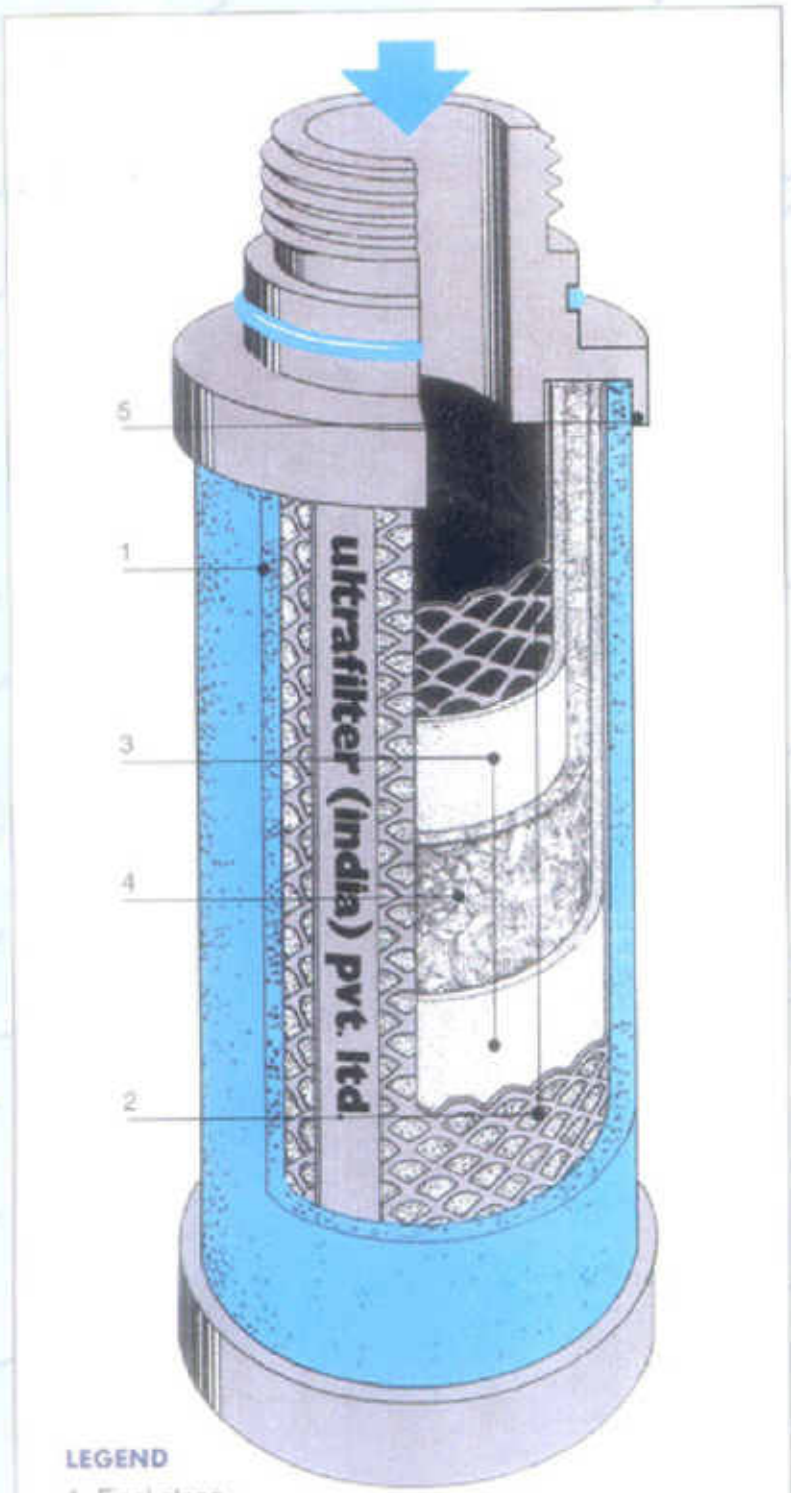
The solution

The unique element has a three stage filtration effect. Oil and dirt laden compressed air flows through the filter element from inside to outside. The coarse particles of dirt and pipe scale are retained inside the pre-filter. Oil, water and the remaining fine particulate matter then pass to the main medium, a three-dimensionally layered microfibre medium which provides the next two stages of filtration. Here, upto 99.99999% of all oil and water aerosols and dirt particles down to a size of 0.01 micron are trapped. Liquid attach to the fibre and by coalescing the oil and water aerosol, bulk liquid is formed. This in turn is carried by the air flow to the outer foam sock which has a very high surface area. Within the cellular structure of the sock, the air and water separate, the air flows from the element in the upper section, whilst the water and oil gravitate to the bottom of the element and fall into the quiet zone at the bottom of the filter housing. The oil and water are discharged by a drain without the need of any maintenance.



