MANN-FILTER products for the filtration of compressed air

MANN FILTER

MANN-FILTER products for the filtration of compressed air

Over a period of 60 years MANN+HUMMEL has been a specialist for filtration requirements in vehicles, mobile industrial applications and mechanical engineering.

In the aftermarket our filter elements are known and recognised the world over under our MANN-FILTER brand.

MANN-FILTER stands for leading brand quality, excellent service, worldwide availability and reliable market success.

MANN-FILTER products are now also available with immediate effect for the filtration of compressed air. They meet all the specifications of OEM producers with regard to filtration characteristics, product quality and compatibility.

MANN-FILTER products for the filtration of compressed air – the advantages at a glance:

- Large filter surface area
- Low flow rate
- Low pressure drop
- Low energy costs
- Constant high separation efficiency
- High dirt holding capacity
- Long service life
- Excellent economy over the whole life of the product

Product overview

Depending on the required purity level, different filters are available:

Preliminary filter LD…/2
Separation efficiency
99.99 % with 3 µm
from page 5

For the filtration of solid and liquid contaminants down to a particle size of 3 µm

Fine filter LD …
Separation efficiency
99.9999 % with 1 µm
from page 9

For the filtration of solid and liquid contaminants down to a particle size of 1 µm

Ultra fine filter LD …/1
Separation efficiency
99.99999 % with 0.01 µm
from page 9

For the filtration of solid and liquid contaminants down to a particle size of 0.01 µm

Activated charcoal filter LD …/3
Residual oil content to 0.003 mg/m³
from page 15

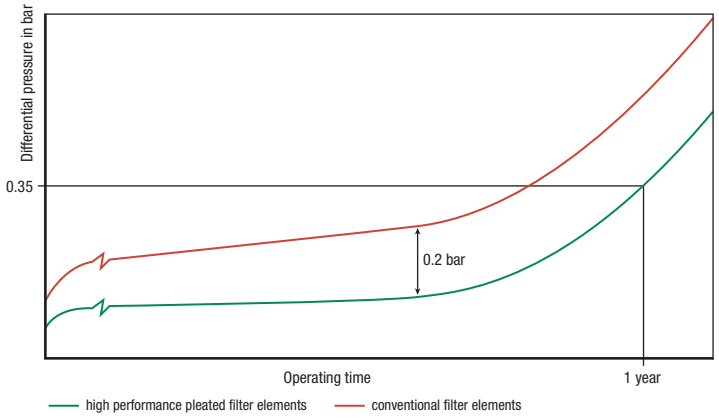
For the adsorption of oil vapours down to a residual oil content of 0.003 mg/m³ (technically oil-free compressed air)

MANN-FILTER pleated elements reduce energy costs

The MANN-FILTER pleating technology has numerous advantages in comparison to conventionally wound filter elements:

- The special MANN-FILTER pleating enables up to 4-times more filter surface area than a conventional element.
- The flow rate is correspondingly lower.
- This in turn leads to a much lower pressure drop which is up to 0.2 bar less than a conventional element. The compressor only has to overcome a low differential pressure.
- The pleating technology enables considerably lower energy costs for the whole life of the filter element.
- In addition, the low flow rate prevents the particles from being swept along and improves the filtration efficiency.

Differential pressure of filter elements of different designs



MANN-FILTER
pleated filter element

Conventional,
wound filter element

Clean compressed air

A reliable and economic supply of compressed air is an absolute must for production facilities in all fields.

It is only possible to ensure efficient and reliable production if the required quality of the compressed air is made possible by the appropriate filtration.

The alternative is machine wear, malfunctions and production downtimes leading to increased waste and higher costs for energy, maintenance and servicing.

Clean compressed air ensures the problem-free operation of pneumatic drives and control systems. Pipes and valves remain free of contaminants and therefore enable the efficient use of energy.

Every cubic metre of ambient air sucked into the compressor has up to 200 million dirt particles, of which 98 % are particulate matter with a particle size under 5 µm.

Additional contaminants present in the air are hydrocarbons from oil vapour, biological germs and bacteria.

The inside of pipes are also subject to contamination through corrosion, condensation and deposits.

MANN-FILTER products for the filtration of compressed air offer constant compressed air quality at low cost with high operational reliability – which means high reliability, quality and energy efficiency at all times.

An example where clean compressed air is a requirement is the production of semiconductors.

Service notes

In general, we would like to point out that the maintenance instructions of the system producer must be observed!

In addition, MANN-FILTER recommends changing filter elements at a differential pressure of 350 mbar, but at the latest, however, after one year.

The activated charcoal elements are an exception to this rule. In this case the maximum period of service is 1,500 operating hours or a maximum of 3 months.

Depending on the temperature of the incoming oil and the oil content, the time when a service is necessary may arrive much earlier.

The reasons why it is necessary to change the filter elements in a compressed air system on a regular basis are:

- Increased energy costs resulting from a higher differential pressure
- Embrittlement of the seal through ageing and leaks as a result
- Lower filtration efficiency due to lower elasticity of filter fibres

In particular, the increase in differential pressure leading to a considerable increase in energy costs means that changing the element on a regular basis will significantly improve the economy of the system.

MANN-FILTER Preliminary filters

MANN-FILTER Preliminary filters

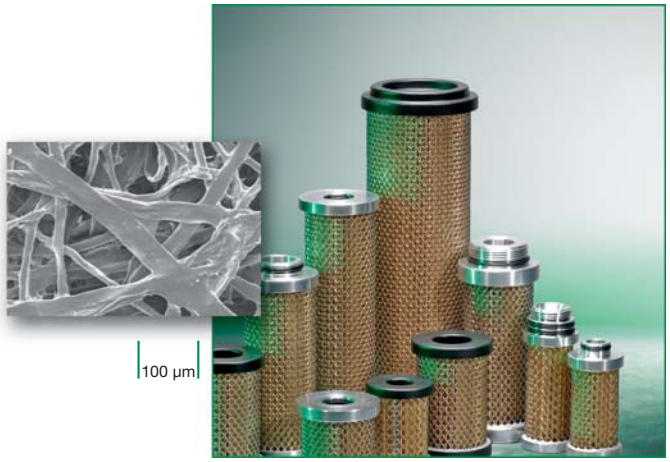
These filters are surface-type filters designed for coarse separation in the area of pre-filtration.

They serve to reliably remove liquids and solid particles down to a size of 3 µm from compressed air and gas flows with a separation efficiency of 99.99 %.

The recommended operating temperature range is from 1.5 °C to 60 °C.

The core of the filter is the pleated and coated filtration medium from impregnated microfibre fabric with a 75 % void volume.

In comparison to a wound element with a similar size, the machine-produced pleating enables more than 4 times the amount of filter surface area.



The supporting structure of the filter element consists of high quality stainless steel mesh with extremely large passage openings and end covers in plastic or aluminium.

Specifications

MANN FILTER	LD..../2
Separation efficiency	99.99 %*1
Differential pressure in new condition dry*2	0.02 bar
Saturated differential pressure*3	0.07 bar
Static bursting pressure	5 bar

*1 Relating to particle size 3 µm
*2 Measured at 7 bar positive overpressure with the example LD 6001/2 x
*3 After 60 minutes exposure to test aerosols with an incoming concentration of >20 mg/m³, measured at 7 bar positive overpressure, LD 6001/2 x

MANN-FILTER Preliminary filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	Seal	Design
	d_1	d_2	d_3	G	h					
LD 4001/2	35	18.5	–	WI 1/4	73	32	99.99 % (3 µm)	0.02	NBR	H
LD 4002/2	35	–	–	G 3/4"	76	20	99.99 % (3 µm)	0.02	NBR	E
LD 4003/2	35	–	–	G 3/4"	90	40	99.99 % (3 µm)	0.02	NBR	E
LD 5001/2 x	42	16.3	–	M 6	53	30	99.99 % (3 µm)	0.02	NBR	A
LD 5004/2	42	–	–	G 1"	89	60	99.99 % (3 µm)	0.02	NBR	D
LD 5005/2	42	–	–	G 3/4"	94	35	99.99 % (3 µm)	0.02	NBR	E
LD 5006/2	42	–	–	G 3/4"	94	60	99.99 % (3 µm)	0.02	NBR	E
LD 5007/2	42	–	–	G 3/4"	122	90	99.99 % (3 µm)	0.02	NBR	E
LD 5008/2	45	23	–	–	67.5	30	99.99 % (3 µm)	0.02	NBR	B
LD 5009/2	45	23	–	–	101	60	99.99 % (3 µm)	0.02	NBR	B
LD 5010/2	45	23	–	–	146	114	99.99 % (3 µm)	0.02	NBR	B
LD 5002/2	50	30.4	–	M 6	88	61	99.99 % (3 µm)	0.02	NBR	H
LD 5003/2	50	30.4	–	M 6	124	108	99.99 % (3 µm)	0.02	NBR	H
LD 6001/2 x	51	24	–	M 6	57	50	99.99 % (3 µm)	0.02	NBR	A
LD 6002/2 x	51	24	–	M 6	73	70	99.99 % (3 µm)	0.02	NBR	A
LD 6003/2 x	51	24	–	M 6	142	100	99.99 % (3 µm)	0.02	NBR	A
LD 6004/2	52	–	–	WI 1 1/2	93	90	99.99 % (3 µm)	0.02	NBR	D
LD 6005/2	52	–	–	WI 1 1/2	125	150	99.99 % (3 µm)	0.02	NBR	D
LD 6006/2	52	–	–	G 1"	128	120	99.99 % (3 µm)	0.02	NBR	E
LD 6007/2	52	–	–	G 1"	150	180	99.99 % (3 µm)	0.02	NBR	E
LD 6008/2	60	19.5	–	–	50	35	99.99 % (3 µm)	0.02	NBR	F
LD 6009/2	60	19.5	–	–	91	60	99.99 % (3 µm)	0.02	NBR	F
LD 6010/2	60	19.5	–	–	155	105	99.99 % (3 µm)	0.02	NBR	F
LD 6011/2	60	35	–	–	167	170	99.99 % (3 µm)	0.02	NBR	F
LD 6012/2	60	35	–	–	275	290	99.99 % (3 µm)	0.02	NBR	F
LD 6013/2	60	33	–	–	167	156	99.99 % (3 µm)	0.02	NBR	B
LD 6014/2	60	33	–	–	207	216	99.99 % (3 µm)	0.02	NBR	B
LD 7001/2	62	–	–	G 1"	125	210	99.99 % (3 µm)	0.02	NBR	D
LD 7002/2	62	–	–	G 1"	152	270	99.99 % (3 µm)	0.02	NBR	D
LD 7003/2	62	–	–	G 1"	151	270	99.99 % (3 µm)	0.02	NBR	E
LD 7004/2	62	–	–	G 1"	204	360	99.99 % (3 µm)	0.02	NBR	E
LD 7005/2	68	43	–	–	335	425	99.99 % (3 µm)	0.02	NBR	F
LD 7006/2	68	43	–	–	450	640	99.99 % (3 µm)	0.02	NBR	F
LD 8001/2 x	75	48	–	M 8	118.1	180	99.99 % (3 µm)	0.02	NBR	A
LD 8002/2 x	75	48	–	M 8	218.1	300	99.99 % (3 µm)	0.02	NBR	A
LD 8003/2 x	75	48	–	M 8	318.1	470	99.99 % (3 µm)	0.02	NBR	A
LD 8004/2 x	75	48	–	M 8	508.1	700	99.99 % (3 µm)	0.02	NBR	A
LD 8005/2	77	38	–	M 8	167	216	99.99 % (3 µm)	0.02	NBR	H
LD 8006/2	77	38	–	M 8	267	522	99.99 % (3 µm)	0.02	NBR	H
LD 9015/2	83	57.5	–	–	517	825	99.99 % (3 µm)	0.02	NBR	F

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

Design overview on page 32.

