VALUE THROUGH PERFORMANCE

DELTECH

810 SERIES

COMPRESSED AIR FILTERS

810 Series Compressed Air Filter
For A Higher Level Of Filtration Efficiency

DELTECH

The 810 Series Filter Offers:

Lowest Pressure Drop

- Initial pressure drop is only 0.4 psi. Pressure drop averaged over the extended element life is only 3.5 psi. Dual-drain system with large diameter 7/16-inch ports minimizes clogging.

Longest Element Life

- Pre-separation of particulates extends service life to approximately twice that of other elements.

Assured Reliability

- Quick, visual inspection of differential pressure indicator and contaminant discharge lines make it easy to check on filter performance.

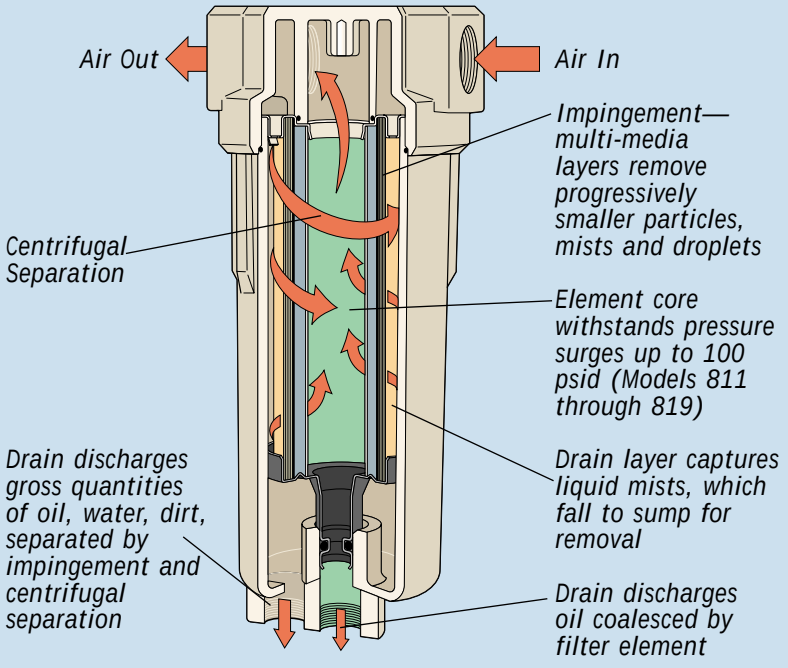
Simplest Installation And Maintenance

- Only one filter to install; no tie rods or bolts, only one element to replace, resulting in less downtime and lower inventory costs.

The Deltech 810 Series filter provides extraordinarily high filtration efficiency and provides maximum protection in systems where there is the potential for exceptionally heavy oil loading, for example, with oil-flooded rotary screw compressors. The DOP efficiency for the 810 Series exceeds 99.9999%, and this filter has a tested efficiency of 99.9% at a particle size of 0.01 micron.

Superior design and construction combine to provide multistage filtration which effectively removes dirt, fine oil mists, liquid oil and water without a prefilter. Impingement and centrifugal separation remove up to 99% of particles, oil droplets and slugs of water before the air reaches the filter element. This reduces pressure drop and extends element life. The “pre-cleaned” air then passes through a multi-layered element; each layer removes progressively smaller particles, mists and droplets.

Models 811 through 819



Why Filter Compressed Air?

Oil, dust, dirt and water—these are the enemies of a compressed air system. Alone or in combination, they can plug the orifices of sensitive pneumatic instruments, wear out seals, erode system components, reduce the effectiveness of air-operated tools and damage finished products. The results—product rejects, lost production hours and rising maintenance costs—are time-consuming and costly consequences which can be avoided with effective filtration.

Types Of Contaminants

When evaluating and selecting filters for a compressed air application, it is important to know the nature of air system contaminants.