LEGEND

1. Final stage
2. Stainless steel support sleeve
3. First stage: Pre-filter
4. Second stage: Three dimensionally layered binder-free microfibre media
5. Seal

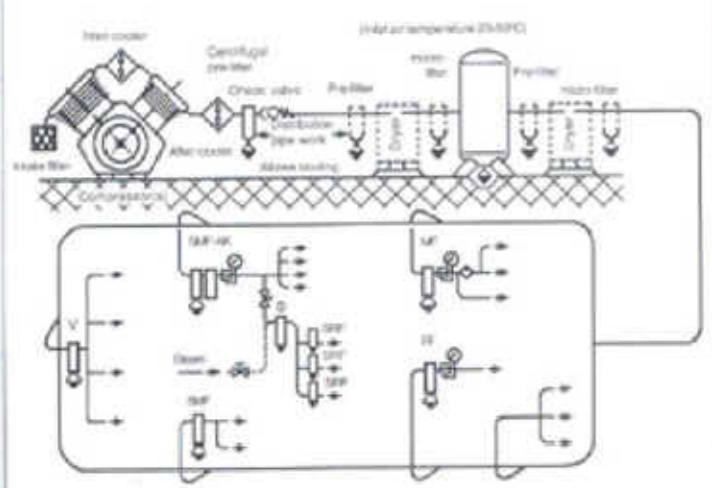
The Filter construction

1.The housing

- Designed for optimum flow
- Streamlined turbulence-free air inlet/outlet
- Superlight aluminium housing with audible warning signal and differential pressure gauge
- Steel housings with sight glass for function and level checks and differential pressure gauge
- Multi-element housing with pressure differential gauge
- Plastic coated inside and out
- Complies with ISI for operation at temperature upto 120° C at pressures of 16 bar and upto 400 bar
- DIN or BS standard thread and flange connections available

2. The filter element

- Two burst-proof stainless steel support sleeves hold the prefilter and microfibre media immovable
- The final stage blue outer foam sock has over 94% void volume and is capable of with standing upto 200% of quoted capacity
- The foam sock eliminates the possibility of liquid carryover into the clean air
- End caps are securely bonded with epoxy resin to the internal support sleeves
- Each element has a reliable O-ring seal
- Available in HTCR and HTNX grades for acidic, alkaline gases and for aggressive oils
- Filter media is chemically, biologically, bio-chemically neutral and inert. It has 94% void volume



Specifications

Table - 1 — Aluminium housing with one filter element

Type / Model	Capacity at 7 bar line pressure m³/hr	Capacity at 7 bar line pressure cfm	In/Out Conn.	Dimensions in mm Height	Width	Connect Height	Clearance	Weight kg.	Filter Element Code	No.
0001	10	6	1/4"	275	70	180	75	1.1	02/05	1
0003	30	18	3/8"	275	70	180	90	1.2	03/05	1
0006	60	35	3/8"	315	80	215	90	1.3	03/10	1
0009	90	53	1/2"	315	80	215	120	1.5	04/10	1
0012	120	71	1/2"	350	95	235	120	1.6	04/20	1
0018	180	106	3/4"	350	95	235	150	1.8	05/20	1
0027	270	159	1"	420	110	295	150	2.5	05/25	1
0036	360	212	1 1/4"	420	110	295	200	2.7	07/25	1
0048	480	282	1 1/2"	575	150	405	200	5	07/30	1
0072	720	424	2"	575	150	405	280	6	10/30	1

Aluminum housing have female thread connections and blue polyester resin outer coatings. They are built and tested for a temperature upto 120 °C at PN 16. For 0003 - 0072, Econometer is included. No loss energy-saving autodrain available on request. For more details, please contact our Sales Engineer.

