



- Very low installation clearance - install anywhere
- Oil removal (coalescing)
- Flow from 60 scfm to 1065 scfm
- Particle removal 0.01  $\mu\text{m}$
- Maximum oil carryover 0.003 mg/m<sup>3</sup>



Submicron Filters

**Cleansweep**

Cleansweep Microfilters are compressed air filtration devices manufactured for industrial use and supported by Trident Pneumatics. Contaminants regularly found in air lines include dust, oil, rust and liquid water. Cleansweep Microfilters remove all these contaminants, thereby ensuring that the products made by you and the services offered by you are not adversely affected by them.

## How Cleansweep Microfilters Work

Within the housing of each Cleansweep Microfilter is a filter element. This element has a specially designed multi-layered structure. Compressed air from your supply passes through the various layers sequentially, moving outwards from the centre of the element. Typically, air from an industrial compressor contains oil, condensed water and solid particles such as rust. As the air passes through a Cleansweep filter element, the contaminants are removed through three mechanisms:

### Interception

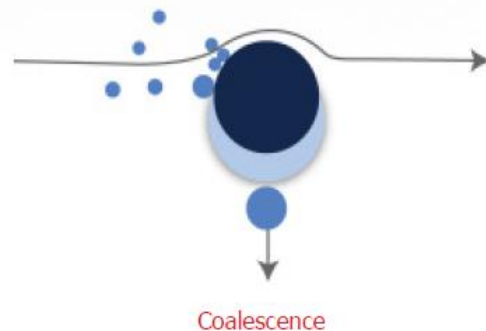
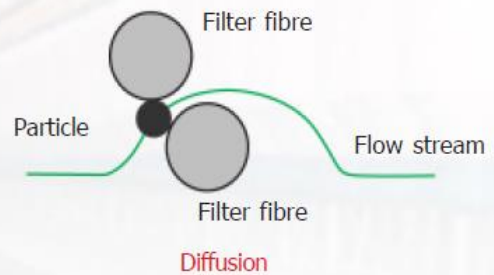
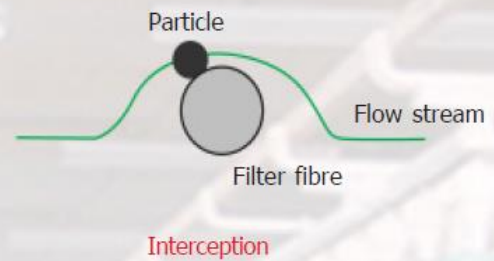
Larger contaminant particles, of size around 10 microns or more, are blocked by a fine-pore medium.

### Diffusion

Finer (sub-micron) particles that are carried further into the filter element are enmeshed in fibres. The fibres are made of borosilicate. The trapping action is a result of the labyrinthine pathways through the fibrous medium.

### Coalescence

Water and oil particles adhere initially to fibres on impinging on them. They merge to form droplets and are held in the fibrous medium by surface tension.



The contaminant particles are trapped both at the inner surface of the filter element and within the medium. The liquid drops that coalesce in the element flow down, accumulating at the bottom of the housing. A drain valve is provided to discharge the liquids. Clean, contaminant-free air flows out of the Cleansweep Microfilter to your application. Cleansweep Microfilters are ideal for providing compressed air for a very wide range of applications. The quality of the air delivered by a Cleansweep Microfilter is of the level required for sensitive CNC machinery, painting and powder coating systems, packaging machines, textile and garment machinery, instrumentation, pharmaceutical industries, dental clinics, the telecom industry (repelling moisture from underground cables to avoid short circuits), pneumatic control systems, zeolite-type oxygen and nitrogen generators, garages and machine tools.

## THE CLEANSWEEP ADVANTAGE

### Convenience

Trident Pneumatics has designed Cleansweep Microfilters with a unique design featuring a knock-off type element. This makes Cleansweep filters stand apart from filters produced by other manufacturers, which need to be installed with a significant bottom clearance. This translates to convenience and economy of space for you. You can provide Cleansweep Microfilters with even a very low clearance at the bottom.

### Economy

The flow path of air in the filter head of a Cleansweep Microfilter is smooth and curved, optimised to offer low resistance. As a result, the pressure drop across the filter is just 0.03 to 0.1 bar. This makes for greater economy, with lower bills for compressed air. Further, the filter element has a large surface area, as a result of which it has a long life, and so the frequency of replacement is low. Cleansweep Microfilters are provided with easy-to-read meters that indicate when filter elements should be replaced (when the pressure drop is greater than 0.4 kg/cm<sup>2</sup>).

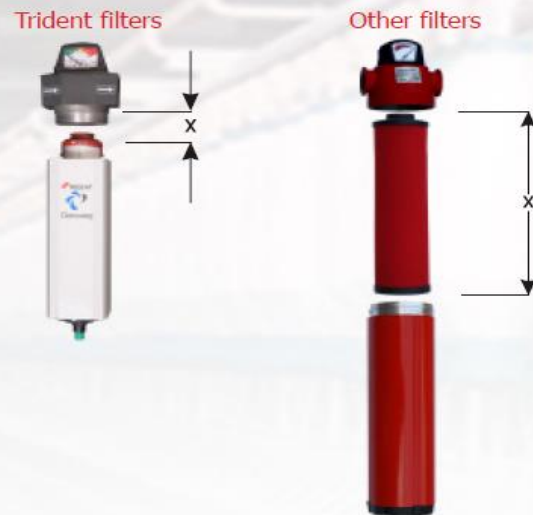
### Safety

All Cleansweep Microfilters have the CE, CRN approval marking. They are all rated for 16 bar operation for extra safety for you and your equipment.