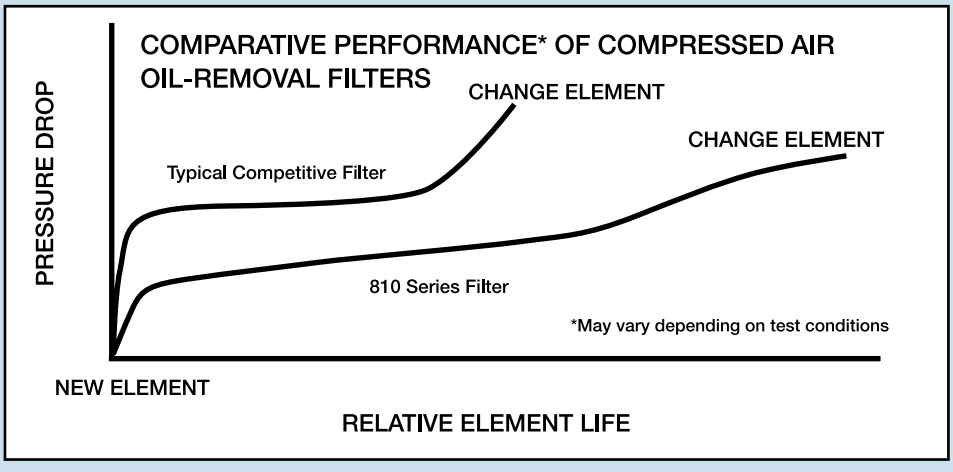
Solids—Dust, dirt and pollen are contained in the ambient air at the compressor intake. The atmosphere in a typical metropolitan area may contain four million dust particles per cubic foot of air. At 100 psig of compression, however, the concentration will be eight times greater.

Moisture—Ever present in ambient air, water condenses as heated compressed air moves and cools through the distribution system. It can cause rusting in pipelines and combine with oil and solid contaminants to form a sludge which can damage air-operated devices and processes.

Oil—The most troublesome contaminant and the most difficult to remove, lubricating oil from compressors enters the airstream in liquid, aerosol and vapor forms. Oil mist particles can have diameters from 10.0 to 0.01 microns. While oil separators remove most of the larger particles, fine mists and oil vapor pass through to the system downstream.

Superior Performance Lowers Filtration Cost

Tests show that under the same service conditions, 810 Series elements last up to twice as long as other elements and have only half the average pressure drop. Fewer element changes mean less downtime and higher productivity; lower pressure drop means less electric power consumed by the compressor to maintain system pressure.



Dollars And Sense Of Reducing Pressure Drop

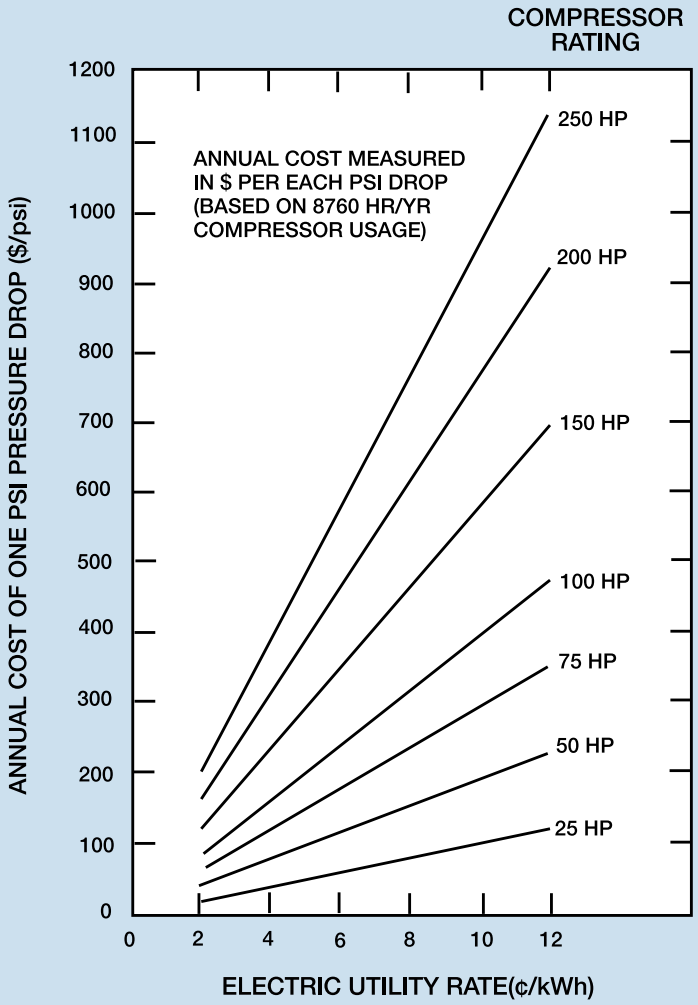
Pressure drop wastes dollars. To overcome pressure drop and maintain system pressure, the compressor must draw additional electric power. Each psi of pressure drop adds approximately 0.5% to the cost of electric power supplied to the compressor.

For example, in a 300 scfm air system, a Deltech 810 Series filter with an average pressure drop of 3.5 psi can save $2,150 each year in electrical costs over a prefilter and coalescing filter with a combined average pressure drop of 14 psi (75-hp compressor operating at 100 psig, 24 hours a day, seven days a week; electric rate at $0.07/kWh).

