Compressed Air Systems | Instrumentation and Automated Pnuematic Controls | Pnuematic Tools and Cylinders

Balston Coalescing Compressed Air Filters

Remove 99.99% of 0.01 micron particles of oil, water, and dirt from compressed air and other gases

Continuously trap and drain liquids

Service flow ranges from a few SCFM to 40,000 SCFM

Remove trace oil vapor with adsorbent cartridges

Lifetime warranty (20 year) with select 1/4" to 2" line filters

Balston Microfiber® Filter Assemblies

Balston Coalescing Compressed Air Filters protect your equipment and delicate instruments from the dirt, water, and oil usually found in compressed air. Balston Coalescing Filters remove these contaminants at a very high efficiency - up to 99.99% for 0.01 micron particles and droplets. Liquid releases from the filter cartridge to an automatic drain as rapidly as it enters the filter. This allows a Balston Coalescing Filter to continue removing liquids for an unlimited time without loss of efficiency or flow capacity. Select 1/4" to 2" line filters come with a lifetime (20 year) warranty which guarantees the product against defects and other failures.

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Filter Cartridge Description

General purpose applications such as plant compressed air	Single stage filtration. Use a Grade DXE filter cartridge
Instrument air and other critical air requirements	Two stage filtration is necessary. Use a Grade DXE followed by a Grade BXE filter cartridge. As a general rule, a Grade BXE filter cartridge should not be used alone.
Removal of trace compressor oil vapor	For rare instances where even a trace amount of oil vapor can cause a problem, three stage filtration is necessary. Use a Grade DXE followed by a Grade BXE, and a type CI cartridge.

Physical Properties, Microfibre Filter Cartridges

Temperature Range	-150°F to 300°F (-100°C - 149°C)
Maximum Pressure Differential Across Filter, Inside-to-Outside Flow:	100 psi
Materials of Construction	Borosilicate glass microfibers with fluorocarbon resin binder. Resistant to water, all hydrocarbon and synthetic lubricants.

Retention Efficiency

Grade	Efficiency for 0.01 Micron Particles and Droplets
DXE	93%
BXE	99.99%

Balston Filter Cartridges

Balston provides two grades of coalescing filter cartridges, Grade DXE and Grade BXE. Singly or in tandem, these filters satisfy all requirements for removing liquid and solid contaminants from compressed air. Balston also has an activated carbon adsorbent CI-type cartridge for the removal of trace oil vapors from a compressed air line. The activated carbon cartridge is Grade 000.

How to Select the Filter Cartridge and Housing

1 Decide which grade(s) of filter cartridges fits the application (see selection boxes at left).

2 Select the filter housing with a port size equal to the line size where the filter is to be located.

3 For a new installation in which the line size has yet to be selected, determine the gas flow rate and pressure at the point where the filter will be located, and then refer to the flow chart on the reverse side of this data sheet. NOTE: The filter port size must be equal to or larger than the line size (when specified).

How to Order the Filter Assembly

1 Build your own custom filter assembly using the guideline matrix on Page 16 and specify your model number. Example: 1/2" filter with DPI and Auto Drain with Grade DXE Filter = 6004N-01A-DX.

2 Each assembly is shipped with the filter cartridge installed. To order additional filter cartridges, indicate the model number of the cartridges, and the grade. Examples 050-05-DXE, 050-05-BXE. The grade used for Type CI cartridges is 000 (CI-100-12-000).

Note: Assemblies with CI Cartridges are shipped with the adsorbent cartridge wrapped separately. This shipping method prolongs the life of the cartridge.

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Flow Rates

Filter Housing Model	Port Size	Filter Cartridge Grade	Flow rates (SCFM), at 2 psi drop at indicated line pressure. Refer to Principal Specification Charts in each product data sheet for maximum pressure rating of each housing PSIG										
			2	20	40	80	100	125	150	200	250	400	650
A94A	1/4"	DXE	4	9	13	24	29	36	43	55	67	——	——
A914, A914D, A914P		BXE	1.2	2.4	4	7	8	9	12	15	17	——	——
2002	1/4"	DXE	9	19	39	51	63	76	90	117	145	——	——
2003	3/8"	BXE	3	8	11	21	25	31	36	47	58	——	——
2004	1/2"	CI	2	5	7	12	15	18	22	28	35	——	——
2104	1/2"	DXE	19	41	65	113	137	166	196	257	316	——	——
		BXE	9	19	30	51	63	76	90	117	145	——	——
		CI	6	12	19	32	39	48	56	73	90	——	——
2206	3/4"	DXE	37	78	123	214	259	315	371	484	596	——	——
		BXE	10	21	34	56	70	85	101	131	162	——	——
		CI	8	16	26	44	53	65	76	99	122	——	——
2208	1"	DXE	55	115	181	314	380	463	546	711	877	——	——
		BXE	11	23	37	64	77	94	111	144	178	——	——
		CI	10	20	32	56	67	82	96	125	154	——	——
2312	1 1/2"	DXE	98	203	319	554	670	816	963	1254	1546	——	——
		BXE	22	46	74	129	155	189	223	290	358	——	——
		CI	16	33	52	91	110	134	158	206	253	——	——
A15/80	2"	DXE	160	333	525	908	1100	1340	1580	2060	2540	——	——
		BXE	45	94	148	256	310	378	445	580	715	——	——
		CI	23	49	77	133	161	197	231	301	371	——	——
AKN-0280	3"	DXE	364	760	1190	2060	2500	3045	3600	4680	5770	9030	14480
AKC-0280		BXE	90	190	300	510	620	755	890	1160	1430	2240	3590
AKH-0280		CI	47	98	154	266	322	394	462	602	742	1160	1860
AKC-0480	4"	DXE	740	1540	2430	4210	5100	6210	7300	9550	11750	18400	29480
AKH-0480		BXE	180	380	590	1020	1240	1510	1780	2320	2860	4480	7180
		CI	94	196	308	632	644	780	920	1200	1480	2320	3710
AKC-0880	6"	DXE	1500	3120	4910	8500	10300	12550	14800	19300	23700	37120	59460
AKH-0880		BXE	360	750	1180	2050	2480	3020	3560	4640	5710	8940	14330
		CI	188	392	616	1064	1280	1560	1840	2390	2950	4620	7400
AKC-1480	8"	DXE	2620	5450	8580	14860	18000	21900	25800	33700	41540	65050	104200
AKH-1480		BXE	630	1310	2070	3580	4340	5300	6230	8120	10010	15680	25100
		CI	329	686	1078	1860	2250	2740	3230	4210	5190	8130	13020
AKC-2280	10"	DXE	4080	8470	13350	23110	28000	34100	40200	52400	64590	101150	162050
AKH-2280		BXE	1000	2070	3270	5660	6850	8340	9840	12800	15780	24700	39600
		CI	516	1077	1690	2920	3540	4310	5070	6610	8150	12760	20450

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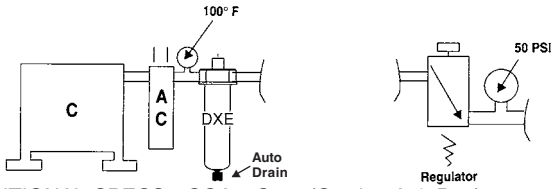
Table taken from ISO8573 - 1

Class	Solid			Water		Oil	
	Maximum Particle Size (μm)	Maximum Concentration ppm	(mg/m³)	Maximum Pressure Dewpoint °F	(°C)	Maximum Concentration ppm	(mg/m³)
1	0.1	.08	(0.1)	-94	(-70)	.008	(0.01)
2	1	.8	(1)	-40	(-40)	.08	(0.1)
3	5	4.2	(5)	-4	(-20)	.83	(1)
4	15	6.7	(8)	37	(+3)	4.2	(5)
5	40	8.3	(10)	45	(+7)	21	(25)
6	-	-	-	50	(+10)	-	-

ISO Class Example [1] **Solid** [4] **Water** [1] **Oil**

ISO Class [2] [ ] [2]

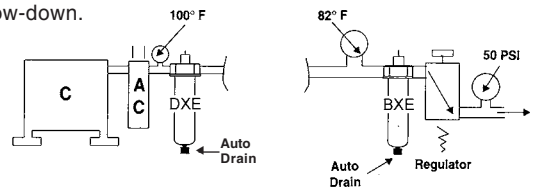
Any compressor with aftercooler and coalescer. Air intended for use with lubricated air tools, air motors, cylinders, shot blasting, non-frictional valves.



ADDITIONAL SPECS: CGA - G7.1 (Grades A & Ba1)

ISO Class [1] [ ] [1]

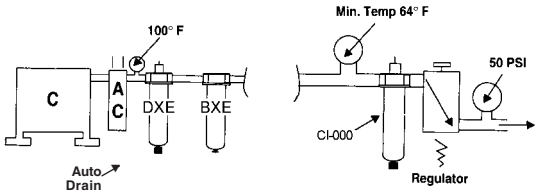
Any compressor with aftercooler and 2-stage coalescing. Air intended for use as lubricated control valves, cylinders and parts blow-down.