### Ergonomics

The shape and size of Cleansweep Microfilters have been designed for convenient installation and maintenance.

Very low installation clearance



Replacement elements



## Selecting your Cleansweep Microfilter

Cleansweep Microfilters are available in six models, each with four options for the filter element and two drain options so that you can choose the right filtering solution for your industry. Specify the model, element grade and drain option when ordering your Cleansweep Microfilter.

### Step 1

The first step in determining the right Cleansweep Microfilter for your requirement is to select the model. Identify the pressure correction factor corresponding to the air pressure of your application from the pressure correction factor table. Divide the flow rate of your application by the pressure correction factor. For example, if the pressure is 73 psi, the pressure correction factor is 0.82. For a flow rate of 60 scfm, the pressure-corrected flow rate is  $60/0.82=73$  scfm. Choose the model corresponding to the closest flow rate (higher) from the air flow table. For this example, the choice would be the T 250.

#### Pressure correction factor table

Pressure (Psi)	44	73	102	131	160	189	218	232
Correction factor	0.63	0.82	1	1.18	1.36	1.55	1.73	1.82

#### Air flow table

Model	T100	T250	T600	T851	T1210	T1810
Flow rate (scfm)	60	150	350	500	710	1065
Weight (Pounds)	2.77	6.6	8	17.1	19	36.5

### Step 2

The next step is to determine the grade of the filter element required by you. Use this filter element table to select the grade of element that matches your air quality requirements:

#### Filter Element Table

Element grade	P	X	Y	A
Filter element	Borosilicate	Borosilicate	Borosilicate	Activated carbon
Particle removal ( $\mu\text{m}$ )	5	1	0.01	0.01
Maximum oil carry-over ( $\text{mg}/\text{m}^2$ )	5	0.05	0.01	0.003
Initial pressure loss	0.03	0.06	0.1	0.06
Colour of end cap	Green	Red	Yellow	Black

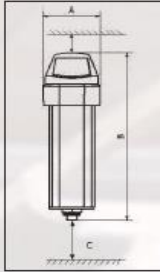
### Step 3

The last step is to choose the type of drain valve. Cleansweep Microfilters are fitted with either electro-adjustable (EA) or internal automatic (IA) drain valves.

Drain valve	IA	EA (Optional)**
System	Mechanical (float)	Electrical (energised coil)
Operation	A float opens the drain valve whenever the oil-and-water level crosses a limit.	Periodically discharges accumulated liquids. The interval between discharges may be adjusted.

\*\* (fitting for electric drain valve connection only)

Using the specification matrix provided here, determine the ordering code of the Cleansweep Microfilter corresponding to your requirements and choice. If, for example, you are looking for a filter for an air flow of 60 scfm, you would select the T 250. If the element grade corresponding to your air quality requirements is X and you opt for an IA drain valve, the code you would need to specify is PF128A.



### Specification matrix

Model	Element Grade	Item Code		Pipe Size NPT	Housing Dimensions (inch)			Filter Spares**	
		(EA) Drain Type	(IA) Drain Type		A	B	C	Item Code	Weight Pounds
T 100	P	PF151	PF152	1/2"	3.4	11.5	1.96	AS703	0.44
	X	PF151A	PF152A					AS702	
	Y	PF151B	PF152B					AS701	
	A	PF151C	PF152C					AS704	
T 250	P	PF153	PF154	1"	4.4	15.7	1.96	AS695	0.66
	X	PF153A	PF154A					AS694	
	Y	PF153B	PF154B					AS693	
	A	PF153C	PF154C					AS696	
T 600	P	PF155	PF156	1 1/2"	4.4	18.6	1.96	AS699	0.88
	X	PF155A	PF156A					AS698	
	Y	PF155B	PF156B					AS697	
	A	PF155C	PF156C					AS700	
T 851	P	PF168	PF166	2"	5.8	26.2	1.96	AS715	2.20
	X	PF168A	PF166A					AS716	
	Y	PF168B	PF166B					AS717	
	A	PF168C	PF166C					AS718	
T 1210	P	PF179	PF178	2"	5.8	28.9	1.96	AS719	2.64
	X	PF179A	PF178A					AS720	
	Y	PF179B	PF178B					AS721	
	A	PF179C	PF178C					AS722	
T 1810	P	PF171	PF169	3"	8.3	30	1.96	AS723	3.96
	X	PF171A	PF169A					AS724	
	Y	PF171B	PF169B					AS725	
	A	PF171C	PF169C					AS726	

\* Available in BSP

Differential pressure gauge as a standard scope.

Element kit includes Element & O-Ring

Float drain assembly

Differential Pressure Gauge

AS470

AF047

P = 5 micron; X = 1 micron; Y = .01 micron Coalescing;

A = .01 micron Activated Carbon

\*\* Filter spares include element and O-Ring.