Use the chart (right) to determine the cost of pressure drop for your installation. Locate your electric utility rate along the horizontal axis; read upward to intersect the line that corresponds to your compressor horsepower; read left to the vertical axis to determine the cost of each psi drop in pressure for a compressor operating three shifts at 8760 hours per year. Multiply the annual cost per psi ($/psi) by the total pressure loss in the filter system.

Be sure to include all filters—prefilters and coalescers—required to achieve the desired filtration results. And verify that the manufacturer's pressure drop claims are based on "wetted conditions."

If your compressor operates less than 24 hours a day, multiply the cost determined from the graph by actual hours of operation per year divided by 8760. For example, pressure loss during single-shift operation at five days a week or 2080 hours per year would cost 2080 divided by 8760 or about 24% of the cost determined from the graph.



How To Select Your 810 Series Filter

Determine the flow rate and pressure of the air to be filtered; select the appropriate filter from the Model Selection Chart.

Example: For an air system with a 40 hp compressor, select an 810 Series filter to remove oil, liquid water and solid particulates from 155 scfm compressed air at 110 psig.

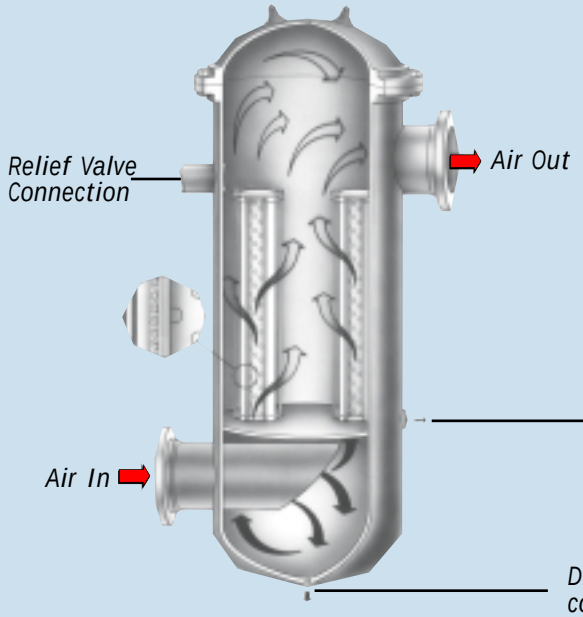
On the Model Selection Chart, read across to the column for 110 psig inlet air pressure. Read down the column and select a filter capable of handling the required flow. Select Model 815.

Model Selection Chart

	INLET AIR PRESSURE (psig)															
	10	20	30	40	50	60	70	80	90	100	110	125	150	175	200	250
Model	Maximum Inlet Air Flow (scfm)															
811	3	5	6	7	8	10	11	12	14	15	16	18	22	25	28	34
812	6	9	12	14	17	19	22	25	27	30	33	37	43	50	56	69
813	13	18	23	29	34	39	44	50	55	60	65	73	86	100	113	135
814	22	30	39	48	56	65	74	83	91	100	108	120	140	165	185	225
815	34	48	62	76	90	104	118	130	145	160	170	195	230	265	300	365
816	54	75	97	119	140	160	180	205	225	250	270	305	360	415	470	570
817	86	120	155	190	225	260	290	330	365	400	430	485	575	665	750	910
818	108	150	195	235	280	325	365	410	455	500	540	610	715	830	940	1,140
819	160	225	290	355	420	485	550	615	685	750	810	910	1,075	1,245	1,410	1,710
820	215	300	385	475	560	650	735	825	910	1,000	1,085	1,215	1,435			
821	320	450	580	710	845	975	1,100	1,235	1,460	1,500	1,625	1,825	2,150			
822	430	600	775	950	1,125	1,295	1,470	1,650	1,825	2,000	2,160	2,430	2,870			
823	645	905	1,165	1,425	1,690	1,945	2,200	2,470	2,740	3,000	3,250	3,650	4,310			
824	860	1,205	1,555	1,900	2,250	2,590	2,940	3,300	3,650	4,000	4,330	4,870	5,750			
825	1,075	1,505	1,945	2,370	2,810	3,240	3,670	4,120	4,570	5,000	5,420	6,090	7,190			
826	1,610	2,260	2,910	3,560	4,220	4,870	5,510	6,190	6,850	7,500	8,130	9,140	10,700			
827	2,150	3,010	3,890	4,750	5,630	6,490	7,350	8,250	9,140	10,000	10,800	12,100	14,300			
828	2,680	3,770	4,860	5,940	7,040	8,120	9,190	10,300	11,400	12,500	13,500	15,200	17,900			
829	3,220	4,520	5,830	7,130	8,450	9,740	11,000	12,300	13,700	15,000	16,200	18,200	21,500			

Important:
Do not select filter by pipe size. Make selection by flow rate and operating pressure only.

