:** high-density deep-bed pleating, made possible by new pleating machines, narrower pleating and new filter medium
  - ▶ approximately 250% larger filtration surface compared to a conventional pleated element
  - ▶ about 25% larger filtration surface compared to a conventional deep-bed pleated element

The significant reduction in flow velocity within the filtration medium makes the APF series the market leader in efficiency and lowest pressure drop.

# KSI ECOCLEAN APF

## Compressed Air Filtration

APF / ADVANCED  
PREMIUM  
FILTRATION



### High quality through manufacturing competence

The increasing demands of modern production processes place ever higher demands on the quality of compressed air. By compressing ambient air the concentration of harmful substances like particles, moisture and oil mist rises and therefore jeopardizes compressed air applications in industry and many other fields. In addition, impurities such as fine dust, oil droplets, rust particles, scale, parts of sealing material etc. from the compressed air network are added – and of course condensate (water). Filtration technology of the **KSI ECOCLEAN** series protects pneumatic production plants, machines, tools, measuring instruments or products against contamination by means of high-performance filtration.

The heart of a compressed air filter is its filter insert (element), which must be optimally adapted to the respective requirement, as compressed air filters ensure, among other things, that solid particles, oil components, condensate, oil vapour, odours and much more are safely removed from the air or gas stream.



An enormous service simplification: the internal condensate drain, which is inserted into the filter housing with the adapter.

### The KSI ECOCLEAN APF | APE Plus-Effects +++

- + highly efficient polyester drainage layer to improve performance and reduce differential pressure
  - ▶ anti-re-entry layer favors coalescence and drainage
- + cathodic dip coating (KTL) of the housing
  - ▶ prevents corrosion and thus offers optimal protection
- + housings made in aluminum die casting process
  - ▶ solid and at the same time very light filter housing
  - ▶ easy handling during installation and service
- + element optimized in length and diameter
  - ▶ lowest differential pressures and best filtration / separation at full flow capacity
- + coloured end caps for easy recognition of filter grades



### The functional principle

#### Water separation

To ensure highest compressed air quality, a water separator should be installed before using a compressed air filter. This separates condensate using a simple physical principle: centrifugal force.

The installation of a water separator not only increases the quality of the compressed air, but also the service life of the downstream filter elements.

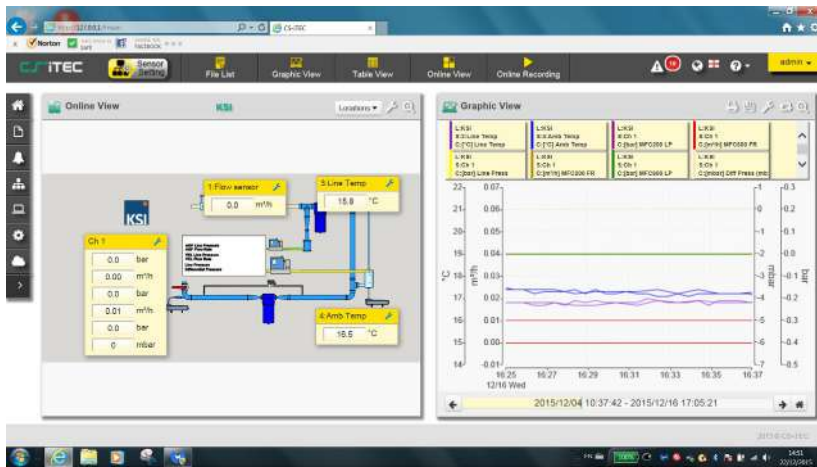
#### Compressed air filtration

Due to the arc-shaped compressed air inlet, the flow distribution in the filter is optimized, resulting in 75% less flow resistance than comparable elbow shapes.

Filtration takes place through the various layers of the filter element, which is passed through from the inside to the outside, thus removing the unwanted components. After the compressed air filter, high-quality compressed air is now ready for further use.

**Lowest Differential Pressure at Highest Performance**

Moisture, residual oil, particles: The performance of a compressed air system and the service life of the downstream components depend to a large extent on filtration. In recent years, we have continuously developed our **KSI ECOCLEAN** filters and filter elements in our own well-equipped test centre (photo) in order to further increase performance, reliability and operational safety without affecting competitive pricing.



Our KSI-owned test center provides us with all relevant data at the push of a button and offers the best conditions for product development.