ADDITIONAL SPECS: Mil. Std. 282 H.E.P.A., U.S.P.H.S. 3A accepted particles for milk.

ISO Class [1] [ ] [1]

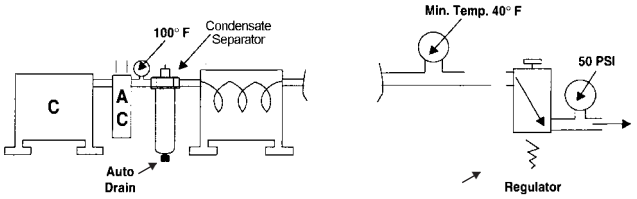
Any compressor with aftercooler, 2-stage coalescing and activated carbon filter. Air intended for use with general pneumatics systems.



ADDITIONAL SPECS: CGA - G7.1 (Grade C)

ISO Class [1] [4] [1]

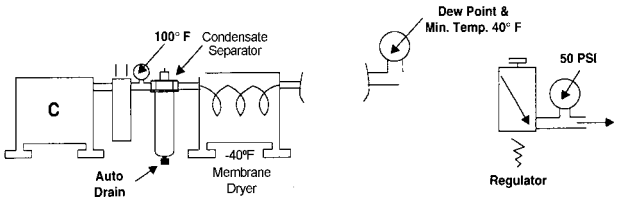
Any compressor with aftercooler, 2-stage coalescing and refrigerated dryer for use with instrument quality air.



ADDITIONAL SPECS: CGA - G7.1 (Grade D & E) ISA S7.3, Fed. Std. 209 (Class 100)

ISO Class [1] [2] [1]

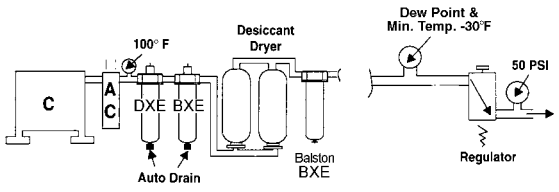
Any compressor with aftercooler, 2-stage coalescing, and a -40°F membrane air dryer. Air intended for use as industrial breathing air and decompression chambers.*



ADDITIONAL SPECS: O.S.H.A. 29CFR 1910.134
*CO Monitor required.

ISO Class [1] [1] [1]

Any 2-stage compressor with aftercooler, double coalescing and a regenerative-type desiccant dryer. Air intended for use in applications involving critical instrumentation and high purity gases.



ADDITIONAL SPECS: CGA - G7.1 (Grade F)

Note: In the pictorial examples shown above, the contribution of hydrocarbon vapors has not been taken into account in determining the OIL class category.

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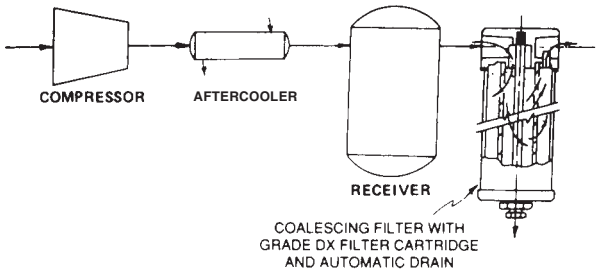
Recommendations for Typical Filter Installations

Selecting the proper location for a filter in a compressed air line is as important as selecting the proper filter. In most cases you will probably be able to base your own installation on these recommendations for typical installations.

Placing the Filter at the Compressor

The standard compressor installation consists of a prefilter (mounted on the compressor), a compressor, aftercooler, and a receiver. The Balston filter should be installed downstream from the receiver. In a system with an efficient aftercooler, the distance from the receiver to the filter is not important. Since the filter is usually maintained by the personnel responsible for the compressor, it is often convenient to install the filter downstream from the receiver. If there is no aftercooler, or the aftercooler is not efficient, coalescing filter be installed as close to the point(s) of use as possible.



Compressor Filter Specifications	
Microfibre Filter Cartridge	Grade DXE
Filter Housing	Determine filter size from flow chart on page 3, but port size must be equal to or larger than the line size
Automatic Drain	Recommended
Differential Pressure Indicator	Recommended

Some compressor installations do not have an aftercooler (this is an undesirable situation). Air saturated with water vapor leaves a compressor at 240°F to 400°F (116°C to 204°C). Without an aftercooler, the air cools close to room temperature in the distribution lines and water condenses throughout the air distribution system. About two-thirds of the total water content of the air will be condensed when the air has cooled to 100°F (38°C). A filter located just before the main air line branches into smaller distribution lines will remove most of the water load from the system. The filter requirements for the main line are described above; they are the same as for a system with an aftercooler. However, since the air will continue to cool in the distribution system, additional filters located at end- use points will be required to remove water condensed downstream from the main line filter.

How to Obtain a Trouble-Free Coalescer

The mechanism of coalescing leads to three important considerations in selecting and installing a coalescing filter:

1 The filter should be large enough to ensure that the air exits the filter at low velocity and does not carry over coalesced liquid. Proper sizing of a Balston coalescing filter is easily done by using the recommendations or the maximum flow rate data. There is no danger on oversizing the filter. A Balston coalescing filter is even more efficient at extremely low flow rates than at its maximum rated flow capacity.

2 To avoid liquid carryover, the coalesced liquid should not be allowed to build up in the filter housing above the level of the bottom of the filter tube.

Rather than relying on operator attention to this easily-overlooked job, Parker Hannifn Corp. recommends automatic drains with all coalescing filters.

3 The flow direction through the Microfibre filter tube must be inside-to-outside to permit the liquid to drip from the outside of the tube to the drain in the filter housing. If installed outside-to-inside, the filter will at first function as a coalescing filter, but liquid will collect on the inside of the filter tube. Since there is no way of draining the liquid, the level will build up rapidly until it begins to be carried downstream by the air flow. The filter will work at removing liquids for a short time, and then not work at all. If the Balston coalescing filter exhibits these symptoms, reversing the flow direction will solve the problem.

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Removing Oil from Compressed Air

The source of oil in compressed air is the compressor lubricant. The common plant problems resulting from oil in the air are caused by liquid oil depositing in valves, instrument control surfaces, and other critical points in the air distribution system.

Balston often receives inquiries from users of compressed air about removing oil vapor from the air, yet the only reason for concern about oil vapor in most applications is that it may condense to liquid oil. Just like water vapor, oil vapor will condense to liquid when the temperature is reduced or the air pressure is increased at constant temperature. However, the table below show that while in theory, condensation of oil vapor and water vapor are similar, in practice the effect of condensation of the two vapors is quite different.

Concentration of vapor, parts per million by weight (ppm) in air at 100 psig, at indicated temperature

	Petroleum Base Oil	Synthetic Oil	Water
80°F	0.012	0.002	2,743.
100°F	0.05	0.01	5,137.
125°F	0.2	0.06	10,508.
150°F	0.7	0.2	20,119.
200°F	3.5	2.4	62,371.

From the above figures, one can calculate that if 100 SCFM of air is filtered at 125°F to remove all liquids, and is subsequently cooled to 80°F, condensed liquids would consist of: water 3.6 lbs per hour, and either petroleum base oil 0.001 lbs. per hour, or synthetic oil 0.0003 lbs per hour. Condensed water is potentially a serious problem, but the quantity of condensed oil vapor is extremely small.

Field tests show that the liquid oil in air from a well-maintained reciprocating compressor is typically in the range of 15 to 30 ppm. With an oil-sealed rotary screw compressor, liquid oil content in the compressed air can vary from 10 to more than 100 ppm, depending upon the efficiency of the bulk oil separator. Compared to these figures, the approximate 0.2 ppm of liquid oil which could result from oil vapor condensation is for practical purposes negligible.

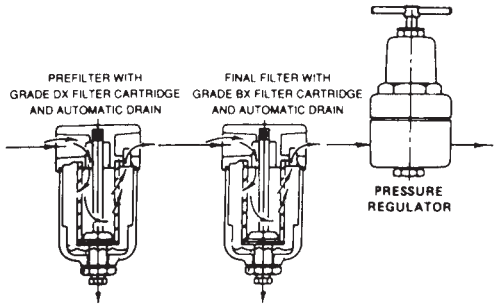
Therefore, removing the liquid oil from compressed air with a Balston coalescing filter, even at temperatures as high as 125°F, will eliminate the chance of oil-caused problems downstream in virtually all installations.

There are rare instances in which even 0.2 ppm oil vapor in the air or gas can cause a problem; for example, in contact with a sensitive catalyst or other highly reactive material.