MANN-FILTER Preliminary filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	Seal	Design
	d_1	d_2	d_3	G	h					
LD 9016/2	83	57.5	–	–	663	1060	99.99 % (3 µm)	0.02	NBR	F
LD 9017/2	83	57.5	–	–	821	1325	99.99 % (3 µm)	0.02	NBR	F
LD 9018/2 x	83	63	–	5/16"	771.5	1110	99.99 % (3 µm)	0.02	NBR	G
LD 9019/2 x	83	63	–	5/16"	625.5	1698	99.99 % (3 µm)	0.02	NBR	G
LD 9001/2	86	57.15	–	M 10	340	792	99.99 % (3 µm)	0.02	NBR	H
LD 9002/2	86	57.15	–	M 10	641.5	1188	99.99 % (3 µm)	0.02	NBR	H
LD 9003/2	86	–	–	G 1"	152	330	99.99 % (3 µm)	0.02	NBR	D
LD 9004/2	86	–	–	G 1"	205	480	99.99 % (3 µm)	0.02	NBR	D
LD 9005/2	86	–	–	G 1"	279	720	99.99 % (3 µm)	0.02	NBR	D
LD 9014/2	86	–	–	G 1"	330	860	99.99 % (3 µm)	0.02	NBR	D
LD 9006/2	86	56	13.5	–	391	1080	99.99 % (3 µm)	0.02	NBR	C
LD 9007/2	86	56	13.5	–	519	1440	99.99 % (3 µm)	0.02	NBR	C
LD 9008/2	86	56	13.5	–	771	1920	99.99 % (3 µm)	0.02	NBR	C
LD 9009/2	86	–	–	G 2"	206	480	99.99 % (3 µm)	0.02	NBR	E
LD 9010/2	86	–	–	G 2"	280	720	99.99 % (3 µm)	0.02	NBR	E
LD 9011/2	86	61	13.5	–	397	1080	99.99 % (3 µm)	0.02	NBR	B
LD 9012/2	86	61	13.5	–	525	1440	99.99 % (3 µm)	0.02	NBR	B
LD 9013/2	86	61	13.5	–	777	1920	99.99 % (3 µm)	0.02	NBR	B
LD 9020/2	86	46	–	–	300	432	99.99 % (3 µm)	0.02	NBR	B
LD 9021/2	86	46	–	–	335	540	99.99 % (3 µm)	0.02	NBR	B
LD 9022/2	86	46	–	–	380	630	99.99 % (3 µm)	0.02	NBR	B
LD 9023/2	86	66.3	–	M 8	607	2808	99.99 % (3 µm)	0.02	NBR	C
LD 10 001/2 x	92	68.2	–	M 8	510	940	99.99 % (3 µm)	0.02	NBR	A
LD 10 002/2 x	92	68.2	–	M 8	760	1450	99.99 % (3 µm)	0.02	NBR	A
LD 11 001/2	102	66.5	–	–	435	936	99.99 % (3 µm)	0.02	NBR	B
LD 12 001/2	114.5	76	–	M 10	423.5	1548	99.99 % (3 µm)	0.02	NBR	H
LD 12 002/2	114.5	76	–	M 10	644.5	2232	99.99 % (3 µm)	0.02	NBR	H
LD 12 003/2	120	78.5	–	–	523	1404	99.99 % (3 µm)	0.02	NBR	B
LD 12 004/2	120	78.5	–	–	693	1872	99.99 % (3 µm)	0.02	NBR	B
LD 13 001/2	122	78	–	M 8	694	1872	99.99 % (3 µm)	0.02	NBR	C
LD 14 001/2 x	140	100	18	–	605	1940	99.99 % (3 µm)	0.02	NBR	I
LD 14 002/2 x	140	100	18	–	755	2400	99.99 % (3 µm)	0.02	NBR	I
LD 14 003/2	140	82	13.5	–	771	2880	99.99 % (3 µm)	0.02	NBR	C
LD 14 004/2	140	89	13.5	–	777	2880	99.99 % (3 µm)	0.02	NBR	B

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

 Design overview on page 32.

MANN-FILTER Fine filters and Ultra fine filters

MANN-FILTER Fine filters and Ultra fine filters

These are designed as coalescence deep-bed filters and reliably remove liquids and solid particles down to a size of 0.01 µm with a separation efficiency of 99.99999 % (LD…./1 x) from compressed air and gas flows.

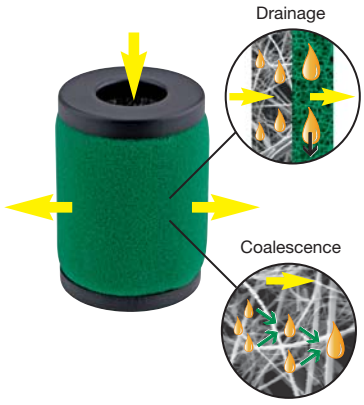
The recommended operating temperature range is from 1.5 °C to 60 °C.

The core of the filter is the pleated medium made from borosilicate microfibre fabric with more than 96 % void volume. It is surrounded by an additional filtration fabric offering structural support.

In comparison to a wound element with a similar size, the machine-produced pleating enables more than 4 times the amount of filter surface area.

Specifications

MANN FILTER	LD....	LD..../1
Separation efficiency	99.9999 %*1	99.99999 %*2
MPPS separation efficiency	99.99 %*3	99.9999 %*3
Residual oil content*4	0.5 mg/m³	0.01 mg/m³
Differential pressure in new condition dry*5	0.03 bar	0.06 bar
Saturated differential pressure*6	0.15 bar	0.20 bar
Static bursting pressure	5 bar	5 bar



On the outside of the filter there is a drainage layer made from open-celled CFC-free foam cladding.

The supporting structure of the filter element consists of high quality stainless steel mesh with extremely large passage openings and end covers in plastic or aluminium.

*1 Relating to particle size 1 µm
*2 Relating to particle size 0.01 µm
*3 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)
*4 Relating to 1 bar (a), 20 °C with an incoming concentration of 20 mg/m³
*5 Measured at 7 bar positive overpressure with example LD 6001 x – LD 6001/1 x
*6 After 60 minutes exposure to test aerosols with an incoming concentration of >20 mg/m³, measured at 7 bar positive overpressure, LD 6001 – LD 6001/1 x

MANN-FILTER Fine filters and Ultra fine filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	MPPS separation efficiency*4	Seal	Design
	d_1	d_2	d_3	G	h						
LD 4001	35	18.5	–	WI 1/4	73	32	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 4002	35	–	–	G 3/4"	76	20	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 4003	35	–	–	G 3/4"	90	40	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 4001/1	35	18.5	–	WI 1/4	73	32	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 4002/1	35	–	–	G 3/4"	76	20	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 4003/1	35	–	–	G 3/4"	90	40	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 5001 x	42	16.3	–	M 6	53	30	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 5004	42	–	–	G 1"	89	60	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 5005	42	–	–	G 3/4"	94	35	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 5006	42	–	–	G 3/4"	94	60	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 5007	42	–	–	G 3/4"	122	90	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 5001/1 x	42	16.3	–	M 6	53	30	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 5004/1	42	–	–	G 1"	89	60	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 5005/1	42	–	–	G 3/4"	94	35	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 5006/1	42	–	–	G 3/4"	94	60	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 5007/1	42	–	–	G 3/4"	122	90	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 5008	45	23	–	–	67.5	30	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 5009	45	23	–	–	101	60	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 5010	45	23	–	–	146	114	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 5008/1	45	23	–	–	67.5	30	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 5009/1	45	23	–	–	101	60	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 5010/1	45	23	–	–	146	114	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 5002	50	30.4	–	M 6	88	61	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 5003	50	30.4	–	M 6	124	108	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 5002/1	50	30.4	–	M 6	88	61	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 5003/1	50	30.4	–	M 6	124	108	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 6001 x	51	24	–	M 6	57	50	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 6002 x	51	24	–	M 6	73	70	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 6003 x	51	24	–	M 6	142	100	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 6001/1 x	51	24	–	M 6	57	50	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 6002/1 x	51	24	–	M 6	73	70	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 6003/1 x	51	24	–	M 6	142	100	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 6004	52	–	–	WI 1 1/2	93	90	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 6005	52	–	–	WI 1 1/2	125	150	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 6006	52	–	–	G 1"	128	120	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 6007	52	–	–	G 1"	150	180	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 6004/1	52	–	–	WI 1 1/2	93	90	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 6005/1	52	–	–	WI 1 1/2	125	150	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

Design overview on page 32.

MANN-FILTER Fine filters and Ultra fine filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	MPPS separation efficiency*4	Seal	Design
	d_1	d_2	d_3	G	h						
LD 6006/1	52	–	–	G 1"	128	120	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 6007/1	52	–	–	G 1"	150	180	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 6008	60	19.5	–	–	50	35	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 6009	60	19.5	–	–	91	60	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 6010	60	19.5	–	–	155	105	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 6011	60	35	–	–	167	170	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 6012	60	35	–	–	275	290	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 6013	60	33	–	–	167	156	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 6014	60	33	–	–	207	216	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 6008/1	60	19.5	–	–	50	35	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 6009/1	60	19.5	–	–	91	60	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 6010/1	60	19.5	–	–	155	105	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 6011/1	60	35	–	–	167	170	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 6012/1	60	35	–	–	275	290	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 6013/1	60	33	–	–	167	156	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 6014/1	60	33	–	–	207	216	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 7001	62	–	–	G 1"	125	210	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 7002	62	–	–	G 1"	152	270	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 7003	62	–	–	G 1"	151	270	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 7004	62	–	–	G 1"	204	360	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 7001/1	62	–	–	G 1"	125	210	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 7002/1	62	–	–	G 1"	152	270	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 7003/1	62	–	–	G 1"	151	270	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 7004/1	62	–	–	G 1"	204	360	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 7005	68	43	–	–	335	425	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 7006	68	43	–	–	450	640	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 7005/1	68	43	–	–	335	425	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 7006/1	68	43	–	–	450	640	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 8001 x	75	48	–	M 8	118.1	180	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 8002 x	75	48	–	M 8	218.1	300	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 8003 x	75	48	–	M 8	318.1	470	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 8004 x	75	48	–	M 8	508.1	700	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 8001/1 x	75	48	–	M 8	118.1	180	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 8002/1 x	75	48	–	M 8	218.1	300	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 8003/1 x	75	48	–	M 8	318.1	470	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 8004/1 x	75	48	–	M 8	508.1	700	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 8005	77	38	–	M 8	167	216	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 8006	77	38	–	M 8	267	522	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 8005/1	77	38	–	M 8	167	216	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 8006/1	77	38	–	M 8	267	522	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 9015	83	57.5	–	–	517	825	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 9016	83	57.5	–	–	663	1060	99.9999 % (1 µm)	0.03	99.99 %	NBR	P

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

 Design overview on page 32.

MANN-FILTER Fine filters and Ultra fine filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	MPPS separation efficiency*4	Seal	Design
	d_1	d_2	d_3	G	h						
LD 9017	83	57.5	–	–	821	1325	99.9999 % (1 µm)	0.03	99.99 %	NBR	P
LD 9018 x	83	63	–	5/16"	771.5	1110	99.9999 % (1 µm)	0.03	99.99 %	NBR	Q
LD 9019 x	83	63	–	5/16"	625.5	1698	99.9999 % (1 µm)	0.03	99.99 %	NBR	Q
LD 9015/1	83	57.5	–	–	517	825	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 9016/1	83	57.5	–	–	663	1060	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 9017/1	83	57.5	–	–	821	1325	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	P
LD 9018/1 x	83	63	–	5/16"	771.5	1110	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	Q
LD 9019/1 x	83	63	–	5/16"	625.5	1698	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	Q
LD 9001	86	57.15	–	M 10	340	792	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 9002	86	57.15	–	M 10	641.5	1188	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 9003	86	–	–	G 1"	152	330	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 9004	86	–	–	G 1"	205	480	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 9005	86	–	–	G 1"	279	720	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 9014	86	–	–	G 1"	330	860	99.9999 % (1 µm)	0.03	99.99 %	NBR	L
LD 9006	86	56	13.5	–	391	1080	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9007	86	56	13.5	–	519	1440	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9008	86	56	13.5	–	771	1920	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9009	86	–	–	G 2"	206	480	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 9010	86	–	–	G 2"	280	720	99.9999 % (1 µm)	0.03	99.99 %	NBR	N
LD 9011	86	61	13.5	–	397	1080	99.9999 % (1 µm)	0.03	99.99 %	NBR	O
LD 9012	86	61	13.5	–	525	1440	99.9999 % (1 µm)	0.03	99.99 %	NBR	O
LD 9013	86	61	13.5	–	777	1920	99.9999 % (1 µm)	0.03	99.99 %	NBR	O
LD 9020	86	46	–	–	300	432	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9021	86	46	–	–	335	540	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9022	86	46	–	–	380	630	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 9023	86	66.3	–	M 8	607	2808	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 9001/1	86	57.15	–	M 10	340	792	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 9002/1	86	57.15	–	M 10	641.5	1188	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 9003/1	86	–	–	G 1"	152	330	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 9004/1	86	–	–	G 1"	205	480	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 9005/1	86	–	–	G 1"	279	720	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 9014/1	86	–	–	G 1"	330	860	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	L
LD 9006/1	86	56	13.5	–	391	1080	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 9007/1	86	56	13.5	–	519	1440	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 9008/1	86	56	13.5	–	771	1920	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 9009/1	86	–	–	G 2"	206	480	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 9010/1	86	–	–	G 2"	280	720	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	N
LD 9011/1	86	61	13.5	–	397	1080	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	O
LD 9012/1	86	61	13.5	–	525	1440	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	O
LD 9013/1	86	61	13.5	–	777	1920	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	O
LD 9020/1	86	46	–	–	300	432	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 9021/1	86	46	–	–	335	540	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

Design overview on page 32.