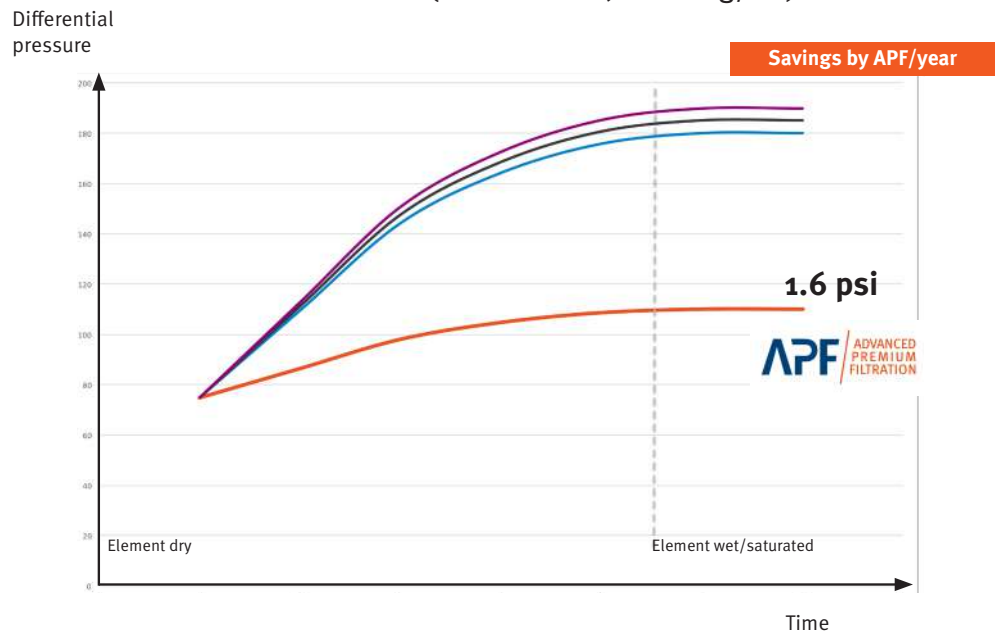
**1.6 psi differential pressure thanks to high-density deep-bed pleating**

Up to 55 % less differential pressure, significantly lower energy requirements and thus radically reduced energy costs – these out-standing properties of the **KSI ECOCLEAN APF** series are made possible by high-density deep-bed pleating.

Innovative pleating machines, tighter pleating and new filter media, in combination with new filter housings enable optimized flow distribution through the filtration layers, making the APF series the market leader in efficiency and mini-mum pressure loss.

**Differential pressure by comparison**

SMA Submicrofilter (0.01 micron, 0.01 mg/m³)



# KSI ECOCLEAN APF

## Compressed Air Filtration

**APF** / ADVANCED PREMIUM FILTRATION



### Highest quality standards for most reliable operation

**KSI ECOCLEAN** compressed air filters meet the highest quality requirements and are extremely economical in operation, purchase and maintenance. The housing is made of die-cast aluminium, protected inside and outside with a cathodic dip coating (KTL) and powder-coated outside.

- + connections: 3/8" to 3"
- + capacities 35 - 1,300 cfm
- + protects production & processes
  - ▶ extended machine & system service life
- + minimizes operating costs ▶ saves energy
- + maximizes operational safety
  - ▶ protection against production or machine failure
- + best industrial equipment quality ▶ long service life
- + high service friendliness ▶ minimized service costs

### Product range standard filtration

- Threaded filter** 14 types: APF35-38 with 35 cfm and 3/8" connection up to APF1300 with 1,300 cfm and 3" connection
- Flanged filter** 8 types: APFF825-3-01 with 825 cfm and DN80 connection up to APFF7415-8-09 with 7,415 cfm and 8" flange connection  
Higher capacities available on request.