In those cases, the trace quantity of oil vapor can be reduced using an adsorbent-loaded cartridge, following coalescing filter to remove the liquid oil.

Placing the Filter at the Point-Of-Use

Whether or not the system has an aftercooler, Balston strongly recommends a filter at each critical end-use point, even if a main line Grade DXE filter has been used. The point-of-use filters will remove dirt and oil which may have been in the distribution lines, as well as water that has condensed downstream from the main filter. If there is a pressure regulator at the end-use point, the filter should be installed immediately upstream from the regulator. Alternatively, replace the existing regulator with a combination Balston filter-regulator.



Point-of-Use Filter Recommendations

Microfibre Filter Cartridge	Grade BXE
Filter Housing	Size from flow chart or by line size
Automatic Drain	Recommended (refer to Page 18)

If there is no Grade DXE filter upstream from the final filter, or if a significant amount of water or oil is expected, then a two-stage system, Grade DXE followed by Grade BXE, is required at each use point. The housing and automatic drain for the Grade DXE prefilter should be the same as for the Grade BXE final filter (if the flow capacities permit).

Even if the application is not particularly sensitive to impurities in the air - for example, an air-driven tool - it is still good practice to remove condensed water with a filter at the end of the line. Balston recommends a single-stage Grade DXE filter with automatic drain.

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Using Filters With Air Dryers

Properly specified filters are relatively inexpensive protection for air dryers. Both refrigerated and desiccant dryers benefit from filter protection.

Refrigerated Dryers

A Grade DXE prefilter with automatic drain should be installed upstream from a refrigerated dryer to prevent oil and condensed water from entering the dryer. Oil entering a dryer coats the cooling coil and reduces its efficiency; condensed water increases the cooling load and reduces dryer capacity. A dryer that was in operation before a Balston filter was installed may already have oil inside it. Therefore a second filter, a Grade BXE filter with automatic drain, must be installed downstream from the dryer if oil-free air is required.

Desiccant Dryers

Desiccant dryers are very sensitive to water and oil droplets. Water can saturate the desiccant and reduce its drying efficiency or even destroy it. Oil can coat the desiccant, rendering it ineffective, or the oil can accumulate on the desiccant and create a combustion hazard when the desiccant is heated for regeneration.

For maximum protection of the desiccant dryer, a two-stage filter (Grade DXE followed by Grade BXE) system with automatic drains should installed upstream from the dryer. To protect downstream delivery points from abrasive desiccant particles, a high efficiency filter with high solids holding capacity should be installed downstream from the dryer. The Balston Grade DXE filter cartridge is recommended for this downstream installation location. (Note: All Balston desiccant dryers are equipped with prefilters and final filters, as recommended above).

Membrane Dryers

Membrane air dryers are sensitive to water and oil droplets. Oil can permanently damage the hollow fiber core. Balston Membrane Air Dryers are assembled with maximum protection, two stage coalescing filters (Grade DXE followed by BXE) designed to remove all contaminants down to 0.01 microns. Most all other membrane dryers are not assembled with adequate prefiltration protection and should be protected with a two stage Balston Filter System (Grade DXE, Grade BXE).

Maintaining The Filters

In a typical compressed air delivery system, a properly specified Balston filter cartridge can be expected to last for one year. The filter cartridge can continue to coalesce indefinitely, but solids loading in the depth of the cartridge will cause a pressure drop through the housing. The filter should be changed when the pressure drop reaches 10 psi. At pressure drops higher than 10 psig, the cartridge will continue to perform at its rated efficiency, but downstream instrumentation may be affected by the pressure drop.

To monitor the condition of the filters, install Balston Differential Pressure Indicators (DPI) on the filters or across a multi-filter installation. The DPI gives a visual indication of differential pressure through the filter cartridge. The Balston Differential Pressure Indicator is factory-installed on 1/4" and larger line size Balston Compressed Air Filter Assemblies. To use a DPI with a smaller Balston Compressed Air Filter, pressure taps must be provided with "tees" on the line upstream and downstream from the filter.

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Models A914D, A914P, A914, A914A

Models A914P and A914D are 1/4" line size assemblies with simple, reliable “automatic” drains used for low flow applications with moderate levels of liquid contaminate. The A914P is designed to empty condensate when there is a sudden pressure drop through the system (intermittent compressed air demand applications). The A914D incorporates an overnight drain which will drain liquid contaminate when the compressed air system pressure drops below 5 psig. The standard A914 utilizes a standard manual threaded drain. All models have a transparent polycarbonate bowl with an aluminum head. The Model A914A has a zinc bowl.

Model A914D, A914P, A914

Model A914A

Models 2002, 2003, and 2004

Models 2002 and 2003 are 1/4" and 3/8" line size assemblies. These filters have increased liquid holding capacity and are equipped with high capacity float drains, differential pressure indicators, sightglass, pressure relief valve, and 1/4 turn bayonet bowl closures. The 2004 series is designed to service 1/2" compressed air lines with low flow rates.

Model 200X Series

Model 2104

The Model 2104 is a 1/2" line size assembly with an aluminum bowl. The filter housing has a large liquid holding capacity and a high capacity float drain, differential pressure indicator, sightglass, pressure relief valve, and 1/4 turn bayonet bowl closure.

Model 2104 Series

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Principal Specifications

Model	A914	A914A	2002, 2003, 2004 (1)	2104 (1)
Port Size	1/4" NPT	1/4" NPT	1/4", 3/8", 1/2" NPT	1/2" NPT
Materials of Construction				
Head	Anod. Alum.	Anod. Alum.	Anod. Alum.	Anod. Alum.
Bowl	Polycarbonate	Zinc	Anod. Alum.	Anod. Alum.
Internals	Nylon	Nylon	Nylon	Nylon
Seals	Buna-N	Buna-N	Buna-N	Buna-N
Maximum Temperature	120°F (49°C)	220°F (104°C)	130°F (54°C) (2)	130°F (54°C) (2)
Maximum Pressure (3)	150 psig	250 psig	250 psig	250 psig
Minimum Pressure (4)	5 psig	5 psig	40 psig	40 psig (4)
Shipping Weight	0.5 lbs. (0.2 kg)	0.5 lbs. (0.2 kg)	2.0 lbs. (0.9 kg)	2.5 lbs. (1.1 kg)
Dimensions	1.5"W X 4.0"L (4cm X 10cm)	1.5"W x 4.0"L (4cm X 10cm)	3.3"W X 8.5L" (8cm X 20cm)	3.3"W X 11.3"L (8cm X 28cm)

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	A914	A914A (8)	2002, 2003, 2004 (1)	2104 (1)
Differential Pressure Indicator (7)	Not Included	Not Included	Included	Included
Replacement Filter Cartridges				
No. Required	1	1	1	1
Box of 5 (5)	5/050-05-❑	5/050-05-❑	5/100-12-❑	5/100-18-❑
Cartridges Box of 10 (5)	050-05-❑	050-05-❑	100-12-❑	100-18-❑
CI Cartridge Box of 1 (5)	—	—	CI-100-12-000	CI-100-25-000

Notes:

1 Lifetime (20 year) Warranty included. Contact your local representative for details.

2 Automatic drain and Differential Pressure Indicator are temperature limiting factors. For Temperature capabilities to 220°F (104°C), order assemblies without automatic Drain and Differential Pressure Indicator.

3 Maximum pressure ratings are for temperatures to 130°F (54°C). Please consult factory for maximum pressure ratings at elevated temperatures.

4 Required for proper operation of piston drain, overnight drain, or float drain.

5 Indicate grade of filter cartridge by putting appropriate letter after ordering number. To order assembly with Type CI cartridges, add-000 after assembly number. Example: 2104N-0A0-000

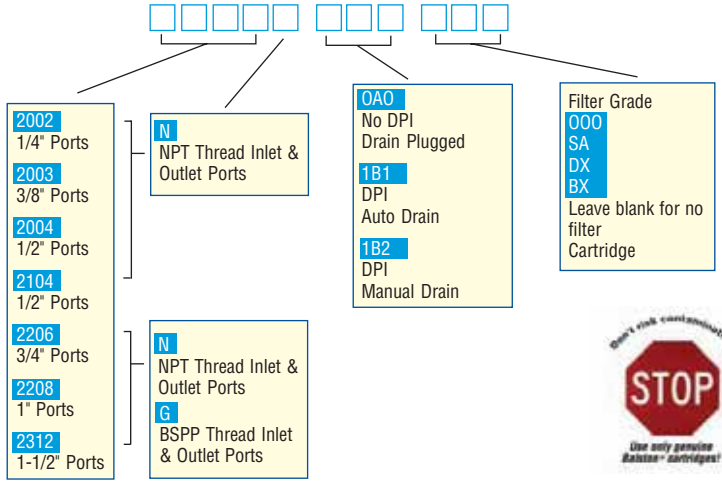
6 Automatic drains not supplied with assemblies containing Type CI cartridges.