MANN-FILTER Fine filters and Ultra fine filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Separation efficiency*2	Differential pressure*3 [bar]	MPPS separation efficiency*4	Seal	Design
	d_1	d_2	d_3	G	h						
LD 9022/1	86	46	–	–	380	630	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 9023/1	86	66.3	–	M 8	607	2808	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 10 001 x	92	68.2	–	M 8	510	940	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 10 002 x	92	68.2	–	M 8	760	1450	99.9999 % (1 µm)	0.03	99.99 %	NBR	J
LD 10 001/1 x	92	68.2	–	M 8	510	940	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 10 002/1 x	92	68.2	–	M 8	760	1450	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	J
LD 11 001	102	66.5	–	–	435	936	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 11 001/1	102	66.5	–	–	435	936	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 12 001	114.5	76	–	M 10	423.5	1548	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 12 002	114.5	76	–	M 10	644.5	2232	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 12 001/1	114.5	76	–	M 10	423.5	1548	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 12 002/1	114.5	76	–	M 10	644.5	2232	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 12 003	120	78.5	–	–	523	1404	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 12 004	120	78.5	–	–	693	1872	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 12 003/1	120	78.5	–	–	523	1404	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 12 004/1	120	78.5	–	–	693	1872	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 13 001	122	78	–	M 8	694	1872	99.9999 % (1 µm)	0.03	99.99 %	NBR	K
LD 13 001/1	122	78	–	M 8	694	1872	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	K
LD 14 001 x	140	100	18	–	605	1940	99.9999 % (1 µm)	0.03	99.99 %	NBR	R
LD 14 002 x	140	100	18	–	755	2400	99.9999 % (1 µm)	0.03	99.99 %	NBR	R
LD 14 003	140	82	13.5	–	771	2880	99.9999 % (1 µm)	0.03	99.99 %	NBR	M
LD 14 004	140	89	13.5	–	777	2880	99.9999 % (1 µm)	0.03	99.99 %	NBR	O
LD 14 001/1 x	140	100	18	–	605	1940	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	R
LD 14 002/1 x	140	100	18	–	755	2400	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	R
LD 14 003/1	140	82	13.5	–	771	2880	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	M
LD 14 004/1	140	89	13.5	–	777	2880	99.99999 % (0.01 µm)	0.06	99.9999 %	NBR	O

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

 Design overview on page 32.

MANN-FILTER Activated charcoal filters

MANN-FILTER Activated charcoal filters

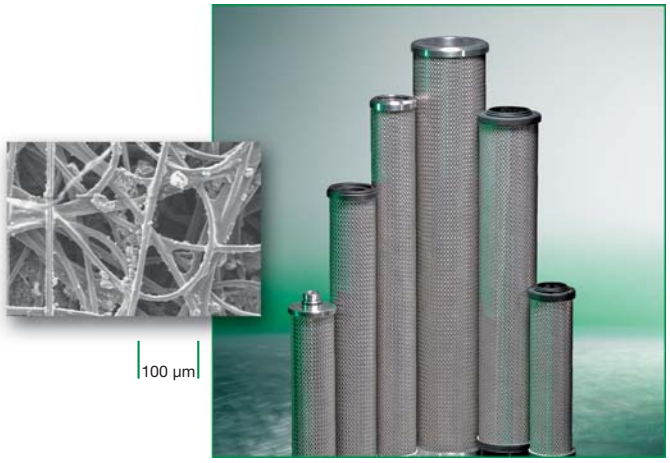
Activated charcoal filters are used for the adsorption of oil vapour and other gaseous contaminants.

In connection with an ultra fine filter (LD…/1) fitted upstream and appropriate drying equipment the filter LD…/3 generates clean compressed air which is technically oil-free according to the requirements* for breathing air as in DIN EN 12021 (previously DIN 3188 or BS 4275).

The recommended operating temperature range is from 1.5 °C to 40 °C.

The core of the filter is the pleated fabric made from microfibres enhanced with highly concentrated, fine ground activated charcoal. The fabric is covered on both sides by a filtration layer. This prevents any activated charcoal particles from entering the gas flow.

In comparison to a wound element with a similar size, the machine-produced pleating enables more than double the filter surface area with the respective amount of activated charcoal.



The supporting structure of the filter element consists of high quality stainless steel mesh with extremely large passage openings and end covers in plastic or aluminium.

Specifications

MANN FILTER	LD..../3
Residual oil content*[1]	0.003 mg/m³
Differential pressure in new condition dry*[2]	0.03 bar
Static bursting pressure	5 bar

* There are further requirements to take into consideration.
*[1] New condition relating to 1 bar (a), 20 °C with an incoming concentration of 0.01 mg/m³
*[2] Measured at 7 bar positive overpressure with example LD 6001/3 x

MANN-FILTER Activated charcoal filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Residual oil content*2	Differential pressure*3 [bar]	Seal	Design
	d_1	d_2	d_3	G	h					
LD 4001/3	35	18.5	–	WI 1/4	73	32	0.003 mg/m³	0.03	NBR	H
LD 4002/3	35	–	–	G 3/4"	76	20	0.003 mg/m³	0.03	NBR	E
LD 4003/3	35	–	–	G 3/4"	90	40	0.003 mg/m³	0.03	NBR	E
LD 5001/3 x	42	16.3	–	M 6	53	30	0.003 mg/m³	0.03	NBR	A
LD 5004/3	42	–	–	G 1"	89	60	0.003 mg/m³	0.03	NBR	D
LD 5005/3	42	–	–	G 3/4"	94	35	0.003 mg/m³	0.03	NBR	E
LD 5006/3	42	–	–	G 3/4"	94	60	0.003 mg/m³	0.03	NBR	E
LD 5007/3	42	–	–	G 3/4"	122	90	0.003 mg/m³	0.03	NBR	E
LD 5008/3	45	23	–	–	67.5	30	0.003 mg/m³	0.03	NBR	B
LD 5009/3	45	23	–	–	101	60	0.003 mg/m³	0.03	NBR	B
LD 5010/3	45	23	–	–	146	114	0.003 mg/m³	0.03	NBR	B
LD 5002/3	50	30.4	–	M 6	88	61	0.003 mg/m³	0.03	NBR	H
LD 5003/3	50	30.4	–	M 6	124	108	0.003 mg/m³	0.03	NBR	H
LD 6001/3 x	51	24	–	M 6	57	50	0.003 mg/m³	0.03	NBR	A
LD 6002/3 x	51	24	–	M 6	73	70	0.003 mg/m³	0.03	NBR	A
LD 6003/3 x	51	24	–	M 6	142	100	0.003 mg/m³	0.03	NBR	A
LD 6004/3	52	–	–	WI 1 1/2	93	90	0.003 mg/m³	0.03	NBR	D
LD 6005/3	52	–	–	WI 1 1/2	125	150	0.003 mg/m³	0.03	NBR	D
LD 6006/3	52	–	–	G 1"	128	120	0.003 mg/m³	0.03	NBR	E
LD 6007/3	52	–	–	G 1"	150	180	0.003 mg/m³	0.03	NBR	E
LD 6008/3	60	19.5	–	–	50	35	0.003 mg/m³	0.03	NBR	F
LD 6009/3	60	19.5	–	–	91	60	0.003 mg/m³	0.03	NBR	F
LD 6010/3	60	19.5	–	–	155	105	0.003 mg/m³	0.03	NBR	F
LD 6011/3	60	35	–	–	167	170	0.003 mg/m³	0.03	NBR	F
LD 6012/3	60	35	–	–	275	290	0.003 mg/m³	0.03	NBR	F
LD 6013/3	60	33	–	–	167	156	0.003 mg/m³	0.03	NBR	B
LD 6014/3	60	33	–	–	207	216	0.003 mg/m³	0.03	NBR	B
LD 7001/3	62	–	–	G 1"	125	210	0.003 mg/m³	0.03	NBR	D
LD 7002/3	62	–	–	G 1"	152	270	0.003 mg/m³	0.03	NBR	D
LD 7003/3	62	–	–	G 1"	151	270	0.003 mg/m³	0.03	NBR	E
LD 7004/3	62	–	–	G 1"	204	360	0.003 mg/m³	0.03	NBR	E
LD 7005/3	68	43	–	–	335	425	0.003 mg/m³	0.03	NBR	F
LD 7006/3	68	43	–	–	450	640	0.003 mg/m³	0.03	NBR	F
LD 8001/3 x	75	48	–	M 8	118.1	180	0.003 mg/m³	0.03	NBR	A
LD 8002/3 x	75	48	–	M 8	218.1	300	0.003 mg/m³	0.03	NBR	A
LD 8003/3 x	75	48	–	M 8	318.1	470	0.003 mg/m³	0.03	NBR	A
LD 8004/3 x	75	48	–	M 8	508.1	700	0.003 mg/m³	0.03	NBR	A
LD 8005/3	77	38	–	M 8	167	216	0.003 mg/m³	0.03	NBR	H
LD 8006/3	77	38	–	M 8	267	522	0.003 mg/m³	0.03	NBR	H
LD 9015/3	83	57.5	–	–	517	825	0.003 mg/m³	0.03	NBR	F

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

Design overview on page 32.

MANN-FILTER Activated charcoal filters

MANN FILTER	Dimensions in mm					Flow rate*1 [m³/h]	Residual oil content*2	Differential pressure*3 [bar]	Seal	Design
	d_1	d_2	d_3	G	h					
LD 9016/3	83	57.5	–	–	663	1060	0.003 mg/m³	0.03	NBR	F
LD 9017/3	83	57.5	–	–	821	1325	0.003 mg/m³	0.03	NBR	F
LD 9018/3 x	83	63	–	5/16"	771.5	1110	0.003 mg/m³	0.03	NBR	G
LD 9019/3 x	83	63	–	5/16"	625.5	1698	0.003 mg/m³	0.03	NBR	G
LD 9001/3	86	57.15	–	M 10	340	792	0.003 mg/m³	0.03	NBR	H
LD 9002/3	86	57.15	–	M 10	641.5	1188	0.003 mg/m³	0.03	NBR	H
LD 9003/3	86	–	–	G 1"	152	330	0.003 mg/m³	0.03	NBR	D
LD 9004/3	86	–	–	G 1"	205	480	0.003 mg/m³	0.03	NBR	D
LD 9005/3	86	–	–	G 1"	279	720	0.003 mg/m³	0.03	NBR	D
LD 9014/3	86	–	–	G 1"	330	860	0.003 mg/m³	0.03	NBR	D
LD 9006/3	86	56	13.5	–	391	1080	0.003 mg/m³	0.03	NBR	C
LD 9007/3	86	56	13.5	–	519	1440	0.003 mg/m³	0.03	NBR	C
LD 9008/3	86	56	13.5	–	771	1920	0.003 mg/m³	0.03	NBR	C
LD 9009/3	86	–	–	G 2"	206	480	0.003 mg/m³	0.03	NBR	E
LD 9010/3	86	–	–	G 2"	280	720	0.003 mg/m³	0.03	NBR	E
LD 9011/3	86	61	13.5	–	397	1080	0.003 mg/m³	0.03	NBR	B
LD 9012/3	86	61	13.5	–	525	1440	0.003 mg/m³	0.03	NBR	B
LD 9013/3	86	61	13.5	–	777	1920	0.003 mg/m³	0.03	NBR	B
LD 9020/3	86	46	–	–	300	432	0.003 mg/m³	0.03	NBR	B
LD 9021/3	86	46	–	–	335	540	0.003 mg/m³	0.03	NBR	B
LD 9022/3	86	46	–	–	380	630	0.003 mg/m³	0.03	NBR	B
LD 9023/3	86	66.3	–	M 8	607	2808	0.003 mg/m³	0.03	NBR	C
LD 10 001/3 x	92	68.2	–	M 8	510	940	0.003 mg/m³	0.03	NBR	A
LD 10 002/3 x	92	68.2	–	M 8	760	1450	0.003 mg/m³	0.03	NBR	A
LD 11 001/3	102	66.5	–	–	435	936	0.003 mg/m³	0.03	NBR	B
LD 12 001/3	114.5	76	–	M 10	423.5	1548	0.003 mg/m³	0.03	NBR	H
LD 12 002/3	114.5	76	–	M 10	644.5	2232	0.003 mg/m³	0.03	NBR	H
LD 12 003/3	120	78.5	–	–	523	1404	0.003 mg/m³	0.03	NBR	B
LD 12 004/3	120	78.5	–	–	693	1872	0.003 mg/m³	0.03	NBR	B
LD 13 001/3	122	78	–	M 8	694	1872	0.003 mg/m³	0.03	NBR	C
LD 14 001/3 x	140	100	18	–	605	1940	0.003 mg/m³	0.03	NBR	I
LD 14 002/3 x	140	100	18	–	755	2400	0.003 mg/m³	0.03	NBR	I
LD 14 003/3	140	82	13.5	–	771	2880	0.003 mg/m³	0.03	NBR	C
LD 14 004/3	140	89	13.5	–	777	2880	0.003 mg/m³	0.03	NBR	B

*1 Relating to 1 bar (a) and 20 °C at 7 bar positive overpressure
*2 Separation efficiency at nominal performance
*3 Differential pressure in new condition, dry, with nominal throughput
*4 Relating to MPPS 0.1 – 0.5 µm (**m**ost **p**enetrating **p**article **s**ize)

 Design overview on page 32.