- + fast and safe installation ▶ fast commissioning
- + user-oriented filtration (25, 5, 1, 0.1 and 0.01 micron, as well as activated carbon) ▶ optimum choice
- + activated carbon, molecular sieve & hopcalite cartridges
  - ▶ individually combinable
- + best quality due to 100% leak test
- + **KSI ECOCLEAN** filters are equipped with an automatic condensate drain

### Further filter types:



**Cartridge Filters**  
Activated carbon cartridge  
Molecular sieve cartridge  
Catalyst cartridge



**Flanged Filters**  
up to 7,415 cfm, 8" flange connection



**Water Separators**  
up to 1,300 cfm, 3"



**High-Pressure Filters**  
725 psi – 7,250 psi



**Medical Sterile Filters**  
Up to 1,300 cfm, 3"



**Stainless Steel Filters**  
Sterile stainless steel filters and process filters



**Vacuum Filters**  
Vacuum pump protection filters  
Vacuum pump exhaust filters



**Vacuum Filters**  
Medical vacuum filters

# KSI ECOCLEAN APF

## Compressed Air Filtration

APF / ADVANCED PREMIUM FILTRATION



**Class 1**  
validated and certified  
according to  
**ISO 8573**



### Operational safety and product efficiency

The **KSI ECOCLEAN** combines operational safety and economy in one product:

- through the clever design of the internal and external support frame up to 55% less differential pressure compared to conventional support cylinders
- maximum filter area due to the specially optimized pleating ▶ for maximum surface filtration
- special component adhesive securely fixes the end caps
- plastic end caps prevent blooming and bacterial growth
- filter drainage layer made of special fleece stabilizes the filter medium and protects against inflating effects and crack formation
- high-performance filter fleece is chemically, mechanically and thermally (up to 248°F) resistant and technically silicone-free
- filter depth enables highest filtration capacity

### Compressed air quality with KSI ECOCLEAN filter elements according to ISO 8573.1\*

Element Type	SMA	MF1	MFO	FF5	VF25	CA
max. particle Ø [micron]						
Compressed air class	5 4 3 2 <b>1</b>	5 4 3 <b>2 1</b>	5 4 <b>3 2 1</b>	5 <b>4 3 2 1</b>	<b>5</b> 4 3 2 1	5 4 3 2 <b>1</b>
max. residual oil content						

\*KSI ECOCLEAN high performance filter elements exceed ISO 8573.1 by far.



Element SMA



APF-high performance element:  
high-density deep-bed pleating

#### For KSI filter housings:

- CAK activated carbon cartridge
- MSK molecular sieve cartridge
- HC hopcalite cartridges

# KSI ECOCLEAN APF

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**APF** / ADVANCED PREMIUM FILTRATION



### Scope of supply

Compressed air filter including:

**KSI ECOCLEAN** Filter housing incl. filter element

**D150** Automatic condensate drain for APF35-38 - APF410

**D200** Automatic condensate drain for APF470 - APF1300

### Replacement element

Type	Capacity*		Dimensions (inch)				Connection	Grp.	Element	Qty	Grp.
	cfm	A	B	C	D						
APF35-38 ▶	35	9.21	0.71	3.15	2.95	3/8"	010	APE35 ▶	1	110	
APF35-12 ▶	35	9.21	0.71	3.15	2.95	1/2"	010	APE35 ▶	1	110	
APF55 ▶	55	9.21	0.71	3.15	2.95	1/2"	010	APE55 ▶	1	110	
APF70-12 ▶	70	12.91	0.91	4.09	3.86	1/2"	010	APE70 ▶	1	110	
APF70-34 ▶	70	12.91	0.91	4.09	3.86	3/4"	010	APE70 ▶	1	110	
APF130-34 ▶	150	12.91	0.91	4.09	3.86	3/4"	010	APE130 ▶	1	110	
APF130-1 ▶	150	12.91	0.91	4.09	3.86	1"	010	APE130 ▶	1	110	
APF210 ▶	210	24.09	1.34	6.06	5.91	1"	010	APE210 ▶	1	110	
APF320 ▶	320	24.09	1.34	6.06	5.91	1 1/4"	010	APE320-410 ▶	1	110	
APF410 ▶	410	24.09	1.34	6.06	5.91	1 1/2"	010	APE320-410 ▶	1	110	
APF470 ▶	470	29.29	1.77	7.72	7.68	2"	010	APE470 ▶	1	110	
APF765 ▶	765	29.29	1.77	7.72	7.68	2"	010	APE765 ▶	1	110	
APF885 ▶	885	28.82	2.20	8.46	8.27	2 1/2"	010	APE885 ▶	1	110	
APF1300 ▶	1300	35.39	2.20	8.46	8.27	3"	010	APE1300 ▶	1	110	