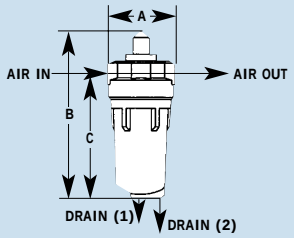
Models 820 Through 829



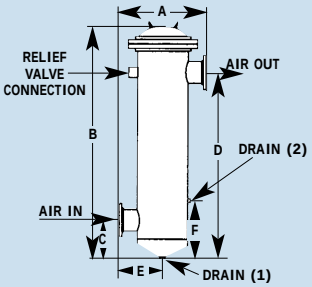
Operating Conditions:

- Maximum operating temperature: 150˚F (66˚C)
- Maximum recommended filtration temperature: 120˚F (49˚C)
- Maximum pressure: Models 811 through 819: 250 psig (17.2 barg)
  Models 820 through 829: 150 psig (10.3 barg)

811-819



820-829



Materials & Construction[a,b]

Component	Model	
	811-819	820-829
Vessel top, bottom	Cast aluminum alloy	ASME code welded, flanged steel
Bolts	—	SA 193, Grade B7
Nuts	—	SA 194, Grade 2H
Surface Finish	Painted	Painted
O-Rings	Buna N	—
Gasket	—	Woven ring-type
Element:		
Filter Media	Glass fiber	Glass fiber
End Caps	Stainless steel and nylon	Stainless steel and nylon
Support Core	Perforated carbon steel	Perforated carbon steel

[a] Element and materials of construction are compatible with most compressor lubricants, except phosphate ester base types.
[b] All filters are registered within all provinces of Canada and are provided stamped with CRN registration numbers.

Specifications

Model[a]	Std. ASME Stamp[b]	Dimensions (inches) A	B	C	D	E	F	Connections (inches) In/Out	Drain (1) (NPT)	Drain (2) (NPT)	Relief Valve	Approx. Ship. Weight (lbs)
811	-	3.5	9.5	7.1	-	-	-	1/2 NPT	1/4	Manual	-	4
812	-	3.5	12.9	10.5	-	-	-	1/2 NPT	1/4	Manual	-	5
813	-	4.5	16.2	13.6	-	-	-	1 NPT	1/4	Manual	-	10
814	-	4.5	22.3	19.7	-	-	-	1 NPT	1/4	Manual	-	12
815	-	6.1	25.8	22.7	-	-	-	1 ½ NPT	1/4	Manual	-	15
816	-	6.1	35.8	32.7	-	-	-	1 ½ NPT	1/4	Manual	-	20
817	-	6.1	52.5	49.4	-	-	-	2 NPT	1/4	Manual	-	30
818	-	8.5	45.2	42.9	-	-	-	3 NPT	1/4	Manual	-	60
819	-	8.5	63.1	60.8	-	-	-	3 NPT	1/4	Manual	-	70
820	UM	22.8	73.0	8.6	61.0	11.4	12.9	3 FLG	3/4	3/4	1 ½ NPT	450
821	UM	24.8	76.0	9.6	63.0	12.4	14.4	4 FLG	3/4	3/4	2 NPT	575
822	U	26.0	82.0	11.0	67.0	13.0	17.3	6 FLG	3/4	3/4	2 NPT	725
823	U	30.0	84.0	12.0	68.0	15.0	18.3	6 FLG	3/4	3/4	2 ½ NPT	940
824	U	34.0	91.0	14.0	72.4	17.0	21.8	8 FLG	3/4	3/4	3 NPT	1,175
825	U	38.0	94.0	15.0	73.4	19.0	22.8	8 FLG	3/4	3/4	3 NPT	1,475
826	U	42.0	100.0	17.0	78.1	21.0	26.4	10 FLG	3/4	3/4	4 FLG	1,650
827	U	46.0	102.0	17.6	78.6	23.0	27.0	10 FLG	3/4	3/4	4 FLG	1,850
828	U	52.0	110.0	20.0	83.1	26.0	30.4	12 FLG	3/4	3/4	4 FLG	2,475
829	U	58.0	114.0	21.6	84.6	29.0	32.0	12 FLG	3/4	3/4	6 FLG	3,200

[a] Install filters with enough clearance to disassemble housing and replace elements. Models 811 through 819 require a 5-inch clearance below the lowest part of any drain valve or piping. Models 820 through 829 require a 42-inch clearance above the top of the filter.
[b] Some UM models may require a U stamp. Check with your local municipality to find out what stamp is required.

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