7 Differential Pressure Indicator (DPI) Kit may be ordered separately, P/N 41-071. DPI is sensitive in the range of 0-7 psi differential.

8 Order A914D-_X for overnight drain installed in the filter assembly.
Order A914P-_X for piston drain installed in the filter assembly.
Order A914A-_X for aluminum bowl and 250 psig rating.

How to Order the Filter Assembly*

Build your own custom filter assembly using the guideline matrix below and specify your model number. Example: 1/2" filter with DPI and Auto Drain with Grade DXE Filter = 2104N-1B1-DX.



*Consult Factory. Not all configurations are available.

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Models 2206, 2208, 2312, and A15/80

The Model A15/80 filter assembly has 2" NPT inlet and outlet ports, an automatic float drain and differential pressure indicator installed. The Models 2206, 2208, and 2312 filter assemblies have 3/4", 1", and 1 1/2" NPT inlet and outlet ports, respectively; these models are also equipped with automatic drains, sight glasses, pressure relief valve, bayonet closures, and differential pressure indicators. Materials of construction are shown below.

Model A15/80

Model 2312N

Model 2206N

Principal Specifications

Model	2206	2208	2312	A15/80 (1)
Port Size	3/4" NPT	1" NPT	1 1/2" NPT	2" NPT
Materials of Construction				
Head	Anod. Alum.	Anod. Alum.	Anod. Alum.	Anod. Alum.
Bowl	Anod. Alum.	Anod. Alum.	Anod. Alum.	Steel
Internals	Nylon	Nylon	Nylon	St. Steel
Seals	Nylon	Nylon	Nylon	Buna-N
Maximum Temperature (2)	130°F (54°C)	130°F (54°C)	130°F (54°C)	130°F (54°C)
Maximum Pressure (3)	250 psig	250 psig	250 psig	250 psig
Minimum Pressure (4)	40 psig	40 psig	40 psig	40 psig
Shipping Weight	8 lbs. (3.6 kg)	8 lbs. (3.6 kg)	15 lbs. (6.8 kg)	11 lbs. (5 kg)
Dimensions	4"W X 13"L (10cm X 33cm)	4"W X 13"L (10cm X 33cm)	5.0"W X 17L" (13cm X 43cm)	6.3"W X 28"L (16cm X 71cm)

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	2206	2208	2312	A15/80
Differential Pressure Indicator (6)	Included	Included	Included	Included
Replacement Filter Cartridges				
No. Required	1	1	1	1
Box of 5 (5)	5/150-19-❑	5/150-19-❑	5/200-35-❑	5/200-80-❑
Box of 10 (5)	150-19-❑	150-19-❑	200-35-❑	200-80-❑
CI Cartridge (Box of 1)	CI 150-19-000	CI 150-19-000	CI 200-35-000	CI 200-80-000

Notes:

1 Lifetime (20 year) Warranty included. Contact your local representative for details.

2 Automatic Drain and Differential Pressure Indicator are limiting factors. For temperature capabilities to 220°F (104°C), order assemblies without Auto Drain and Differential Pressure Indicator.

3 Maximum pressure ratings are for temperatures to 130°F (54°C). Please consult factory for maximum pressure ratings at elevated temperatures.

4 Required for proper operation of the float drain.

5 Indicate grade of filter cartridge by putting appropriate letter after ordering number (please refer to PK1-2). Example: 5/150-19-DXE, 200-35-BXE.

6 The DPI is sensitive in the range of 0-5 psi differential.

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K-Series and H-Series Multiple Cartridge Filter Assemblies

These filter assemblies provide high efficiency filtration of compressed air and other compressed gases at very high flow rates. With inlet and outlet ports accommodating 3" to 10" pipe sizes, standard K-series and H-series housings are available in carbon steel or Type 316 stainless steel construction up to a maximum capacity of 28,000 SCFM at 100 psig. The standard carbon steel units, which are generally in stock (through 6" line size), have pressure ratings from 200 to 325 psig. Special high pressure units can be provided for pressure ratings to 665 psig.

All K-series and H-series housings are ASME Code Stamped for the rated maximum operating pressure (except Model AKN-0280). All vessels have built-in legs for floor mounting. With the exception of Model AKN-0280, all vessels have in-line Flanged ports.

In all K-series models, the filter cartridges are sealed by tightening the threaded retainer cap onto the rigid tie rod. Since the filter cartridges are self-gasketing, the only resilient seal in the system is the o-ring in the head of the vessel.

Each K-series Assembly is equipped with a stainless steel automatic float drain (P/N 20-211), differential pressure indicator (P/N 41-071), and a set of filter cartridges (except where noted).

Model AKN-0280

Model AKC-1480

Principal Specifications

Model (3)	AKN-0280 (7)	AKC-0280	AKC-0480	AKC-0880	AKC-1480	AKC-2280
Port Size	3" NPT	3" FLG	4" FLG	6" FLG	8" FLG	10" FLG
Materials of Construction						
Vessel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
Filter Cartridge Holders	303 St. Steel	303 St. Steel	303 St. Steel	303 St. Steel	303 St. Steel	303 St. Steel
Seals	Buna-N	Buna-N	Buna-N	Buna-N	Buna-N	Buna-N
Maximum Temperature (1)	250°F (121°C)	230°F (110°C)	230°F (110°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)
Maximum Pressure (2)	325 psig	250 psig	250 psig	200 psig	200 psig	200 psig
Minimum Pressure (4)	10 psig	10 psig	10 psig	10 psig	10 psig	10 psig
Shipping Weight	132 lbs. (60 kg)	140 lbs. (64 kg)	210 lbs. (64 kg)	360 lbs. (163 kg)	590 lbs. (268 kg)	880 lbs. (400 kg)
Dimensions	6.6"W X 36"H (17cm X 92cm)	16"W X 36"H (41cm X 91cm)	21"W X 36"H (53cm X 91cm)	25"W X 38"H (64cm X 97cm)	34"W X 54"L (86cm X 137cm)	36"W X 56"H (91cm X 142cm)
Flange Center Line to Floor Dimension	7.6" (19 cm)	7.75" (20cm)	6.25" (11cm)	7.5" (19cm)	16.25" (41cm)	17.25" (44cm)
Flange to Flange Dimension	13"	15.62"	20.63"	24.75"	34"	36"

Footnotes on page 12.

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Principal Specifications - High Pressure Group

Model (5)	AKH-0280	AKH-0480	AKH-0880	AKH-1480	AKH-2280
Port Size	3" FLG	4" FLG	6" FLG	8" FLG	10" FLG
Materials of Construction					
Vessel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
Filter Cartridge Holders	303 St. Steel	303 St. Steel	303 St. Steel	303 St. Steel	303 St. Steel
Seals	Buna-N	Buna-N	Buna-N	Buna-N	Buna-N
Maximum Temperature (1)	250°F (121°C)	250°F (14°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)
Maximum Pressure (2)	665 psig	665 psig	665 psig	665 psig	665 psig
Minimum Pressure (4)	10 psig	10 psig	10 psig	10 psig	10 psig
Shipping Weight	150 lbs. (68 kg)	270 lbs. (123 kg)	560 lbs. (254 kg)	1120 lbs. (508 kg)	1430 lbs. (649 kg)
Dimensions	16"W X 41"H (41cm X 104cm)	21"W X 40"H (53cm X 102cm)	25"W X 43"H (64cm X 109cm)	34"W X 54"H (86cm X 137cm)	36"W X 57"H (91cm X 145cm)
Flange Center Line to Floor Dimension	7.75" (20cm)	6.25" (16cm)	8.5" (22cm)	16.25" (41cm)	17.25" (44cm)
Flange to Flange Dimension	15.63" (40cm)	20.63" (52cm)	24.75" (63cm)	34" (86cm)	36" (91cm)

Ordering Information (3)

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	AKN-0280-❑	AKC-0280-❑	AKC-0480-❑	AKC-0880-❑	AKC-1480-❑	AKC-2280-❑
Replacement Filter Cartridges No. Required	2	2	4	8	14	22
Box of 5 (6)	5/200-80-❑	5/200-80-❑	5/200-80-❑	5/200-80-❑	5/200-80-❑	5/200-80-❑
Box of 10 (6)	200-80-❑	200-80-❑	200-80-❑	200-80-❑	200-80-❑	200-80-❑
CI Cartridge (Box of 1)	CI-200-80-000	CI-200-80-000	CI-200-80-000	CI-200-80-000	CI-200-80-000	CI-200-80-000

Ordering Information - High Pressure Group (4)

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model (5)	AKH-0280-❑	AKH-0480-❑	AKH-0880-❑	AKH-1480-❑	AKH-2280-❑
Replacement Filter Cartridges No. Required	2	4	8	14	22
Box of 5 (6)	5/200-80-❑	5/200-80-❑	5/200-80-❑	5/200-80-❑	5/200-80-❑
Box of 10 (6)	200-80-❑	200-80-❑	200-80-❑	200-80-❑	200-80-❑
CI Cartridge (Box of 1)	CI-200-80-000	CI-200-80-000	CI-200-80-000	CI-200-80-000	CI-200-80-000

Notes:

1 Maximum operating temperature of carbon steel vessel is 650°F (343°C). Minimum operating (process and ambient pressure) temperature is -20°F (29°C). Max. Temps. for Seal material: 250°F (Buna), 400°F (Viton), 450°F (Silicone). Seal material may not be the limiting factor. Maximum temperature for assemblies with DPI is 130°F (54°C)

2 Vessel is ASME Section VIII, Div. 1 code stamped for rated pressure. All AKC series housings have CRN registration numbers assigned in all Canadian provinces.