MANN-FILTER Cross reference lists

Cross reference list for preliminary filters

	MANN FILTER
CECCATO	
3320	LD 6001/2 x
3321	LD 6002/2 x
3322	LD 6003/2 x
3323	LD 8001/2 x
3324	LD 8002/2 x
3325	LD 8003/2 x
3326	LD 8004/2 x
3327	LD 10 001/2 x
3328	LD 10 002/2 x
3329	LD 14 002/2 x
332801	LD 14 001/2 x
DOMNICK HUNTER	
E007PF	LD 5002/2
E011PF	LD 5003/2
E035PF	LD 8005/2
E060PF	LD 8006/2
E065PF	LD 8006/2
E120PF	LD 9001/2
E200PF	LD 9002/2
E250PF	LD 9002/2
E300PF	LD 12 002/2
E360PF	LD 12 002/2
EHA912PF	LD 6008/2
EHA916PF	LD 6009/2
EHA920PF	LD 6010/2
EHA924PF	LD 6011/2
EHA928PF	LD 6012/2
EHA932PF	LD 7005/2
EHA936PF	LD 7006/2
EHA940PF	LD 9015/2
EHA944PF	LD 9016/2
EHA948PF	LD 9017/2
EHA952PF	LD 9018/2 x
EHA954PF	LD 9019/2 x
EZ1030A0	LD 5001/2 x
EZ1050A0	LD 6001/2 x
EZ1070A0	LD 6002/2 x
EZ1140A0	LD 6003/2 x
EZ2010A0	LD 8001/2 x
EZ2020A0	LD 8002/2 x
EZ2030A0	LD 8003/2 x
EZ2050A0	LD 8004/2 x
EZ3050A0	LD 10 001/2 x
EZ3075A0	LD 10 002/2 x
EZ5060A0	LD 14 001/2 x
EZ5075A0	LD 14 002/2 x
K006PF	LD 4001/2
K009PF	LD 4001/2
K013PF	LD 5002/2
K017PF	LD 5002/2
K025PF	LD 5003/2
K030PF	LD 5003/2
K040PF	LD 8005/2
K058PF	LD 8005/2
K085PF	LD 8006/2
K145PF	LD 8006/2
K195PF	LD 9001/2
K220PF	LD 9001/2
K295PF	LD 9002/2
K330PF	LD 9002/2
K400PF	LD 12 001/2
K430PF	LD 12 001/2
K500PF	LD 12 002/2
K620PF	LD 12 002/2
PF02/05	LD 4002/2

	MANN FILTER
DOMNICK HUNTER	
PF02/10	LD 5005/2
PF03/05	LD 4003/2
PF03/10	LD 5006/2
PF04/10	LD 5007/2
PF04/20	LD 6006/2
PF05/20	LD 6007/2
PF05/25	LD 7003/2
PF07/25	LD 7004/2
PF07/30	LD 9009/2
PF10/3	LD 9005/2
PF10/30	LD 9010/2
PF15/3	LD 9006/2
PF15/30	LD 9011/2
PF20/3	LD 9007/2
PF20/30	LD 9012/2
PF3/1	LD 5004/2
PF3/1,5	LD 6004/2
PF30/3	LD 9008/2
PF30/30	LD 9013/2
PF30/5	LD 14 003/2
PF30/50	LD 14 004/2
PF4/1,5	LD 6005/2
PF4/2,5	LD 7001/2
PF5/2,5	LD 7002/2
PF5/3	LD 9003/2
GARDNER DENVER	
GDP02/05	LD 4002/2
GDP03/05	LD 4003/2
GDP03/10	LD 5006/2
GDP04/10	LD 5007/2
GDP04/20	LD 6006/2
GDP05/20	LD 6007/2
GDP05/25	LD 7003/2
GDP07/25	LD 7004/2
GDP07/30	LD 9009/2
GDP10/30	LD 9010/2
GDP15/30	LD 9011/2
GDP20/30	LD 9012/2
GDP30/30	LD 9013/2
GDP30/50	LD 14 004/2
HANKISON	
E9-12	LD 6008/2
E9-16	LD 6009/2
E9-20	LD 6010/2
E9-24	LD 6011/2
E9-28	LD 6012/2
E9-32	LD 7005/2
E9-36	LD 7006/2
E9-40	LD 9015/2
E9-44	LD 9016/2
E9-48	LD 9017/2
E9-52	LD 9018/2 x
E9-54	LD 9019/2 x
FINITE / PARKER	
100WS10-020	LD 6008/2
100WS10-036	LD 6009/2
100WS10-060	LD 6010/2
100WS16-066	LD 6011/2
100WS16-108	LD 6012/2
100WS19-131	LD 7005/2
100WS19-176	LD 7006/2
100WS25-204	LD 9015/2
100WS25-265	LD 9016/2

	MANN FILTER
FINITE / PARKER	
12GJN08-024	LD 4002/2
12GJN08-030	LD 4003/2
3PG25-150	LD 9006/2
3PG25-200	LD 9007/2
3PG25-300	LD 9008/2
3PG43-300	LD 14 003/2
3PGN25-150	LD 9011/2
3PGN25-200	LD 9012/2
3PGN25-300	LD 9013/2
3PGN43-300	LD 14 004/2
3PJ10-030	LD 5004/2
3PJ13-030	LD 6004/2
3PJ13-044	LD 6005/2
3PJ15-040	LD 7001/2
3PJ25-050	LD 9003/2
3PJ25-100	LD 9005/2
3PJN10-030	LD 5006/2
3PJN10-040	LD 5007/2
3PJN13-040	LD 6006/2
3PJN13-050	LD 6007/2
3PJN15-050	LD 7002/2
3PJN15-050	LD 7003/2
3PJN15-070	LD 7004/2
3PJN25-070	LD 9009/2
3PJN25-100	LD 9010/2
3PZ07-020	LD 5001/2 x
3PZ12-023	LD 6001/2 x
3PZ12-029	LD 6002/2 x
3PZ12-056	LD 6003/2 x
3PZ20-046	LD 8001/2 x
3PZ20-086	LD 8002/2 x
3PZ20-126	LD 8003/2 x
3PZ20-200	LD 8004/2 x
3PZ27-200	LD 10 001/2 x
3PZ27-298	LD 10 002/2 x
3PZ46-239	LD 14 001/2 x
3PZ50-298	LD 14 002/2 x
ULTRA-FILTER	
PE02/05	LD 4002/2
PE02/10	LD 5005/2
PE03/05	LD 4003/2
PE03/10	LD 5006/2
PE04/10	LD 5007/2
PE04/20	LD 6006/2
PE05/20	LD 6007/2
PE05/25	LD 7003/2
PE07/25	LD 7004/2
PE07/30	LD 9009/2
PE10/30	LD 9010/2
PE15/30	LD 9011/2
PE20/30	LD 9012/2
PE30/30	LD 9013/2
PE30/50	LD 14 004/2
SB02/05	LD 4002/2
SB02/10	LD 5005/2
SB03/05	LD 4003/2
SB03/10	LD 5006/2
SB04/10	LD 5007/2
SB04/20	LD 6006/2
SB05/20	LD 6007/2
SB05/25	LD 7003/2
SB07/25	LD 7004/2
SB07/30	LD 9009/2
SB10/30	LD 9010/2
SB15/30	LD 9011/2

	MANN FILTER
ULTRA-FILTER	
SB20/30	LD 9012/2
SB30/30	LD 9013/2
SB30/50	LD 14 004/2
VF12	LD 6008/2
VF16	LD 6009/2
VF20	LD 6010/2
VF24	LD 6011/2
VF28	LD 6012/2
VF32	LD 7005/2
VF36	LD 7006/2
VF40	LD 9015/2
VF44	LD 9016/2
VF48	LD 9017/2
VF54	LD 9019/2 x
VFPV	LD 9018/2 x
V-PE 12/2,5 Z	LD 8003/2 x
V-PE 2/1 Z	LD 5001/2 x
V-PE 2/1,5 Z	LD 6001/2 x
V-PE 20/2,5 Z	LD 8004/2 x
V-PE 20/3 Z	LD 10 001/2 x
V-PE 24/5 Z	LD 14 001/2 x
V-PE 3/1,5 Z	LD 6002/2 x
V-PE 30/3 Z	LD 10 002/2 x
V-PE 30/5 Z	LD 14 002/2 x
V-PE 4/2,5 Z	LD 8001/2 x
V-PE 5/1,5 Z	LD 6003/2 x
V-PE 8/2,5 Z	LD 8002/2 x
V-PE10/3	LD 9005/2
V-PE12/3	LD 9014/2
V-PE15/3	LD 9006/2
V-PE20/3	LD 9007/2
V-PE3/1	LD 5004/2
V-PE3/1,5	LD 6004/2
V-PE30/3	LD 9008/2
V-PE30/5	LD 14 003/2
V-PE4/1,5	LD 6005/2
V-PE4/2,5	LD 7001/2
V-PE5/2,5	LD 7002/2
V-PE5/3	LD 9003/2
V-PE7/3	LD 9004/2
V-SB10/3	LD 9005/2
V-SB12/3	LD 9014/2
V-SB15/3	LD 9006/2
V-SB20/3	LD 9007/2
V-SB3/1	LD 5004/2
V-SB3/1,5	LD 6004/2
V-SB30/3	LD 9008/2
V-SB30/5	LD 14 003/2
V-SB4/1,5	LD 6005/2
V-SB4/2,5	LD 7001/2
V-SB5/2,5	LD 7002/2
V-SB5/3	LD 9003/2
V-SB7/3	LD 9004/2
ZANDER	
1030V	LD 5001/2 x
1050V	LD 6001/2 x
1070V	LD 6002/2 x
1140V	LD 6003/2 x
2010V	LD 8001/2 x
2020V	LD 8002/2 x
2030V	LD 8003/2 x
2050V	LD 8004/2 x
3050V	LD 10 001/2 x
3075V	LD 10 002/2 x
5060V	LD 14 001/2 x

Cross reference list for preliminary filters

ZANDER	MANN FILTER
5075V	LD 14 002/2 x
80V-03/1	LD 5004/2
80V-03/1,5	LD 6004/2
80V-04/1,5	LD 6005/2
80V-04/2,5	LD 7001/2
80V-05/2,5	LD 7002/2
80V-05/3	LD 9003/2
80V-07/3	LD 9004/2
80V-10/3	LD 9005/2
80V-12/3	LD 9014/2
80V-15/3	LD 9006/2
80V-20/3	LD 9007/2
80V-30/3	LD 9008/2
80V-30/5	LD 14 003/2
90V-02/05	LD 4002/2
90V-02/10	LD 5005/2
90V-03/05	LD 4003/2
90V-03/10	LD 5006/2
90V-04/10	LD 5007/2
90V-04/20	LD 6006/2
90V-05/20	LD 6007/2
90V-05/25	LD 7003/2
90V-07/25	LD 7004/2
90V-07/30	LD 9009/2
90V-10/30	LD 9010/2
90V-15/30	LD 9011/2
90V-20/30	LD 9012/2
90V-30/30	LD 9013/2
90V-30/50	LD 14 004/2
AC009V	LD 5008/2
AC017V	LD 5009/2
AC032V	LD 5010/2
AC044V	LD 6013/2
AC060V	LD 6014/2
AC120V	LD 9020/2
AC150V	LD 9021/2
AC175V	LD 9022/2
AC260V	LD 11 001/2
AC390V	LD 12 003/2
AC520V	LD 12 004/2
ACF520V	LD 12 004/2
D009V	LD 4001/2
D017V	LD 5002/2
D030V	LD 5003/2
D058V	LD 8005/2
D145V	LD 8006/2
D220V	LD 9001/2
D330V	LD 9002/2
D430V	LD 12 001/2
D620V	LD 12 002/2
HK012V	LD 6008/2
HK016V	LD 6009/2
HK020V	LD 6010/2
HK024V	LD 6011/2
HK028V	LD 6012/2
HK032V	LD 7005/2
HK036V	LD 7006/2
HK040V	LD 9015/2
HK044V	LD 9016/2
HK048V	LD 9017/2
HK052V	LD 9018/2 x
HK054V	LD 9019/2 x
L1030V	LD 5001/2 x
L1050V	LD 6001/2 x
L1070V	LD 6002/2 x
L1140V	LD 6003/2 x

ZANDER	MANN FILTER
L2010V	LD 8001/2 x
L2020V	LD 8002/2 x
L2030V	LD 8003/2 x
L2050V	LD 8004/2 x
L3050V	LD 10 001/2 x
L3075V	LD 10 002/2 x
L5060V	LD 14 001/2 x
L5075V	LD 14 002/2 x

Cross reference list for fine filters

	MANN FILTER
CECCATO	
3330	LD 6001 x
3331	LD 6002 x
3332	LD 6003 x
3333	LD 8001 x
3334	LD 8002 x
3335	LD 8003 x
3336	LD 8004 x
3337	LD 10 001 x
3338	LD 10 002 x
3339	LD 14 002 x
3340	LD 6001 x
3341	LD 6002 x
3342	LD 6003 x
3343	LD 8001 x
3344	LD 8002 x
3345	LD 8003 x
3346	LD 8004 x
3347	LD 10 001 x
3348	LD 10 002 x
3349	LD 14 002 x
33381	LD 14 001 x
DOMNICK HUNTER	
AO02/05	LD 4002
AO02/10	LD 5005
AO03/05	LD 4003
AO03/10	LD 5006
AO04/10	LD 5007
AO04/20	LD 6006
AO05/20	LD 6007
AO05/25	LD 7003
AO07/25	LD 7004
AO07/30	LD 9009
AO10/3	LD 9005
AO10/30	LD 9010
AO15/3	LD 9006
AO15/30	LD 9011
AO20/3	LD 9007
AO20/30	LD 9012
AO3/1	LD 5004
AO3/1,5	LD 6004
AO30/3	LD 9008
AO30/30	LD 9013
AO30/5	LD 14 003
AO30/50	LD 14 004
AO4/1,5	LD 6005
AO4/2,5	LD 7001
AO5/2,5	LD 7002
AO5/3	LD 9003
C12MSDB	LD 9001
C245MSD	LD 12 002
E006AO	LD 4001
E007AO	LD 5002
E011AO	LD 5003
E013AO	LD 5002
E025AO	LD 5003
E035AO	LD 8005
E040AO	LD 8005
E060AO	LD 8006
E065AO	LD 8006
E085AO	LD 8006
E100AO	LD 9001
E120AO	LD 9001
E195AO	LD 9001
E198AO	LD 9002
E200AO	LD 9002