\*calculated at 14.5 psi (abs.) and 68°F at 101.5 psi working pressure

▶ = filtration grade

Example order code for APF55 with 1 micron efficiency: APF55MFO

### With flanged connection:

Type	Capacity*		Dimensions (inch)					Connection	Grp.	Element	Qty	Grp.
	cfm	A	B	C	D	E						
APFF825-3-01 ▶	825	34.33	4.57	14.17	11.22	20.08	3" flange	011	APE825 ▶	1	110	
APFF1685-3-02 ▶	1,685	45.35	6.97	21.65	15.94	20.08	3" flange	011	APE825 ▶	2	110	
APFF1685-4-02 ▶	1,685	45.35	6.97	21.65	15.94	20.08	4" flange	011	APE825 ▶	2	110	
APFF2475-4-03 ▶	2,475	45.35	6.97	21.65	15.94	20.08	4" flange	011	APE825 ▶	3	110	
APFF3300-6-04 ▶	3,300	48.11	8.15	24.41	18.11	21.26	6" flange	011	APE825 ▶	4	110	
APFF4950-6-06 ▶	4,950	51.85	8.78	26.77	22.83	24.65	6" flange	011	APE825 ▶	6	110	
APFF6590-8-08 ▶	6,590	67.17	11.34	31.50	28.15	29.92	8" flange	011	APE825 ▶	8	110	
APFF7415-8-09 ▶	7,415	67.17	11.34	31.50	28.15	29.92	8" flange	011	APE825 ▶	9	110	

\*calculated at 14.5 psi (abs.) and 68°F at 101.5 psi working pressure

▶ = filtration grade

Example order code for APFF3300-6-04 with 0.01 micron efficiency: APFF3300-6-04SMA

### Other connections and capacities on request

#### Correction factors

Working pressure	psi	29	44	58	73	87	101	116	131	145	160	174	189	203	218	232
factor		0.38	0.50	0.63	0.75	0.88	1.00	1.12	1.25	1.37	1.49	1.62	1.74	1.86	1.98	2.10

Multiply the capacity of the filter with the correction factor in the table above. Example for capacity of Type APF55 at 145 psi: capacity nominal (55 cft/min) x factor (1.37) = capacity corrected (75.35 cft/min).

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Specifications	2.5	5	1	0.1	0.01
	▶ VF25	▶ FF5	▶ MFO	▶ MF1	▶ SMA
Particle removal	25 micron	5 micron	1 micron	0.1 micron	0.01 micron
Residual oil content at 68°F	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.01 mg/m <sup>3</sup>
Differential pressure dry*	0.7 psi	0.7 psi	0.8 psi	0.9 psi	1.1 psi
Diff. pressure wet. saturated*	0.7 psi	1.1 psi	1.2 psi	1.3 psi	1.6 psi
Max. working pressure	APF35-38 - APF765: 232 psi   APF885: 195.75 psi   APF1300: 152.25 psi				
Max. temperature	Elements: 248°F				
Min. temperature	34°F				
Housing material	Aluminum, inside and outside cathodic dip-paint coating				
Colour	blue powder coated / RAL 5010				

Specifications	1	0.01
	▶ DMF	▶ DSF
Particle removal	1 micron	0.01 micron
Differential pressure*	0.8 psi	1.1 psi
Max. working pressure	APF35-38 - APF765: 232 psi   APF885: 195.75 psi   APF1300: 152.25 psi	
Max. temperature	Housings: 248°F · Elements: 248°F	
Min. temperature	34°F	
Housing material	Aluminum, inside and outside cathodic dip-paint coating	
Colour	blue powder coated / RAL 5010	

Specifications	▶ CA
Residual oil content at 68°F	0.003 mg/m <sup>3</sup>
Differential pressure*	1.5 psi
Max. working pressure	APF35-38 - APF765: 232 psi   APF885: 195.75 psi   APF1300: 152.25 psi
Max. temperature	Housings: 248°F Elements: 122°F; recommended: 77°F
Min. temperature	34°F
Housing material	Aluminum, inside and outside cathodic dip-paint coating
Colour	blue powder coated / RAL 5010