3 K-series Filter Assemblies are shipped complete with Automatic Drain (P/N 20-211), Differential Pressure Indicator (P/N 41-071), and one set of filter cartridges.

4 Maximum operating pressure for 41-071 Differential Pressure Indicator is 250 psig. The DPI is sensitive in the range of 0-7 psi differential. The Maximum operating pressure for 20-211 Auto Drain is 400 psig. Minimum operating pressure is 10 psig.

5 Differential Pressure Indicator and Automatic Drain are not included with AKH Assemblies, or with assemblies containing Type CI Cartridges.

6 To order filter cartridges, indicate grade of filter cartridge by placing appropriate letter cartridge designation after the last digit. Example: 200-80-DXE.

7 AKN-0280 is not ASME code stamped.

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Petrochemical

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Stainless Steel Compressed Air Filters for Harsh Environments

All 304 stainless steel construction, ideal standing up to aggressive washdown chemicals

Remove 99.99% of 0.01 micron particles of oil, water, and dirt from compressed air and other gases

For Sterile Air Requirements:

USDA accepted for use in federally inspected meat and poultry plants

Low pressure drop

Continuously trap and drain liquids

Remove trace oil vapor with adsorbent cartridges

Balston Stainless Steel Compressed air Filter Assemblies

Balston Compressed Air Filters protect your equipment and delicate instruments from the dirt, water, and oil usually found in compressed air and other gases. These filters will remove contaminants at a very high efficiency - up to 99.99% for 0.01 micron particles and droplets. Liquid releases from the filter cartridge to an automatic drain as rapidly as it enters the filter. This allows the filter to continue removing liquids for an unlimited time without loss of efficiency or flow capacity. Select 1/4" to 1" line filters are constructed of 304 stainless steel and are designed to hold up to the harshest environments.

Filter Cartridge Description

General purpose applications such as plant compressed air	Single stage filtration. Use a Grade DXE filter cartridge
Instrument air and other critical air requirements	Two stage filtration is necessary. Use a Grade DXE followed by a Grade BXE filter cartridge. As a general rule, a Grade BXE filter cartridge should not be used alone.
Removal of trace compressor oil vapor	For rare instances where even a trace amount of oil vapor can cause a problem, three stage filtration is necessary. Use a Grade DXE followed by a Grade BXE, and a type CI cartridge.

Physical Properties, Microfibre Filter Cartridges

Temperature Range	-150°F to 300°F (-100°C - 149°C)
Maximum Pressure Differential Across Filter, Inside-to-Outside Flow:	100 psi
Materials of Construction	Borosilicate glass microfibers with fluorocarbon resin binder. Resistant to water, all hydrocarbon and synthetic lubricants.

Retention Efficiency

Grade	Efficiency for 0.01 Micron Particles and Droplets
DXE	93%
BXE	99.99%

Balston Filter Cartridges

Balston provides two grades of coalescing filter cartridges, Grade DXE and Grade BXE. Singly or in tandem, these filters satisfy all requirements for removing liquid and solid contaminants from compressed air. Balston also has an activated carbon adsorbent CI-type cartridge for the removal of trace oil vapors from a compressed air line. The activated carbon cartridge is Grade 000.

How to Select the Filter Cartridge and Housing

1 Decide which grade(s) of filter cartridges fits the application (see selection boxes at left).

2 Select the filter housing with a port size equal to the line size where the filter is to be located.

3 For a new installation in which the line size has yet to be selected, determine the gas flow rate and pressure at the point where the filter will be located, and then refer to the flow chart on the reverse side of this data sheet. NOTE: The filter port size must be equal to or larger than the line size (when specified).

How to Order the Filter Assembly

1 Build your own custom filter assembly using the guideline matrix on Page 8 and specify your model number. Example: 1/2" filter with DPI and Auto Drain with Grade DXE Filter = 2104N-1B1-DX

2 Each assembly is shipped with the filter cartridge installed. To order additional filter cartridges, indicate the model number of the cartridges, and the grade. Examples 050-05-DXE, 050-05-BXE. The grade used for Type CI cartridges is 000 (CI-100-12-000).

Note: Assemblies with CI Cartridges are shipped with the adsorbent cartridge wrapped separately. This shipping method prolongs the life of the cartridge.

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Model 6002

The 6002 series models are 1/4” line size filters designed for lower flow systems and installations with space limitations. It is offered with two drain options, a manual drain or an auto float drain for maintenance free operation.

Model 6004

The 6004 series models are 1/2” line size filters designed for moderate flow rate systems. This series has increased liquid holding capacity which safeguards sensitive end use points from system upsets and morning start ups.

Model 6006 and 6008

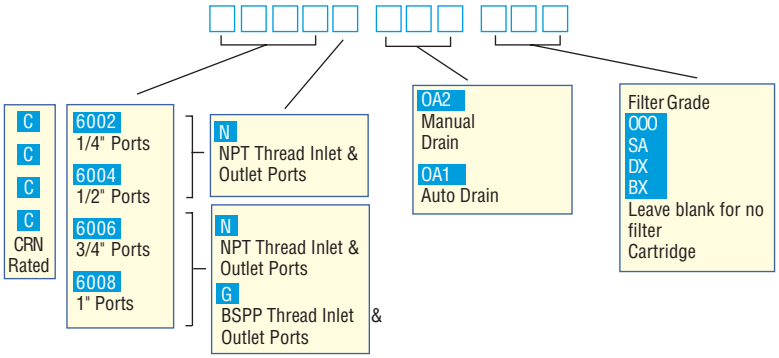
The 6006 and 6008 series models are 3/4” and 1” line size filters respectively. These are designed for high flow rate systems servicing multiple end use points. These are also offered with a high capacity auto float drain option.

Model 6002 Model 6004

Models 6006 and 6008

How to Order the Filter Assembly*

Build your own custom filter assembly using the guideline matrix (right) and specify your model number. Example: 1/2" filter an Auto Drain with Grade DXE Filter = 6004N-0A1-DX.



*Consult Factory. Not all configurations are available.

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Flow Rates

Filter Housing Model	Port Size	Filter Cartridge Grade	Flow rates (SCFM), at 2 psi drop at indicated line pressure. Refer to Principal Specification Charts in each product data sheet for maximum pressure rating of each housing PSIG								
			2	20	40	80	100	125	150	200	250
6002N	1/4"	DXE	9	19	39	51	63	76	90	117	145
		BXE	3	8	11	21	25	31	36	47	58
		CI	2	5	7	12	15	18	22	28	35
		SA	---	8	11	21	25	31	36	---	---
6004N	1/2"	DXE	19	41	65	113	137	166	196	257	316
		BXE	9	19	30	51	63	76	90	117	145
		CI	6	12	19	32	39	48	56	73	90
		SA	---	19	30	51	63	76	90	---	---
6006N	3/4"	DXE	37	78	123	214	259	315	371	484	596
		BXE	10	21	34	56	70	85	101	131	162
		CI	8	16	26	44	53	65	76	99	122
		SA	---	21	34	56	70	85	101	---	---
6008N	1"	DXE	55	115	181	314	380	463	546	711	877
		BXE	11	23	37	64	77	94	111	144	178
		CI	10	20	32	56	67	82	96	125	154
		SA	---	23	37	64	77	94	111	---	---

Sterile Air Filters

Balston grade SA filter cartridges, rated at 99.9999+% efficiency for 0.01 micron particles, is at least 30 times better than the accepted standard for sterile air filters developed by independent research organizations in the U.S. and U.K. (request bulletin TI-105A for a detailed discussion on Balston filter efficiency rating procedure, and Bulletin TI-935 for an independent test report on balstonSterile Air Filters). Balston Sterile Air Filters are in full compliance with the requirements of the FDA.