	MANN FILTER
DOMNICK HUNTER	
E250AO	LD 9002
E295AO	LD 9002
E300AO	LD 12 002
E360AO	LD 12 002
E400AO	LD 12 001
E500AO	LD 12 002
EHA612AO	LD 6008
EHA616AO	LD 6009
EHA620AO	LD 6010
EHA624AO	LD 6011
EHA628AO	LD 6012
EHA632AO	LD 7005
EHA636AO	LD 7006
EHA640AO	LD 9015
EHA644AO	LD 9016
EHA648AO	LD 9017
EHA652AO	LD 9018 x
EHA654AO	LD 9019 x
EHA712AO	LD 6008
EHA716AO	LD 6009
EHA720AO	LD 6010
EHA724AO	LD 6011
EHA728AO	LD 6012
EHA732AO	LD 7005
EHA736AO	LD 7006
EHA740AO	LD 9015
EHA744AO	LD 9016
EHA748AO	LD 9017
EHA752AO	LD 9018 x
EHA754AO	LD 9019 x
EZ1030A0	LD 5001 x
EZ1050A0	LD 6001 x
EZ1070A0	LD 6002 x
EZ1140A0	LD 6003 x
EZ2010A0	LD 8001 x
EZ2020A0	LD 8002 x
EZ2030A0	LD 8003 x
EZ2050A0	LD 8004 x
EZ3050A0	LD 10 001 x
EZ3075A0	LD 10 002 x
EZ5060A0	LD 14 001 x
EZ5075A0	LD 14 002 x
K006AO	LD 4001
K009AO	LD 4001
K013AO	LD 5002
K017AO	LD 5002
K025AO	LD 5003
K030AO	LD 5003
K040AO	LD 8005
K058AO	LD 8005
K085AO	LD 8006
K145AO	LD 8006
K180AO	LD 9002
K195AO	LD 9001
K220AO	LD 9001
K295AO	LD 9002
K330AO	LD 9002
K400AO	LD 12 001
K430AO	LD 12 001
K500AO	LD 12 002
K620AO	LD 12 002
GARDNER DENVER	
GDF02/05	LD 4002
GDF03/05	LD 4003
GDF03/10	LD 5006

	MANN FILTER
GARDNER DENVER	
GDF04/10	LD 5007
GDF04/20	LD 6006
GDF05/25	LD 7003
GDF07/25	LD 7004
GDF07/30	LD 9009
GDF10/30	LD 9010
GDF15/30	LD 9011
GDF20/30	LD 9012
GDF30/30	LD 9013
GDF30/50	LD 14 004
HANKISON	
E7-12	LD 6008
E7-16	LD 6009
E7-20	LD 6010
E7-24	LD 6011
E7-28	LD 6012
E7-32	LD 7005
E7-36	LD 7006
E7-40	LD 9015
E7-44	LD 9016
E7-48	LD 9017
E7-52	LD 9018 x
E7-54	LD 9019 x
FINITE / PARKER	
10CF08-026	LD 4001
10CF35-165	LD 12 001
10CF43-252	LD 12 002
10CH10-020	LD 6008
10CH10-036	LD 6009
10CH10-060	LD 6010
10CH16-066	LD 6011
10CH16-108	LD 6012
10CH19-131	LD 7005
10CH19-176	LD 7006
10CH25-204	LD 9015
10CH25-265	LD 9016
10CJ10-030	LD 5004
10CJ13-030	LD 6004
10CJ13-044	LD 6005
10CJN10-030	LD 5006
10CJN10-040	LD 5007
10CJN13-040	LD 6006
10CJN13-050	LD 6007
10CZ07-020	LD 5001 x
10CZ12-023	LD 6001 x
10CZ12-029	LD 6002 x
10CZ12-056	LD 6003 x
10CZ20-046	LD 8001 x
10CZ20-086	LD 8002 x
10CZ20-126	LD 8003 x
10CZ20-200	LD 8004 x
10CZ27-200	LD 10 001 x
10CZ27-298	LD 10 002 x
10CZ46-239	LD 14 001 x
10CZ50-298	LD 14 002 x
10HJN08-024	LD 4002
10HJN08-030	LD 4003
10IF10-032	LD 5002
10IF10-046	LD 5003
10IF20-063	LD 8005
10IF20-102	LD 8006
10IF25-134	LD 9001
10IF25-254	LD 9002
10IG25-150	LD 9006

	MANN FILTER
FINITE / PARKER	
10IG25-200	LD 9007
10IG25-300	LD 9008
10IGN25-150	LD 9011
10IGN25-200	LD 9012
10IGN25-300	LD 9013
10IJ15-040	LD 7001
10IJ25-050	LD 9003
10IJ25-100	LD 9005
10IJN15-050	LD 7002
10IJN15-050	LD 7003
10IJN15-070	LD 7004
10IJN25-070	LD 9009
10IJN25-100	LD 9010
10QG43-300	LD 14 003
10QGN43-300	LD 14 004
SULLAIR	
250024423	LD 4001
250024424	LD 5002
250024425	LD 5003
250024426	LD 8005
250024427	LD 8006
250024428	LD 9001
250024429	LD 9002
250024430	LD 12 002
250024438	LD 12 002
250030644	LD 12 001
ULTRA-FILTER	
1296432	LD 8005
1382064/11	LD 8006
FF02/05	LD 4002
FF02/10	LD 5005
FF03/05	LD 4003
FF03/10	LD 5006
FF04/10	LD 5007
FF04/20	LD 6006
FF05/20	LD 6007
FF05/25	LD 7003
FF07/25	LD 7004
FF07/30	LD 9009
FF10/2,5D	LD 8006
FF10/3	LD 9005
FF10/30	LD 9010
FF12	LD 6008
FF12/2,5 Z	LD 8003 x
FF12/3	LD 9014
FF12/3D	LD 9001
FF15/3	LD 9006
FF15/30	LD 9011
FF15/5D	LD 12 001
FF16	LD 6009
FF2/0,5D	LD 4001
FF2/1 Z	LD 5001 x
FF2/1,5 Z	LD 6001 x
FF20	LD 6010
FF20/2,5 Z	LD 8004 x
FF20/3	LD 9007
FF20/3 Z	LD 10 001 x
FF20/30	LD 9012
FF24	LD 6011
FF24/3D	LD 9002
FF24/5 Z	LD 14 001 x
FF24/5D	LD 12 002
FF28	LD 6012
FF3/1	LD 5004

Cross reference list for fine filters

	MANN FILTER
ULTRA-FILTER	
FF3/1,5	**LD 6004**
FF3/1,5 Z	**LD 6002 x**
FF3/1,5D	**LD 5002**
FF30/3	**LD 9008**
FF30/3 Z	**LD 10 002 x**
FF30/30	**LD 9013**
FF30/5	**LD 14 003**
FF30/5 Z	**LD 14 002 x**
FF30/50	**LD 14 004**
FF32	**LD 7005**
FF36	**LD 7006**
FF4/1,5	**LD 6005**
FF4/1,5D	**LD 5003**
FF4/2,5	**LD 7001**
FF4/2,5 Z	**LD 8001 x**
FF40	**LD 9015**
FF44	**LD 9016**
FF48	**LD 9017**
FF5/1,5 Z	**LD 6003 x**
FF5/2,5	**LD 7002**
FF5/3	**LD 9003**
FF54	**LD 9019 x**
FF6/2,5D	**LD 8005**
FF7/3	**LD 9004**
FF8/2,5 Z	**LD 8002 x**
FFPV	**LD 9018 x**
ZANDER	
1030Z	**LD 5001 x**
1050Z	**LD 6001 x**
1070Z	**LD 6002 x**
1140Z	**LD 6003 x**
2010Z	**LD 8001 x**
2020Z	**LD 8002 x**
2030Z	**LD 8003 x**
2050Z	**LD 8004 x**
3050Z	**LD 10 001 x**
3075Z	**LD 10 002 x**
5060Z	**LD 14 001 x**
5075Z	**LD 14 002 x**
80Z-03/1	**LD 5004**
80Z-03/1,5	**LD 6004**
80Z-04/1,5	**LD 6005**
80Z-04/2,5	**LD 7001**
80Z-05/2,5	**LD 7002**
80Z-05/3	**LD 9003**
80Z-07/3	**LD 9004**
80Z-10/3	**LD 9005**
80Z-12/3	**LD 9014**
80Z-15/3	**LD 9006**
80Z-20/3	**LD 9007**
80Z-30/3	**LD 9008**
80Z-30/5	**LD 14 003**
90Z-02/05	**LD 4002**
90Z-02/10	**LD 5005**
90Z-03/05	**LD 4003**
90Z-03/10	**LD 5006**
90Z-04/10	**LD 5007**
90Z-04/20	**LD 6006**
90Z-05/20	**LD 6007**
90Z-05/25	**LD 7003**
90Z-07/25	**LD 7004**
90Z-07/30	**LD 9009**
90Z-10/30	**LD 9010**
90Z-15/30	**LD 9011**
90Z-20/30	**LD 9012**

	MANN FILTER
ZANDER	
90Z-30/30	**LD 9013**
90Z-30/50	**LD 14 004**
AC009Z	**LD 5008**
AC017Z	**LD 5009**
AC032Z	**LD 5010**
AC044Z	**LD 6013**
AC060Z	**LD 6014**
AC120Z	**LD 9020**
AC150Z	**LD 9021**
AC175Z	**LD 9022**
AC260Z	**LD 11 001**
AC390Z	**LD 12 003**
AC520Z	**LD 12 004**
ACF520Z	**LD 13 001**
ACF780Z	**LD 9023**
D006Z	**LD 4001**
D007Z	**LD 5002**
D009Z	**LD 4001**
D013Z	**LD 5002**
D017Z	**LD 5002**
D025Z	**LD 5003**
D030Z	**LD 5003**
D035Z	**LD 8005**
D040Z	**LD 8005**
D058Z	**LD 8005**
D085Z	**LD 8006**
D120Z	**LD 9001**
D145Z	**LD 8006**
D195Z	**LD 9001**
D220Z	**LD 9001**
D250Z	**LD 9002**
D295Z	**LD 9002**
D330Z	**LD 9002**
D400Z	**LD 12 001**
D430Z	**LD 12 001**
D500Z	**LD 12 002**
D620Z	**LD 12 002**
HK012Z	**LD 6008**
HK016Z	**LD 6009**
HK020Z	**LD 6010**
HK024Z	**LD 6011**
HK028Z	**LD 6012**
HK032Z	**LD 7005**
HK036Z	**LD 7006**
HK040Z	**LD 9015**
HK044Z	**LD 9016**
HK048Z	**LD 9017**
HK052Z	**LD 9018 x**
HK054Z	**LD 9019 x**
L1030Z	**LD 5001 x**
L1050Z	**LD 6001 x**
L1070Z	**LD 6002 x**
L1140Z	**LD 6003 x**
L2010Z	**LD 8001 x**
L2020Z	**LD 8002 x**
L2030Z	**LD 8003 x**
L2050Z	**LD 8004 x**
L3050Z	**LD 10 001 x**
L3075Z	**LD 10 002 x**
L5060Z	**LD 14 001 x**
L5075Z	**LD 14 002 x**

Cross reference list for ultra fine filters

	MANN FILTER
CECCATO	
3360	LD 6001/1 x
3361	LD 6002/1 x
3362	LD 6003/1 x
3363	LD 8001/1 x
3364	LD 8002/1 x
3365	LD 8003/1 x
3366	LD 8004/1 x
3367	LD 10 001/1 x
3368	LD 10 002/1 x
3369	LD 14 002/1 x
336801	LD 14 001/1 x
DOMNICK HUNTER	
AA02/05	LD 4002/1
AA02/10	LD 5005/1
AA03/05	LD 4003/1
AA03/10	LD 5006/1
AA04/10	LD 5007/1
AA04/20	LD 6006/1
AA05/20	LD 6007/1
AA05/25	LD 7003/1
AA07/25	LD 7004/1
AA07/30	LD 9009/1
AA10/3	LD 9005/1
AA10/30	LD 9010/1
AA15/3	LD 9006/1
AA15/30	LD 9011/1
AA20/3	LD 9007/1
AA20/30	LD 9012/1
AA3/1	LD 5004/1
AA3/1,5	LD 6004/1
AA30/3	LD 9008/1
AA30/30	LD 9013/1
AA30/5	LD 14 003/1
AA30/50	LD 14 004/1
AA4/1,5	LD 6005/1
AA4/2,5	LD 7001/1
AA5/2,5	LD 7002/1
AA5/3	LD 9003/1
E006AA	LD 4001/1
E007AA	LD 5002/1
E011AA	LD 5003/1
E013AA	LD 5002/1
E025AA	LD 5003/1
E035AA	LD 8005/1
E040AA	LD 8005/1
E060AA	LD 8006/1
E065AA	LD 8006/1
E085AA	LD 8006/1
E100AA	LD 9001/1
E120AA	LD 9001/1
E195AA	LD 9001/1
E198AA	LD 9002/1
E200AA	LD 9002/1
E250AA	LD 9002/1
E295AA	LD 9002/1
E300AA	LD 12 002/1
E360AA	LD 12 002/1
E400AA	LD 12 001/1
E500AA	LD 12 002/1
EHA712AA	LD 6008/1
EHA716AA	LD 6009/1
EHA720AA	LD 6010/1
EHA724AA	LD 6011/1
EHA728AA	LD 6012/1
EHA732AA	LD 7005/1