\* only valid for threaded filters



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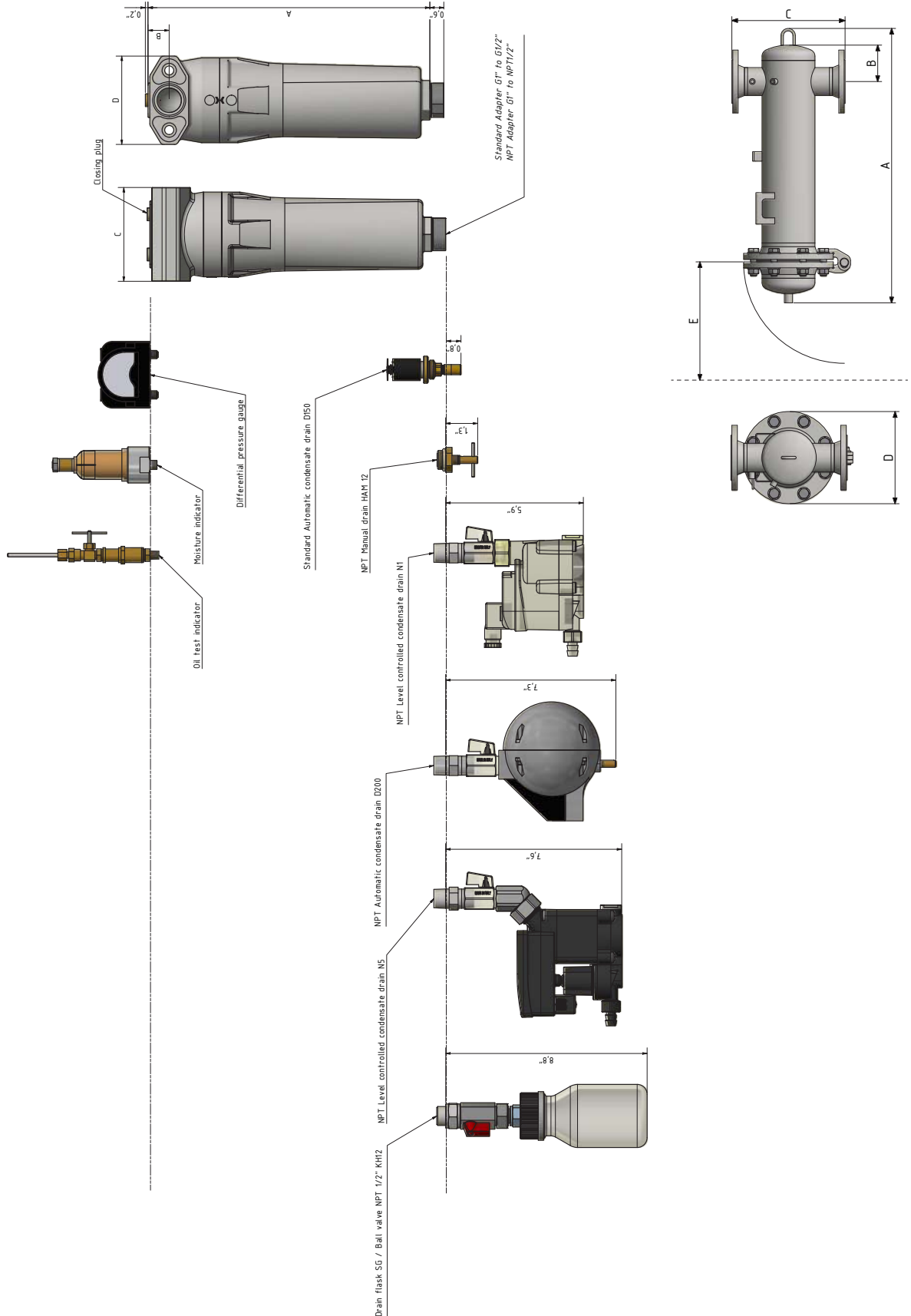
## Compressed Air Filtration

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### Dimensional Drawing

APFF825-3-01 - APFF7415-8-09





### Approvals for pressure equipment

EU	Approval for fluid group 2 according to Pressure Equipment Directive 2014/68/EU, module B+D (category IV)
North America	CRN (certificates on request) ASME B31.3

### Quality assurance

Development/production	DIN EN ISO 9001
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### Air purity class according to ISO 8573-1:2010

Solid particles	vary by filter element, see page 7
Moisture (gaseous)	vary by filter element, see page 7
Total oil	vary by filter element, see page 7

## Options



Differential pressure indicator



Potential-free, digital differential pressure manometer



Moisture indicator



Oil indicator



Filter connection set



Wall mounting incl. filter connection set

## Condensate drain



automatic drain D150



automatic drain D200



level-controlled condensate drain **KONDRAIN** KN350 (option for **KSI ECOCLEAN** standard filter)



manual drain HAM12, standard in CA activated carbon filters, DMF and DSF dust filters and in all cartridge filters