Steam Sterilization Procedure

In installations where the sterile air filter requires steam sterilization, we recommend the following procedures:

The steam sterilization pressure should not exceed 60 psig. Preferably, it should be held to 40 psig or less. A typical sterilization cycle is 30 psig steam for 30 minutes. Steaming time can be increased as desired without harm to the filter cartridges. The steam flow should not exceed the normal air flow for the unit. To ensure no buildup of condensate in the housing, condensate should be drained from the filter by a condensate drain valve during the steaming process. The cleanliness of the steam is an important factor influencing the life of the Sterile Air Filter cartridges. Parker strongly recommends using Model 23 Steam Filters to ensure optimum operating life. When autoclaving, the Grade SA filter cartridges will tolerate temperatures to 300°F (149°C) in dry gas. Viton or other heat resistant seals should be used in the housing.

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Principal Specifications

Model	6002	6004	6006	6008
Port Size	1/4" NPT	1/2" NPT	3/4" NPT	1" NPT
Materials of Construction				
Head	304 Stainless Steel →			
Bowl	304 Stainless Steel →			
Internals	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Seals	Buna-N Food Grade →			
Maximum Temperature (1)	120°F (49°C) →			
Maximum Pressure (2)	175 psig →			
Minimum Pressure (3)	15 psig →			
Shipping Weight	3.5 lbs.	4.0 lbs.	11 lbs.	12 lbs.
Dimensions	3"W X 7"L (7mm X 18mm)	3"W X 10"L (7mm X 25mm)	4"W X 10"L (10mm X 25mm)	4"W X 12"L (10mm X 30mm)

Notes:
1 Max. temperature with auto drain Max. temperature with manual drain is 275°F.
2 Max. pressure with auto drain. Max. pressure with manual drain is 250 psi.
3 Required for proper operation of auto drain.

Ordering Information For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Assembly Ordering Information (4)

Model P/N	Filter Tube	Drain (Manual)	Drain (Auto. Float)	Mounting Bracket (stainless steel)
6002N-0A2-(?X)	100-12-(?XE)	A03-0178	N/A	C01-0094
6002N-0A1-(?X)	100-12-(?XE)	N/A	A03-0179	C01-0094
6002N-0A2-SA	100-12-SA	A03-0178	N/A	C01-0094
6002N-0A2-000	100-12-000	A03-0178	N/A	C01-0094
6004N-0A2-(?X)	100-18-(?XE)	A03-0178	N/A	C01-0094
6004N-0A1-(?X)	100-18-(?XE)	N/A	A03-0179	C01-0094
6004N-0A2-SA	100-18-SA	A03-0178	N/A	C01-0094
6004N-0A2-000	100-18-000	A03-0178	N/A	C01-0094
6006N-0A2-(?X)	200-176-(?XE)	A03-0178	N/A	C01-0094
6006N-0A1-(?X)	200-176-(?XE)	N/A	A03-0179	C01-0094
6006N-0A2-SA	200-176-SA	A03-0178	N/A	C01-0094
6006N-0A2-000	200-176-000	A03-0178	N/A	C01-0094
6008N-0A2-(?X)	200-185-(?XE)	A03-0178	N/A	C01-0094
6008N-0A1-(?X)	200-185-(?XE)	N/A	A03-0179	C01-0094
6008N-0A2-SA	200-185-SA	A03-0178	N/A	C01-0094
6008N-0A2-000	200-185-000	A03-0178	N/A	C01-0094

(4) Use a "C" prefix to order models with CRN rating

Replacement Filter Cartridge Ordering Information

Model P/N	6002	6004	6006	6008
Replacement Filter Cartridges				
Number required	1	1	1	1
Box of 5	5/100-12-(?X)E	5/100-18-(?X)E	5/200-176-(?X)E	5/200-185-(?X)E
Box of 10	100-12-(?X)E	100-18-(?X)E	200-176-(?X)E	200-185-(?X)E
Box of 10	100-12-SA	100-18-SA	200-176-SA	200-185-SA
CI Cartridges (box of 1)	CI100-12-000	CI100-18-000	CI200-176-000	CI200-185-000

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Models 9955-05-DX, 9955-11-DX, 9955-12-DX, 18/18-DX

Balston Filter/Silencers for air exhausts offer the combination of unusually effective sound attenuation and filtration of all visible oil mist from the exhaust air. The Filter/Silencers are available in 1/8", 1/4", 1/2", and 3/4" port sizes. They contain a Grade DX Microfiber Filter Cartridge sealed into a molded nylon or steel holder.

Balston Filter/Silencers are remarkably efficient sound mufflers, far more efficient than the felts, pleated paper, sintered plastic, and sintered metal products commonly used in other exhaust silencers. A sound attenuation efficiency test comparing a 9955-12-DX, 1/2" Filter/Silencer with a sintered polyethylene silencer is described below.

This silencing efficiency test simulates the action of an air cylinder discharging rapidly to atmosphere. A length of 1/2" line between two ball valves is pressurized with air to a controlled pressure. The upstream valve is closed and then the downstream valve is opened rapidly to discharge the fixed volume of air under pressure to atmosphere. Noise levels were measured at a 3 foot distance with no silencer on the end of the line, with the Balston Filter Silencer, and with competitive silencers.

Model 9955-05-DX

Model 9955-11-DX

Model 9955-12-DX

Model 18/18-DX

Noise Level (dBA)	Upstream Pressure (psig) 100	80	60	40	20
Without Silencer	102	102	101	99	95
With Balston Silencer	70	70	69	67	65
With Sintered Polyethylene Silencer	88	88	87	87	81

A similar test of the Model 18/18 on a 3/4" air line gave the following results:

Sound Level 3 ft. from 3/4" Air Line Discharging Air At 100 PSIG Atmosphere	
Without Silencer	With Model 18/18-DX
113 dBA	94 dBA

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Principal Specifications

Model	9955-05-DX	9955-11-DX	9955-12-DX	18/18-DX
Inlet Port	1/8" NPT (Male)	1/4" NPT (Male)	1/2" NPT (Male)	3/4" NPT (Female)
Drain Port	1/4" OD Tubing	1/4" OD Tubing	1/4" OD Tubing	1/8" NPT (Female)
Materials of Construction				
Filter Cartridge	Borosilicate glass microfibers with fluorocarbon resin binder			
Holder	Nylon	Nylon	Nylon	Steel
Internals	—	—	—	Steel
Maximum Internal Pressure at 110°F (43°F) (1)	100 psig	100 psig	100 psig	100 psig
Maximum Temp. at 0 psig Internal Pressure	260°F (127°C)	260°F (127°C)	260°F (127°C)	300°F (149°C)
Shipping Weight	0.5 lb (0.2 kg)	0.5 lb (0.2 kg)	0.5 lb (0.2 kg)	1 lb (0.5 kg)
Dimensions	1.4" dia. X 2.0"h (4cm X 5cm)	1.4" dia. X 3.0"h (4cm X 8cm)	2.0" dia. X 3.7"h (5cm X 9cm)	3.5" dia. X 5.4"h (9cm X 14cm)

Notes:

1 With the outlet open to atmosphere. Otherwise, maximum internal pressure is 15 psig.

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	Description
9955-05-DX, 9955-11-DX, 9955-12-DX	Standard Pack 10 Filter Silencers per box, individually wrapped
18/18-DX	One Model 18/18-DX per box.

Flow Rates

	Flow Rate from Pressured Line through Filter to Atmosphere (cu. ft. per sec.)		
Filter Housing Type	**100 psig Line Pressure**	**60 psig Line Pressure**	**20 psig Line Pressure**
9955-05-DX	3	1.2	0.2
9955-11-DX	10	4	0.7
9955-12-DX	35	14	2.2
18/18-DX	105	42	6.6

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Filter-Regulator Combinations

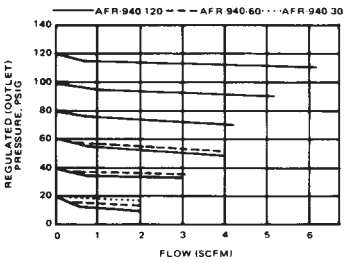
Balston Filter-Regulators combine a high efficiency coalescing filter with a high quality pressure regulator. Air flows through the filter, then to the pressure regulator. The filter is a Balston coalescing compressed air filter (Grade BX) and will completely remove oil, water, and dirt from compressed air and other compressed gases. Flow direction through the element is inside-to-outside for optimum oil and water removal. An automatic drain is installed on the 3/8", 1/2", and 3/4" models offering maintenance-free operation. Pressure gauges are standard and are available in up to 4 different ranges (see ordering information).