	MANN FILTER
DOMNICK HUNTER	
EHA736AA	LD 7006/1
EHA740AA	LD 9015/1
EHA744AA	LD 9016/1
EHA748AA	LD 9017/1
EHA752AA	LD 9018/1 x
EHA754AA	LD 9019/1 x
EZ1030AA	LD 5001/1 x
EZ1050AA	LD 6001/1 x
EZ1070AA	LD 6002/1 x
EZ1140AA	LD 6003/1 x
EZ2010AA	LD 8001/1 x
EZ2020AA	LD 8002/1 x
EZ2030AA	LD 8003/1 x
EZ2050AA	LD 8004/1 x
EZ3050AA	LD 10 001/1 x
EZ3075AA	LD 10 002/1 x
EZ5060AA	LD 14 001/1 x
EZ5075AA	LD 14 002/1 x
K006AA	LD 4001/1
K007AA	LD 5002/1
K009AA	LD 4001/1
K013AA	LD 5002/1
K017AA	LD 5002/1
K025AA	LD 5003/1
K030AA	LD 5003/1
K035AA	LD 8005/1
K040AA	LD 8005/1
K058AA	LD 8005/1
K085AA	LD 8006/1
K120AA	LD 9001/1
K145AA	LD 8006/1
K180AA	LD 9002/1
K195AA	LD 9001/1
K220AA	LD 9001/1
K250AA	LD 9002/1
K295AA	LD 9002/1
K300AA	LD 9002/1
K330AA	LD 9002/1
K360AA	LD 12 002/1
K400AA	LD 12 001/1
K430AA	LD 12 001/1
K500AA	LD 12 002/1
K620AA	LD 12 002/1
GARDNER DENVER	
GDU02/05	LD 4002/1
GDU03/05	LD 4003/1
GDU03/10	LD 5006/1
GDU04/10	LD 5007/1
GDU04/20	LD 6006/1
GDU05/20	LD 6007/1
GDU05/25	LD 7003/1
GDU07/25	LD 7004/1
GDU07/30	LD 9009/1
GDU10/30	LD 9010/1
GDU15/30	LD 9011/1
GDU20/30	LD 9012/1
GDU30/30	LD 9013/1
GDU30/50	LD 14 004/1
HANKISON	
E5-12	LD 6008/1
E5-16	LD 6009/1
E5-20	LD 6010/1
E5-24	LD 6011/1
E5-28	LD 6012/1

	MANN FILTER
HANKISON	
E5-32	LD 7005/1
E5-36	LD 7006/1
E5-40	LD 9015/1
E5-44	LD 9016/1
E5-48	LD 9017/1
E5-52	LD 9018/1 x
E5-54	LD 9019/1 x
FINITE / PARKER	
12GJN08-024	LD 4002/1
12GJN08-030	LD 4003/1
3PGN25-150	LD 9011/1
3PGN25-200	LD 9012/1
3PGN25-300	LD 9013/1
3PGN43-300	LD 14 004/1
3PJN10-030	LD 5006/1
3PJN10-040	LD 5007/1
3PJN13-040	LD 6006/1
3PJN13-050	LD 6007/1
3PJN15-050	LD 7003/1
3PJN15-070	LD 7004/1
3PJN25-070	LD 9009/1
3PJN25-100	LD 9010/1
4CJ10-030	LD 5004/1
4CJ13-030	LD 6004/1
4CJ13-044	LD 6005/1
4IG25-150	LD 9006/1
4IG25-200	LD 9007/1
4IG25-300	LD 9008/1
4IJ15-040	LD 7001/1
4IJ25-050	LD 9003/1
4IJ25-100	LD 9005/1
4IJN15-050	LD 7002/1
4QG43-300	LD 14 003/1
6CF08-026	LD 4001/1
6CF35-165	LD 12 001/1
6CF43-252	LD 12 002/1
6CH10-020	LD 6008/1
6CH10-036	LD 6009/1
6CH10-060	LD 6010/1
6CH16-066	LD 6011/1
6CH16-108	LD 6012/1
6CH19-131	LD 7005/1
6CH19-176	LD 7006/1
6CH25-204	LD 9015/1
6CH25-265	LD 9016/1
6CJ10-030	LD 5004/1
6CJ13-030	LD 6004/1
6CJ13-044	LD 6005/1
6CZ07-020	LD 5001/1 x
6CZ12-023	LD 6001/1 x
6CZ12-029	LD 6002/1 x
6CZ12-056	LD 6003/1 x
6CZ20-046	LD 8001/1 x
6CZ20-086	LD 8002/1 x
6CZ20-126	LD 8003/1 x
6CZ20-200	LD 8004/1 x
6CZ27-200	LD 10 001/1 x
6CZ27-298	LD 10 002/1 x
6CZ46-239	LD 14 001/1 x
6CZ50-298	LD 14 002/1 x
6IF10-032	LD 5002/1
6IF10-046	LD 5003/1
6IF20-063	LD 8005/1
6IF20-102	LD 8006/1
6IF25-134	LD 9001/1

	MANN FILTER
FINITE / PARKER	
6IF25-254	LD 9002/1
6IG25-150	LD 9006/1
6IG25-200	LD 9007/1
6IG25-300	LD 9008/1
6IJ15-040	LD 7001/1
6IJ25-050	LD 9003/1
6IJ25-100	LD 9005/1
6IJN15-050	LD 7002/1
6QG43-300	LD 14 003/1
SULLAIR	
250024430	LD 12 002/1
250024431	LD 4001/1
250024432	LD 5002/1
250024433	LD 5003/1
250024434	LD 8005/1
250024435	LD 8006/1
250024436	LD 9001/1
250024437	LD 9002/1
250024438	LD 12 002/1
250030655	LD 12 001/1
ULTRA-FILTER	
MF02/05	LD 4002/1
MF02/10	LD 5005/1
MF03/05	LD 4003/1
MF03/10	LD 5006/1
MF04/10	LD 5007/1
MF04/20	LD 6006/1
MF05/20	LD 6007/1
MF05/25	LD 7003/1
MF07/25	LD 7004/1
MF07/30	LD 9009/1
MF10/3	LD 9005/1
MF10/30	LD 9010/1
MF12/3	LD 9014/1
MF15/3	LD 9006/1
MF15/30	LD 9011/1
MF20/3	LD 9007/1
MF20/30	LD 9012/1
MF3/1	LD 5004/1
MF3/1,5	LD 6004/1
MF30/3	LD 9008/1
MF30/30	LD 9013/1
MF30/5	LD 14 003/1
MF30/50	LD 14 004/1
MF4/1,5	LD 6005/1
MF4/2,5	LD 7001/1
MF5/2,5	LD 7002/1
MF5/3	LD 9003/1
MF7/3	LD 9004/1
SMF02/05	LD 4002/1
SMF02/10	LD 5005/1
SMF03/05	LD 4003/1
SMF03/10	LD 5006/1
SMF04/10	LD 5007/1
SMF04/20	LD 6006/1
SMF05/20	LD 6007/1
SMF05/25	LD 7003/1
SMF07/25	LD 7004/1
SMF07/30	LD 9009/1
SMF10/3	LD 9005/1
SMF10/30	LD 9010/1
SMF12/3	LD 9014/1
SMF15/3	LD 9006/1
SMF15/30	LD 9011/1

Cross reference list for ultra fine filters

	MANN FILTER
ULTRA-FILTER	
SMF20/3	**LD 9007/1**
SMF20/30	**LD 9012/1**
SMF3/1	**LD 5004/1**
SMF3/1,5	**LD 6004/1**
SMF30/3	**LD 9008/1**
SMF30/30	**LD 9013/1**
SMF30/5	**LD 14 003/1**
SMF30/50	**LD 14 004/1**
SMF4/1,5	**LD 6005/1**
SMF4/2,5	**LD 7001/1**
SMF5/2,5	**LD 7002/1**
SMF5/3	**LD 9003/1**
SMF7/3	**LD 9004/1**
ZANDER	
1030X	**LD 5001/1 x**
1050X	**LD 6001/1 x**
1070X	**LD 6002/1 x**
1140X	**LD 6003/1 x**
2010X	**LD 8001/1 x**
2020X	**LD 8002/1 x**
2030X	**LD 8003/1 x**
2050X	**LD 8004/1 x**
3050X	**LD 10 001/1 x**
3075X	**LD 10 002/1 x**
5060X	**LD 14 001/1 x**
5075X	**LD 14 002/1 x**
80X-03/1	**LD 5004/1**
80X-03/1,5	**LD 6004/1**
80X-04/1,5	**LD 6005/1**
80X-04/2,5	**LD 7001/1**
80X-05/2,5	**LD 7002/1**
80X-05/3	**LD 9003/1**
80X-07/3	**LD 9004/1**
80X-10/3	**LD 9005/1**
80X-12/3	**LD 9014/1**
80X-15/3	**LD 9006/1**
80X-20/3	**LD 9007/1**
80X-30/3	**LD 9008/1**
80X-30/5	**LD 14 003/1**
90X-02/05	**LD 4002/1**
90X-02/10	**LD 5005/1**
90X-03/05	**LD 4003/1**
90X-03/10	**LD 5006/1**
90X-04/10	**LD 5007/1**
90X-04/20	**LD 6006/1**
90X-05/20	**LD 6007/1**
90X-05/25	**LD 7003/1**
90X-07/25	**LD 7004/1**
90X-07/30	**LD 9009/1**
90X-10/30	**LD 9010/1**
90X-15/30	**LD 9011/1**
90X-20/30	**LD 9012/1**
90X-30/30	**LD 9013/1**
90X-30/50	**LD 14 004/1**
AC009X	**LD 5008/1**
AC017X	**LD 5009/1**
AC032X	**LD 5010/1**
AC044X	**LD 6013/1**
AC060X	**LD 6014/1**
AC120X	**LD 9020/1**
AC150X	**LD 9021/1**
AC175X	**LD 9022/1**
AC260X	**LD 11 001/1**
AC390X	**LD 12 003/1**
AC520X	**LD 12 004/1**

	MANN FILTER
ZANDER	
D006X	**LD 4001/1**
D009X	**LD 4001/1**
D013X	**LD 5002/1**
D017X	**LD 5002/1**
D025X	**LD 5003/1**
D030X	**LD 5003/1**
D035X	**LD 8005/1**
D040X	**LD 8005/1**
D058X	**LD 8005/1**
D085X	**LD 8006/1**
D120X	**LD 9001/1**
D145X	**LD 8006/1**
D195X	**LD 9001/1**
D220X	**LD 9001/1**
D250X	**LD 9002/1**
D295X	**LD 9002/1**
D330X	**LD 9002/1**
D400X	**LD 12 001/1**
D430X	**LD 12 001/1**
D500X	**LD 12 002/1**
D620X	**LD 12 002/1**
HK012X	**LD 6008/1**
HK016X	**LD 6009/1**
HK020X	**LD 6010/1**
HK024X	**LD 6011/1**
HK028X	**LD 6012/1**
HK032X	**LD 7005/1**
HK036X	**LD 7006/1**
HK040X	**LD 9015/1**
HK044X	**LD 9016/1**
HK048X	**LD 9017/1**
HK052X	**LD 9018/1 x**
HK054X	**LD 9019/1 x**
L1030X	**LD 5001/1 x**
L1050X	**LD 6001/1 x**
L1070X	**LD 6002/1 x**
L1140X	**LD 6003/1 x**
L2010X	**LD 8001/1 x**
L2020X	**LD 8002/1 x**
L2030X	**LD 8003/1 x**
L2050X	**LD 8004/1 x**
L3050X	**LD 10 001/1 x**
L3075X	**LD 10 002/1 x**
L5060X	**LD 14 001/1 x**
L5075X	**LD 14 002/1 x**