Table - 2 — Carbon Steel housing with one filter element

0108	1080	635	50 NB	1015	280	830	450	28	15/30	1
0144	1440	847	65 NB	1015	280	830	580	33	20/30	1
0192	1920	1129	80 NB	1315	320	1120	850	40	30/30	1

Table - 3 — Carbon Steel housing with multi-filter element

0288	2880	1694	100 NB	1100	410	710	580	80	20/30	2
0432	4320	2541	100 NB	1100	410	810	580	80	20/30	3
0576	5760	3388	100 NB	1370	410	1140	850	90	30/30	3
0768	7680	4518	150 NB	1485	480	1210	850	130	30/30	4
1152	11520	6776	150 NB	1510	540	1225	850	150	30/30	6
1536	15360	9035	200 NB	1625	660	1285	850	236	30/30	8
1920	19200	11294	200 NB	1625	660	1285	800	240	30/30	10
2304	23040	13553	250 NB	1730	800	1350	850	376	30/30	12
3072	30720	18071	250 NB	1730	800	1350	850	380	30/30	16
3840	38400	22588	300 NB	1870	930	1445	850	530	30/30	20

Table 2 and Table 3 are steel housings with flange connections, Table 3 housings have internal multi-element distribution plates. All internal and external surfaces have blue polyester resin coating and sight glass. Built and tested for a temperature upto 120° C at PN 16. The housings are manufactured in accordance with pressure vessel regulation. Type-approval at extra cost. Econometer included. No loss energy-saving autodrain available on request. For more details, please contact our Sales Engineer.

Type

V - prefilter SMF - sub-microfilter
FF - fine filter AK - activated carbon filter
MF - microfilter ST - dust filter

Type	Differential Pressure	Efficiency	PPM mg/M3*
V	0.03	100 % ®	-
FF	0.05	99.999 %	1
MF	0.08	99.9999 %	0.05
SMF	0.12	99.99999 %	0.01
AK	0.08	99.99999 %	0.003
ST	0.03	100 %	-

* Related to 1 bar abs. and 20° C and inlet oil of 3-5 ppm

® Related to pore size

Pre-filter

The use of pre-filters is recommended where heavy contamination of oil, water and dirt is anticipated.

Dryers

For all applications where the air MUST be moisture-free, a dryer is recommended.

Maintenance

The filter elements should be changed when the differential pressure reaches 1 bar or earlier to suit the preventive maintenance routines. The filter elements should last one year and changing it is a simple operation requiring only the minimum of time.

Explanation

The capacities quoted in the table alongside are for a line pressure of 7 bar. At other pressures, the volumetric flow changes; the higher the pressure, the higher the permissible flow rate (see the table below). All filters are available upto 16 bar. The maximum working temperature is 120° C. High pressure filters upto 400 bar are also available. For details refer Table 5 overleaf.

Table 4 - Conversion Table

working pressure																
	bar	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi	15	30	45	58	72	87	100	115	130	145	160	174	189	203	217	232
conversion factor		0.25	0.36	0.5	0.6	0.75	0.9	1	1.1	1.3	1.4	1.5	1.6	1.75	1.9	2	2.1

Standard filter elements with aluminium end caps. All housings with manual drain and econometer. Minimum service life guarantee 1 year from date of invoice under normal factory conditions. Heavy contamination requires prefilters. We offer a 5 years material safety guarantee on housings.

Some of the major applications

♦In fertiliser industry where purity of gases and liquids is vital for optimum production of quality goods ♦ In food process industry where 100 % sterile liquids and air are required ♦ In breweries where purification of liquids and process water is vital ♦ In soft drink industries where air and liquid have to be sterlised for maximum safety ♦ In petro-chemical industries where air, gases and liquids play a crucial role in production ♦ In pharmaceutical industries where bacteria and other micro-organisms are taboo ♦ In chemical industries where sterile liquids and safe storage are involved ♦ In electronic industry where performance depends upon environmental factors ♦ In automobile industries for assembly lines and painting ♦ In dairies where bacteria and micro-organisms are the bane of the industry and many others.