AFR-940, AFR-940A

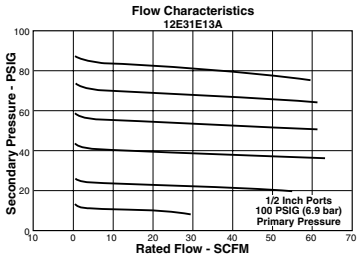
12E Series

Control Characteristics

Model AFR-940, AFR-940A



Model 12E3



Parker Hannifin Corporation
Filtration and Separation Division
Haverhill, MA 1-800-343-4048
www.parker.com/balston

Principal Specifications

Model	AFR-940	AFR-940A	12E27	12E37	12E47
Port Size	1/4" NPT	1/4" NPT	3/8" NPT	1/2" NPT	3/4" NPT
Gauge Ports	1/8" NPT	1/8" NPT	1/4" NPT	1/4" NPT	1/4" NPT
Materials of Construction					
Head	Anod. Alum.	Anod. Alum.	Zinc	Zinc	Zinc
Bowl	Polycarb.	Anod. Alum.	Zinc	Zinc	Zinc
Bonnet	Polycarb.	Polycarb.	Plastic	Plastic	Plastic
Internals	Brass/Buna	Brass/Buna	Zinc/Nitrile	Zinc/Nitrile	Zinc/Nitrile
Maximum Temperature	220°F (104°C)	220°F (104°C)	125°F (52°C)	125°F (52°C)	125°F (52°C)
Maximum Pressure (2)	150 psig	250 psig	250 psig	250 psig	250 psig
Minimum Pressure	——	——	15 psig (1)	15 psig (1)	15 psig (1)
Shipping Weight	0.5 lbs. (0.2 kg)	0.5 lbs. (0.2 kg)	2.5 lbs. (1.1 kg)	2.5 lbs. (1.1 kg)	2.5 lbs. (1.1 kg)
Dimensions	1.2"W X 6"L (3cm X 15cm)	1.2"W X 6"L (3cm X 15cm)	3.25"W X 13"L (8 cm X 33cm)	3.25"W X 13"L (8 cm X 33cm)	3.25"W X 13"L (8cm X 33cm)

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	AFR-940	AFR-940A	12E27	12E37	12E47
Control Gauge Pressure Range					
0-30 psig	AFR-940-30	AFR-940A-30	see ordering matrix below →		
5-60 psig	AFR-940-60	AFR-940A-60	see ordering matrix below →		
10-130 psig	AFR-940-130	AFR-940A-130	see ordering matrix below →		
Auto. Drain (1)	N/A	N/A	Included	Included	Included
Replacement Filter Cartridges					
Number Required	1	1	1	1	1
Box of 5	5/050-05-BXE	5/050-05-BXE	5/130-14-BXE	5/130-14-BXE	5/130-14-BXE
Box or 10	050-05-BXE	050-05-BXE	130-14-BXE	130-14-BXE	130-14-BXE
Mounting Bracket	11536	11536	PS807P	PS807P	PS807P

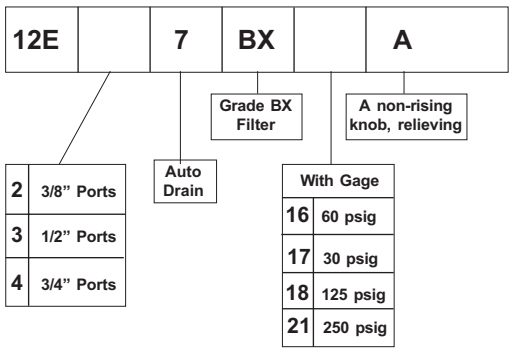
Notes:

1 Minimum operating pressure for automatic drain is 15 psig.

2 Maximum pressure ratings are for temperatures to 130°F (54°C). Please consult the factory for maximum pressure ratings at elevated temperatures.

How to Order

To order product with desired port size and Regulating Pressure Range, select the indicator digits from the matrix (at right). This will complete the entire model number which is needed to place an order.



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Model 17L Series

Many pneumatic system components and most tools require oil lubrication for proper operation and long service life. This lubricant is typically carried by the air stream. Too little oil can cause excessive wear and premature failure. Too much oil is wasteful and can become a contaminant. Use of the proper lubricator can greatly extend the life of expensive downstream pneumatic equipment.

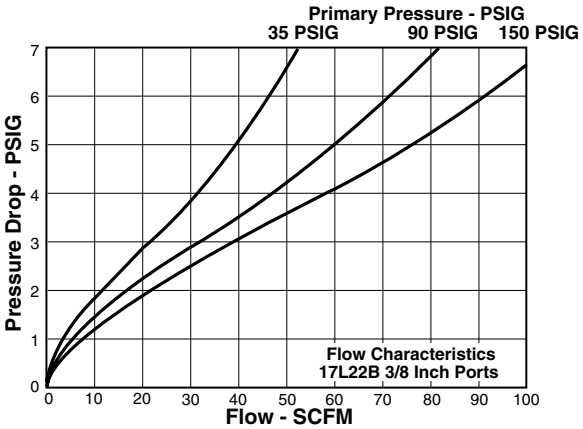
The 17L Series Micro-Mist Lubricators offer proportional oil delivery over a wide range of air flows. The precision needle valve assures repeatable oil delivery and provides simple adjustment of delivery rate. They are designed to generate oil droplets of 5 microns or smaller downstream to lubricate systems having complex piping arrangements. The 17L series are ideal for low and high flow applications with changing air flow.

17L Series

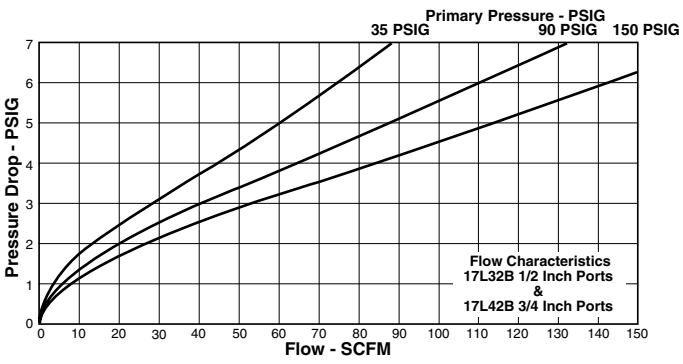
How to Select the Correct Lubricator

Once the required flow is determined for a pneumatic application, the lubricator can be selected by using the flow chart. To read the lubricator flow chart, first determine the inlet pressure that will be used. Find the appropriate pressure curve on the graph. Each graph will contain three pressure curves. If the required inlet pressure is not on the graph, interpolate a similar curve for the required pressure. Next, determine the acceptable pressure drop across the lubricator and locate it on the vertical axis. Find the intersection point of the acceptable pressure drop and the inlet pressure curve. At this point, follow a vertical path downward to view the flow in SCFM. If the flow is too low, select a larger port size or body size to give the required flow. If the flow is higher than necessary, select a smaller port size or body size to give the required flow.

Model 17L22B



Model 17L32B and 17L42B



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Principal Specifications

Model	17L22BE	17L32BE	17L42BE
Port Size	3/8" NPT	1/2" NPT	3/4" NPT
Gauge Ports	1/4" NPT	1/4" NPT	1/4" NPT
Materials of Construction			
Head	Zinc	Zinc	Zinc
Bowl	Polycarbonate	Polycarbonate	Polycarbonate
Bowl Guard	Steel	Steel	Steel
Collar	Plastic	Plastic	Plastic
Seal	Nitrile	Nitrile	Nitrile
Sight Dome	Polycarbonate	Polycarbonate	Polycarbonate
Sight Gage	Polyamide	Polyamide	Polyamide
Maximum Temperature	125°F (52°C)	125°F (52°C)	125°F (52°C)
Maximum Pressure	150 psig	150 psig	150 psig
Minimum Pressure	15 psig	15 psig	15 psig
Shipping Weight	1.9 lbs. (0.9 kg)	1.9 lbs. (0.9 kg)	1.9 lbs. (0.9 kg)
Dimensions	3.25"W X 9.27"L (85mm X 235mm)	3.25"W X 9.27"L (85mm X 235mm)	3.25"W X 9.27"L (85mm X 235mm)

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	17L22BE (3/8"NPT)	17L32BE (1/2"NPT)	17L42BE (3/4"NPT)
Service Kit	PS748P	PS748P	PS748P

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High Capacity Electric Solenoid Drain

The Balston Automatic Drain Assembly, P/N 20-440 automatically removes water from Balston filter housings. The autodrain consists of a solenoid valve and an automatic timer that can be adjusted to the desired cycle time and is powered by 120/240 VAC, 50/60 Hz. To drain receiving tanks, use any commercially available Y-strainer (ex. Keystone 911 Series or Watts Model 7771) to protect the 20-440.

20-440

High Capacity Non-Electrical Float Drain

In the 20-211 design, a sealed stainless steel float operates a needle valve by means of a lever. All internal parts are stainless steel. The 20-211 drain is a rugged design for high volumes of liquid.

20-211

Normal Capacity Non-Electrical Float Drain

In the 20-402 design, a float rises to operate a pilot-controlled valve when the liquid level in the body of the drain reaches a predetermined level. The float is reseated by the force of line pressure as soon as the liquid is drained.