Cross reference list for activated charcoal filters

	MANN FILTER
CECCATO	
3380	LD 6001/3 x
3381	LD 6002/3 x
3382	LD 6003/3 x
3383	LD 8001/3 x
3384	LD 8002/3 x
3385	LD 8003/3 x
3386	LD 8004/3 x
3387	LD 10 001/3 x
3388	LD 10 002/3 x
3389	LD 14 002/3 x
338801	LD 14 001/3 x
DOMNICK HUNTER	
AC02/05	LD 4002/3
AC02/10	LD 5005/3
AC03/05	LD 4003/3
AC03/10	LD 5006/3
AC04/10	LD 5007/3
AC04/20	LD 6006/3
AC05/20	LD 6007/3
AC05/25	LD 7003/3
AC07/25	LD 7004/3
AC07/30	LD 9009/3
AC10/3	LD 9005/3
AC10/30	LD 9010/3
AC15/3	LD 9006/3
AC15/30	LD 9011/3
AC20/3	LD 9007/3
AC20/30	LD 9012/3
AC3/1	LD 5004/3
AC3/1,5	LD 6004/3
AC30/3	LD 9008/3
AC30/30	LD 9013/3
AC30/5	LD 14 003/3
AC30/50	LD 14 004/3
AC4/1,5	LD 6005/3
AC4/2,5	LD 7001/3
AC5/2,5	LD 7002/3
AC5/3	LD 9003/3
E006AC	LD 4001/3
E007AC	LD 5002/3
E011AC	LD 5003/3
E013AC	LD 5002/3
E025AC	LD 5003/3
E035AC	LD 8005/3
E040AC	LD 8005/3
E060ACS	LD 8006/3
E065ACS	LD 8006/3
E085AC	LD 8006/3
E120AC	LD 9001/3
E195AC	LD 9001/3
E198AC	LD 9002/3
E200AC	LD 9002/3
E250AC	LD 9002/3
E295AC	LD 9002/3
E300AC	LD 12 002/3
E360AC	LD 12 002/3
E400AC	LD 12 001/3
E500AC	LD 12 002/3
EHA112AC	LD 6008/3
EHA116AC	LD 6009/3
EHA120AC	LD 6010/3
EHA124AC	LD 6011/3
EHA128AC	LD 6012/3
EHA132AC	LD 7005/3

	MANN FILTER
DOMNICK HUNTER	
EHA136AC	LD 7006/3
EHA140AC	LD 9015/3
EHA144AC	LD 9016/3
EHA148AC	LD 9017/3
EHA152AC	LD 9018/3 x
EHA154AC	LD 9019/3 x
EZ1030AC	LD 5001/3 x
EZ1050AC	LD 6001/3 x
EZ1070AC	LD 6002/3 x
EZ1140AC	LD 6003/3 x
EZ2010AC	LD 8001/3 x
EZ2020AC	LD 8002/3 x
EZ2030AC	LD 8003/3 x
EZ2050AC	LD 8004/3 x
EZ3050AC	LD 10 001/3 x
EZ3075AC	LD 10 002/3 x
EZ5060AC	LD 14 001/3 x
EZ5075AC	LD 14 002/3 x
K006ACS	LD 4001/3
K007ACS	LD 5002/3
K009ACS	LD 4001/3
K013ACS	LD 5002/3
K017ACS	LD 5002/3
K025ACS	LD 5003/3
K030ACS	LD 5003/3
K035ACS	LD 8005/3
K040ACS	LD 8005/3
K058ACS	LD 8005/3
K085ACS	LD 8006/3
K145ACS	LD 8006/3
K180ACS	LD 9002/3
K195AC	LD 9001/3
K220ACS	LD 9001/3
K250ACS	LD 9002/3
K295AC	LD 9002/3
K295ACS	LD 9002/3
K300ACS	LD 9002/3
K330ACS	LD 9002/3
K360ACS	LD 12 002/3
K400AC	LD 12 001/3
K400ACS	LD 12 001/3
K430ACS	LD 12 001/3
K500AC	LD 12 002/3
K500ACS	LD 12 002/3
K620ACS	LD 12 002/3
GARDNER DENVER	
GDK02/05	LD 4002/3
GDK03/05	LD 4003/3
GDK03/10	LD 5006/3
GDK04/10	LD 5007/3
GDK04/20	LD 6006/3
GDK05/20	LD 6007/3
GDK05/25	LD 7003/3
GDK07/25	LD 7004/3
GDK07/30	LD 9009/3
GDK10/30	LD 9010/3
GDK15/30	LD 9011/3
GDK20/30	LD 9012/3
GDK30/30	LD 9013/3
GDK30/50	LD 14 004/3
HANKISON	
E1-12	LD 6008/3
E1-16	LD 6009/3

	MANN FILTER
HANKISON	
E1-20	LD 6010/3
E1-24	LD 6011/3
E1-28	LD 6012/3
E1-32	LD 7005/3
E1-36	LD 7006/3
E1-40	LD 9015/3
E1-44	LD 9016/3
E1-48	LD 9017/3
E1-52	LD 9018/3 x
E1-54	LD 9019/3 x
FINITE / PARKER	
AF08-026	LD 4001/3
AF10-032	LD 5002/3
AF10-046	LD 5003/3
AF20-063	LD 8005/3
AF20-102	LD 8006/3
AF25-134	LD 9001/3
AF25-254	LD 9002/3
AF35-165	LD 12 001/3
AF43-252	LD 12 002/3
AG25-150	LD 9006/3
AG25-200	LD 9007/3
AG25-300	LD 9008/3
AG43-300	LD 14 003/3
AGN25-150	LD 9011/3
AGN25-200	LD 9012/3
AGN25-300	LD 9013/3
AGN43-300	LD 14 004/3
AH10-020	LD 6008/3
AH10-036	LD 6009/3
AH10-060	LD 6010/3
AHC16-066	LD 6011/3
AHC16-108	LD 6012/3
AHC19-131	LD 7005/3
AHC19-176	LD 7006/3
AHC25-204	LD 9015/3
AHC25-265	LD 9016/3
AJ10-030	LD 5004/3
AJ13-030	LD 6004/3
AJ13-044	LD 6005/3
AJ15-040	LD 7001/3
AJ25-050	LD 9003/3
AJ25-100	LD 9005/3
AJN08-024	LD 4002/3
AJN08-030	LD 4003/3
AJN10-030	LD 5006/3
AJN10-040	LD 5007/3
AJN13-040	LD 6006/3
AJN13-050	LD 6007/3
AJN15-050	LD 7002/3
AJN15-050	LD 7003/3
AJN15-070	LD 7004/3
AJN25-070	LD 9009/3
AJN25-100	LD 9010/3
AZ07-020	LD 5001/3 x
AZ12-023	LD 6001/3 x
AZ12-029	LD 6002/3 x
AZ12-056	LD 6003/3 x
AZ20-046	LD 8001/3 x
AZ20-086	LD 8002/3 x
AZ20-126	LD 8003/3 x
AZ20-200	LD 8004/3 x
AZ27-200	LD 10 001/3 x
AZ27-298	LD 10 002/3 x

	MANN FILTER
FINITE / PARKER	
AZ46-239	LD 14 001/3 x
AZ50-298	LD 14 002/3 x
SULLAIR	
250024439	LD 9001/3
250024440	LD 9002/3
2500024441	LD 12 002/3
250024443	LD 4001/3
250024444	LD 5002/3
250024445	LD 5003/3
250024446	LD 8005/3
250024447	LD 8006/3
250030646	LD 12 002/3
ULTRA-FILTER	
1382064/5	LD 8006/3
AK02/05	LD 4002/3
AK02/10	LD 5005/3
AK03/05	LD 4003/3
AK03/10	LD 5006/3
AK04/10	LD 5007/3
AK04/20	LD 6006/3
AK05/20	LD 6007/3
AK05/25	LD 7003/3
AK07/25	LD 7004/3
AK07/30	LD 9009/3
AK10/2,5D	LD 8006/3
AK10/3	LD 9005/3
AK10/30	LD 9010/3
AK12/2,5Z	LD 8003/3 x
AK12/3	LD 9014/3
AK12/3D	LD 9001/3
AK15/3	LD 9006/3
AK15/30	LD 9011/3
AK15/5D	LD 12 001/3
AK2/1,5Z	LD 6001/3 x
AK2/1Z	LD 5001/3 x
AK20/2,5Z	LD 8004/3 x
AK20/3	LD 9007/3
AK20/30	LD 9012/3
AK20/3Z	LD 10 001/3 x
AK24/3D	LD 9002/3
AK24/5D	LD 12 002/3
AK24/5Z	LD 14 001/3 x
AK3/1	LD 5004/3
AK3/1,5	LD 6004/3
AK3/1,5D	LD 5002/3
AK3/1,5Z	LD 6002/3 x
AK30/3	LD 9008/3
AK30/30	LD 9013/3
AK30/3Z	LD 10 002/3 x
AK30/5	LD 14 003/3
AK30/50	LD 14 004/3
AK30/5Z	LD 14 002/3 x
AK4/1,5	LD 6005/3
AK4/1,5D	LD 5003/3
AK4/2,5	LD 7001/3
AK4/2,5Z	LD 8001/3 x
AK5/1,5Z	LD 6003/3 x
AK5/2,5	LD 7002/3
AK5/3	LD 9003/3
AK6/2,5D	LD 8005/3
AK7/3	LD 9004/3
AK8/2,5Z	LD 8002/3 x
AKP12	LD 6008/3

Cross reference list for activated charcoal filters

	MANN FILTER
ULTRA-FILTER	
AKP16	**LD 6009/3**
AKP20	**LD 6010/3**
AKP24	**LD 6011/3**
AKP28	**LD 6012/3**
AKP32	**LD 7005/3**
AKP36	**LD 7006/3**
AKP40	**LD 9015/3**
AKP44	**LD 9016/3**
AKP48	**LD 9017/3**
AKP54	**LD 9019/3 x**
AKP-PV	**LD 9018/3 x**
ZANDER	
1030A	**LD 5001/3 x**
1050A	**LD 6001/3 x**
1070A	**LD 6002/3 x**
1140A	**LD 6003/3 x**
2010A	**LD 8001/3 x**
2020A	**LD 8002/3 x**
2030A	**LD 8003/3 x**
2050A	**LD 8004/3 x**
3050A	**LD 10 001/3 x**
3075A	**LD 10 002/3 x**
5060A	**LD 14 001/3 x**
5075A	**LD 14 002/3 x**
80A-03/1	**LD 5004/3**
80A-03/1,5	**LD 6004/3**
80A-04/1,5	**LD 6005/3**
80A-04/2,5	**LD 7001/3**
80A-05/2,5	**LD 7002/3**
80A-05/3	**LD 9003/3**
80A-07/3	**LD 9004/3**
80A-10/3	**LD 9005/3**
80A-12/3	**LD 9014/3**
80A-15/3	**LD 9006/3**
80A-20/3	**LD 9007/3**
80A-30/3	**LD 9008/3**
80A-30/5	**LD 14 003/3**
90A-02/05	**LD 4002/3**
90A-02/10	**LD 5005/3**
90A-03/05	**LD 4003/3**
90A-03/10	**LD 5006/3**
90A-04/10	**LD 5007/3**
90A-04/20	**LD 6006/3**
90A-05/20	**LD 6007/3**
90A-05/25	**LD 7003/3**
90A-07/25	**LD 7004/3**
90A-07/30	**LD 9009/3**
90A-10/30	**LD 9010/3**
90A-15/30	**LD 9011/3**
90A-20/30	**LD 9012/3**
90A-30/30	**LD 9013/3**
90A-30/50	**LD 14 004/3**
AC009A	**LD 5008/3**
AC017A	**LD 5009/3**
AC032A	**LD 5010/3**
AC044A	**LD 6013/3**
AC060A	**LD 6014/3**
AC120A	**LD 9020/3**
AC150A	**LD 9021/3**
AC175A	**LD 9022/3**
AC260A	**LD 11 001/3**
AC390A	**LD 12 003**
AC520A	**LD 12 004/3**
D006A	**LD 4001/3**

	MANN FILTER
ZANDER	
D006AC	**LD 4001/3**
D007A	**LD 5002/3**
D009A	**LD 4001/3**
D013A	**LD 5002/3**
D013AC	**LD 5002/3**
D017A	**LD 5002/3**
D025A	**LD 5003/3**
D025AC	**LD 5003/3**
D030A	**LD 5003/3**
D035A	**LD 8005/3**
D040A	**LD 8005/3**
D040AC	**LD 8005/3**
D058A	**LD 8005/3**
D065AC	**LD 8006/3**
D085A	**LD 8006/3**
D085AC	**LD 8006/3**
D120A	**LD 9001/3**
D145A	**LD 8006/3**
D195A	**LD 9001/3**
D220A	**LD 9001/3**
D250A	**LD 9002/3**
D295A	**LD 9002/3**
D330A	**LD 9002/3**
D360A	**LD 12 002/3**
D400A	**LD 12 001/3**
D430A	**LD 12 001/3**
D500A	**LD 12 002/3**
D620A	**LD 12 002/3**
HK012A	**LD 6008/3**
HK016A	**LD 6009/3**
HK020A	**LD 6010/3**
HK024A	**LD 6011/3**
HK028A	**LD 6012/3**
HK032A	**LD 7005/3**
HK036A	**LD 7006/3**
HK040A	**LD 9015/3**
HK044A	**LD 9016/3**
HK048A	**LD 9017/3**
HK052A	**LD 9018/3 x**
HK054A	**LD 9019/3 x**
L1030A	**LD 5001/3 x**
L1050A	**LD 6001/3 x**
L1070A	**LD 6002/3 x**
L1140A	**LD 6003/3 x**
L2010A	**LD 8001/3 x**
L2020A	**LD 8002/3 x**
L2030A	**LD 8003/3 x**
L2050A	**LD 8004/3 x**
L3050A	**LD 10 001/3 x**
L3075A	**LD 10 002/3 x**
L5060A	**LD 14 001/3 x**
L5075A	**LD 14 002/3 x**

Glossary of filtration terms

Activated charcoal

Activated charcoal is a fine-grained charcoal with a large internal surface which is used as an adsorbent in the field of filtration. Application areas for activated charcoal filters include filters for the treatment of compressed air, filters for chemicals and medicines, filters for the treatment of water and waste water and filters for HVAC applications. Activated charcoal consists mainly of carbon (usually > 90 %) and has an extremely porous structure. The pores are connected to each other in a way which is similar to that of a sponge. The internal surface amounts to between 500 and 2000 m^2/g of charcoal. As a result the internal surface of 2 grammes of activated charcoal is comparable to the area of a soccer pitch.