Table 5-Specifications — High Pressure Filters

Model	Element code	Capacity m³ / hr	End Conn (NB)	Dimensions				Order Code - Pressure Range Bar					
				Height	Width	Connect Height	Clearance	25	40	64	92	93	94
0005	3/1	60	1/2"	217	114	22	175	25	40	64	100	250	400
0010	4/1.5	120	1/2"	217	114	22	175	25	40	64	100	150	400
0015	4/2.5	180	3/4"	280	146	35	140	25	40	64	100	250	400
0020	5/2.5	240	1"	290	146	35	140	25	40	64	100	250	400
0030	5/3	320	1 1/4"	332	255	44	290	25	40	64	100	250	400
0060	10/3	640	1 1/2"	467	255	54	420	25	40	64	100	250	400

Table 6 - Conversion factor - High Pressure Filters

Working Pr - Bar	25	40	64	100	250	400
Conversion factor	3	5	8	12	12	12

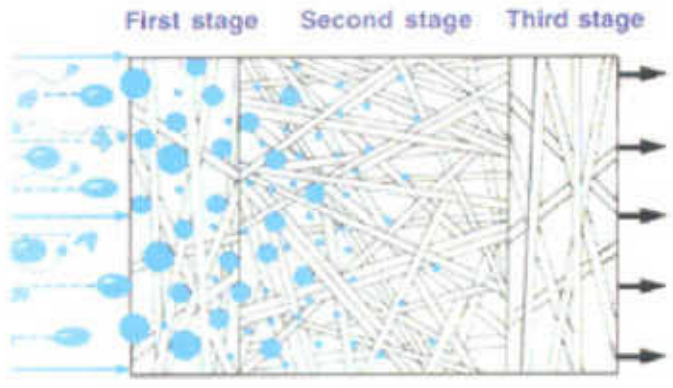
NOTE : (For High Pressure Filters)

- For ordering, suffix pressure range order code to filter model selected, e.g. V-0010HD25; 0010 is filter model, HD denotes high pressure, 25 denotes range of operating high pressure i.e, 25 Bar
- DP guages and manual drains are optional accessories.
- High pressure housings upto 40 Bar are also available in aluminium construction

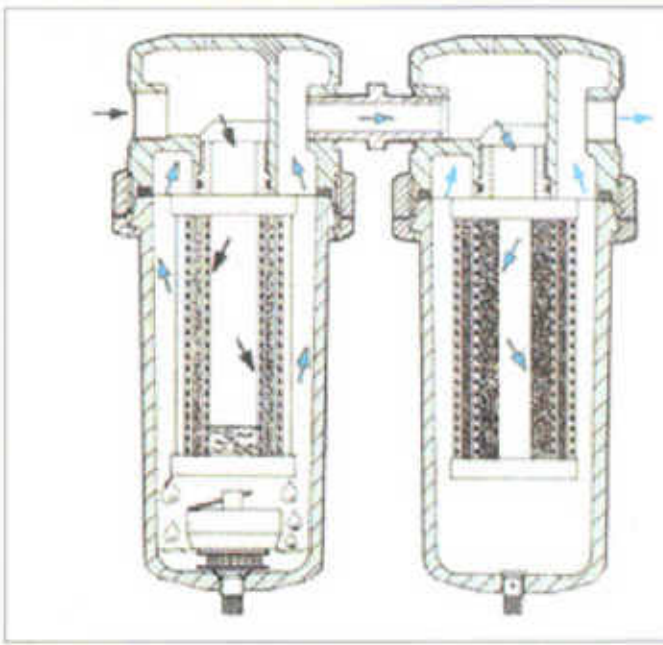
HIGHLY RELIABLE

Every equipment is subjected to repeated tests and examinations before it leaves the factory. The filter elements are chemically, bio-chemically and biologically neutral and inert. In addition, grade HTCR are resistant to high temperatures and chemicals. Stainless steel sleeves intimately support the sandwich construction microfibre filter media. The support sleeves are securely bonded to the end caps with epoxy resin. Because of the unique sandwich construction and two-stage depth filtration effect, a working life from 6,000 to 10,000 hours is possible, whatever be the level of oil or liquid contamination. This is purely a function of the solid particulate atmospheric pollution sucked into the compressor causing the pressure drop to rise. To save on running costs, replace filter elements when the pressure differential reaches 1 bar.

By utilising direct interception, inertial impaction and diffusion, liquid and solid particles down to 0.01 micron are retained by the filter.



The unique combination filter MF/SMF+AK



Oil-free compressed air still contains hydrocarbon vapours and odours which, in the food, dairy, pharmaceutical and brewery industries, have to be completely eliminated. To combat this problem, we have developed a unique activated carbon filter element. These elements are incorporated into a second stage immediately downstream of the oil removal filters to adsorb the hydrocarbon vapours and organic odours.

The adsorption efficiency of the activated carbon filter elements ensures that the delivered air is completely free of hydrocarbon gases and organic odour to make it suitable even for breathing air applications.

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