Adsorption

In the process of adsorption a molecule or atom is released from a gas or liquid onto the surface of the adsorbent to enable separation. In the application case of the treatment of compressed air using activated charcoal the activated charcoal in the filter element is the adsorbent. In this way it is possible to exploit adsorption to realise the separation and fine filtration of gas mixtures whereby oil vapour and aerosols are removed from the air flow and permanently retained in the activated charcoal.

Aerosols

An aerosol is a mix of very fine solid and/or liquid suspended particles and air. Aerosols develop on so-called condensation germs and depending on the ambient conditions grow to become larger particles. Typical examples are oil mist, pollen and bacteria and also the products of combustion such as fumes, ash or dust.

Coalescence

In a coalescence separator air (or also a liquid) is directed through a very permeable pack of fibres whereby oil droplets and contaminant particles „statistically“ meet filter fibres and due to an adhesive force are separated. Due to a continuous flow through the fibres more and more droplets meet the fibres which causes the droplets to become larger. In simple words: coalescence causes many small droplets to form a number of large drops. In the coalescence separator these large and subsequently heavy drops are subject to gravity and are directed back via a drainage fabric into a liquid state to realise separation from the air flow.

Differential pressure

The pressure difference between the raw and clean side of the filter.

Dirt holding capacity [g]

The dirt holding capacity of a filter or filter element is the mass of the dirt under fixed test conditions which is added until a defined final differential pressure (350 mbar) is reached.

Embrittlement

Embrittlement is a chemical or physical ageing process which particularly affects the materials used in seals. Exposure to chemicals or temperatures cause the seal materials to lose their elasticity and the seals are damaged by microcracks. These microcracks can become larger until finally the seal material fails and the function of the seal is lost. A careful selection of materials has largely eliminated this process from MANN-FILTER products. However, it is not possible to completely rule out the ageing of materials. Therefore regular replacement of the filter element is necessary.

Filter surface area

The filter surface area of a pleated filter element is made by calculation. A larger filter surface results in a lower flow resistance for the filter elements. Simultaneously, the dirt holding capacity increases. However, in a filter element a minimum distance between the pleats must be maintained to ensure effective use of the filter surface area. A further increase of the surface area can have negative effects on all the operating parameters.

MMPS

Most penetrating particle size: a technical value for filters defining the particle size which is most difficult to separate. This value depends on the particle composition and on the filtration characteristics of the filter medium. The MMPS value for the treatment of compressed air is 0.1 – 0.5 µm.

Residual oil content

This value gives the percent by weight of oil relating to 1 m^3 of air which is still in the compressed air downstream of the filter. A residual oil content of under 0.003 mg/m^3 is regarded as „compressed air which is technically oil-free“ according to the requirements for breathing air defined in DIN EN 12021.

Separation efficiency

The ratio of the amount of contaminant retained by the filter to the amount of contaminant added (given in %).

Service life

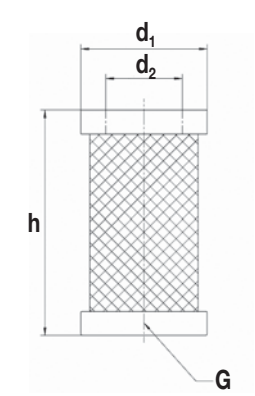
Measured in (h). Life of filter determined in the field before the filter requires servicing.

Notes

Notes

Design overview

Preliminary filter elements / Activated charcoal elements



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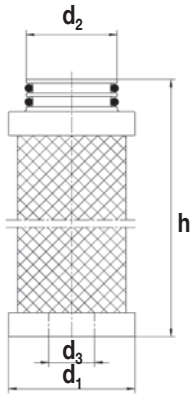

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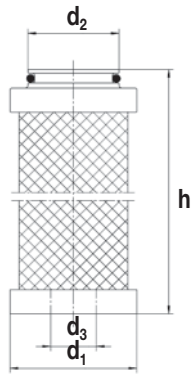

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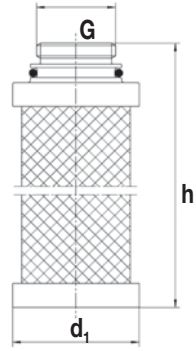

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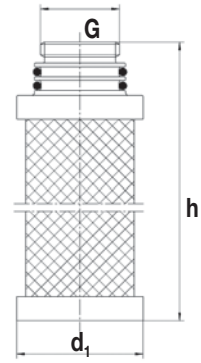

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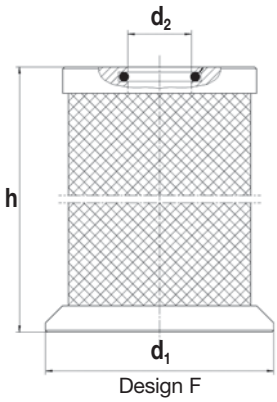

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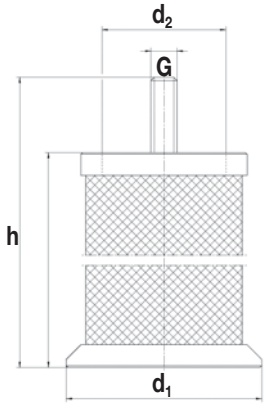

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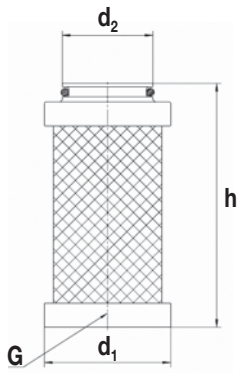

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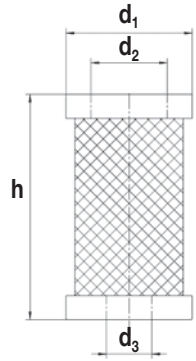
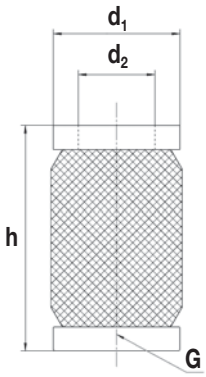


Design I

Coalescence fine filter elements / Ultra fine filters elements



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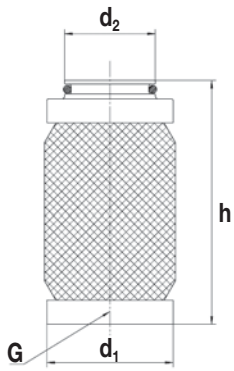

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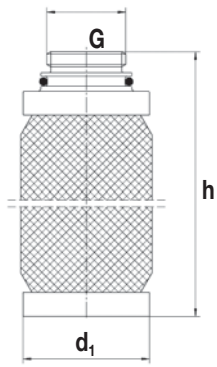

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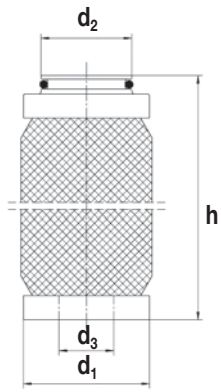

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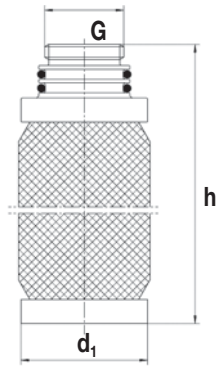

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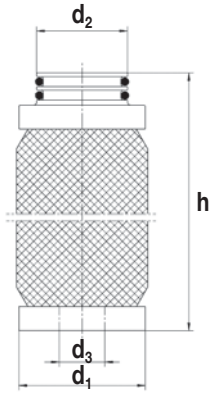

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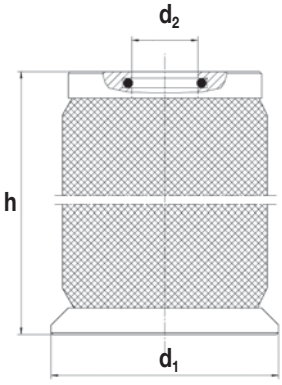

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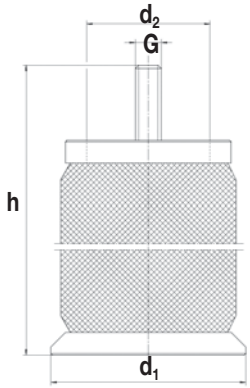

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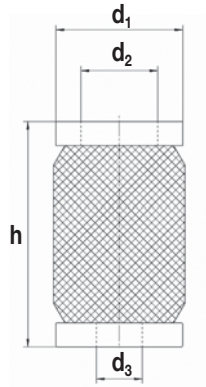

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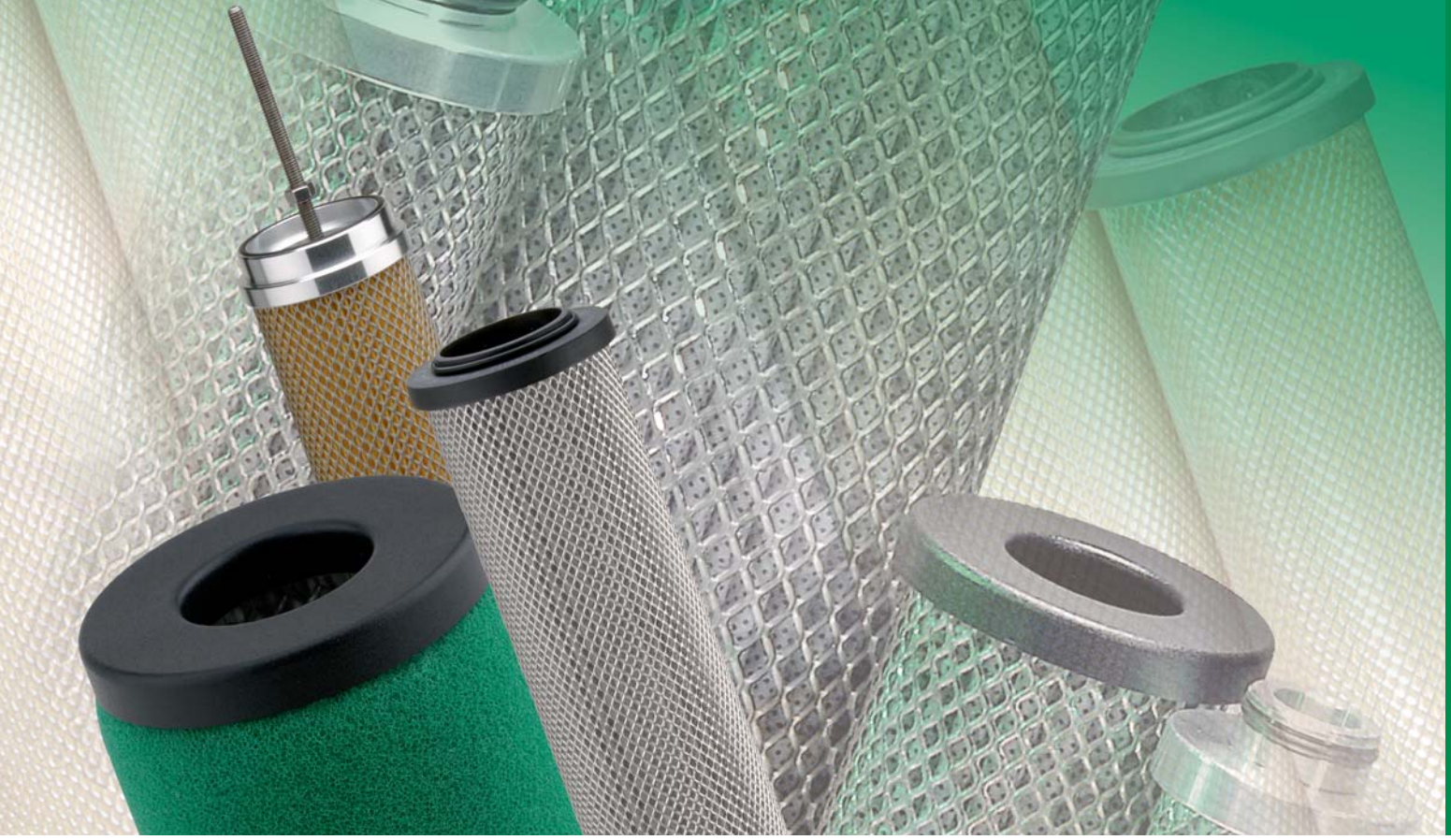

MANN-FILTER Design overview

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