20-402

Principal Specifications and Ordering Information

Model	20-211	20-440	20-402
Port Size	1/2" NPT	1/4" NPT	1/4" NPT
Maximum Pressure	400 psig	300 psig	200 psig
Minimum Pressure	10 psig	20 psig	40 psig
Maximum Temperature	500°F (260°C)	122°F (50°C)	130°F (54°C)
Shipping Weight	2 lbs. (0.9 kg)	2 lbs. (0.9 kg)	2 lbs. (0.9 kg)
Dimensions	2.5"W X 7.3"L (6cm X 19cm)	3"W X 4"L (7cm X 10cm)	3"W X 4L (7cm X 10cm)

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Model 20-600

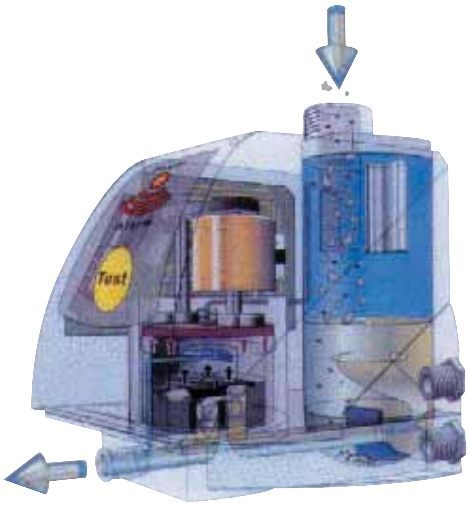
Conserves compressed air energy, zero compressed air is expelled, only oil/water condensate

Condensate can be piped to the top or bottom of drain, simplifying difficult installations

Automatically adjusts to all common powers from 24V to 230V

Test button enables manual discharge

Internal electronics continuously monitor operation, and alarm light on front panel indicates faults



Zero Air Loss Drain

The Parker Balston Zero Air Loss Drain is suitable for use on all filters and dryers. As condensate collects in the internal sump, a diaphragm is held closed by the system pressure. When the liquid level sensor detects an accumulation of condensate, an electromagnet is activated, relieving the system pressure above the diaphragm. As the condensate level decreases, system pressure is reintroduced above the diaphragm, closing off the flow of condensate before compressed air can escape.

Ideal for filters with flow rates to 3600 SCFM, and for dryers rated up to 720 SCFM.

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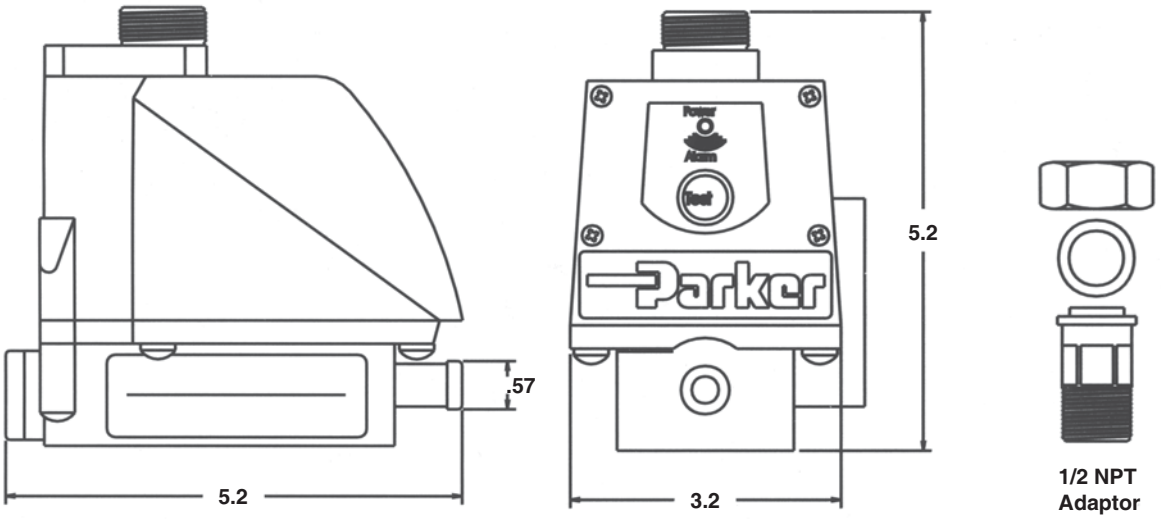

Principal Specifications

Model	20-600
Maximum Compressor Performance	360 SCFM (612 NM^3/H)
Maximum Refrigerated Dryer Performance	720 SCFM (1224 NM^3/H)
Maximum Filter Capacity	3600 SCFM (6120 NM^3/H)
Short Term Condensate Quantity	8 gal/h (100 PSI)
Pressure Range	12-250 PSI (0.8-17 bar)
Power Supply	24-230 V_{DC}, self regulating 80-230V_{AC}, self regulating
Power Consumption	5VA
Potential-Free Alert Contact	Max. 350 V AC/DC, Max. 0,1A (electric relays)
Temperature Range	35°F to 140°F (2°C to 60°C)
Protection	NEMA 4x or IP 65
Weight (empty)	2 lbs. (1 kg.)
Materials of Construction	
Wetted Plastic Parts	High impact glass filled engineered plastic
Body	Aluminum Coated
Seals	Viton

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model 20-600	Zero Air Loss Drain
301364	Repair Kit

Notes:

1 Installation is quick and simple. A 1/2" NPT pipe adaptor (supplied) is threaded into a filter housing drain port. A drip leg, or other pipe connection and the 20-600 can then be fitted into the system with the simple twist of a threaded collar.

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Balston Differential Pressure Indicator

The Balston Differential Pressure Indicator (DPI) is used to monitor the pressure drop across the filters or other components in a compressed air system. The DPI is sensitive in the range of 0 to 5 psi differential.

41-070

41-070 Mounted on Filter Assembly

Principal Specifications & Ordering Information

Model	41-070	C02-2377
Differential Pressure Indicator	41-070	C02-2377
Indicator and Installation Kit (1)	41-071	N/A
Port Size	1/8" NPT	3/8"-24
Maximum Pressure	250 psig	250 psig
Maximum Temperature	130°F (54°C)	130°F (54°C)
Dimensions	1.7"W X 1.8"H (4cm X 5cm)	2.9"W X 2.25"H (7cm X 6cm)

Note

1 Installation kit includes fittings and tubing necessary for line-mounting the 41-070 DPI

C02-2377

C02-2377 Mounted on Filter Assembly

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Models 9922-05, 9933-05, 4433-05 and 9900-05

The 99XX-05 Models are the smallest Disposable Filter Units with
11.7 ml internal volume. These models are used in low flow gas or liquid sampling applications, such as liquids to specific-ion analyzers or gases to personal samplers. The Model 4433-05 has 1/4" and 3/8" barb connections molded into the inlet/outlet ports. The 9900-05 is available with a color indicator that turns red when saturated with oil.

Models 9922-11 and 9933-11

Models 9922-11 and 9933-11 are used for applications similar to the smaller DFUs (Models 9922-05 and 9933-05) which require greater solids holding capacity and can tolerate the increased retention time.

Model 8833-11

These Disposable Filter Units are used as continuous coalescing filters with a third port serving as the drain, slip-stream, or by-pass port.

Model 99XX-05

Model 9922-05

Model 8833-11

Retention Efficiency

Model	Efficiency for 0.01 Micron Particles and Droplets
DX	93%
BX, BK	99.99%

Flow Rates

Air Flow at 2 psi drop, standard cu. ft. per min. (SCFM) at indicated line pressure

Filter Housing Type	Volume of Housing (CU. FT.)	Filter Tube Grade	Flow Rate (CFM) At 10" Water Press. Drop., 0 PSIG	2 psig	20 psig	40 psig	60 psig	80 psig	100 psig	125 psig
9900-05 9922-05 9933-05 4433-05	0.0004	DQ	0.2	1.2	2.5	3.9	5.4	6.8	8.3	10.1
		BQ/BK	0.1	0.8	1.6	2.6	3.5	4.5	5.4	6.6
8822-11 8833-11 9922-11	0.0007	DX	0.4	1.8	3.6	6	8	10	12	14.6
		BX	0.2	0.9	1.8	3	4	5	6	7.3

Installation Information

Compression fittings for 1/4" O.D. tubing may be obtained from the following manufacturers: Hoke, Inc. (Gyrolock); Crawford Fitting Co. (Swagelok); Parker-Hannifin Corp. (CPI); Legris, Inc. (push-on fittings); Jaco Mfg. Co. (plastic fittings).

The following brass fittings seal by O-ring compression and may be completely recovered and reused when changing filters. They may be purchased from Parker Hannifin Corp.

Connector	1/4" tubing to 1/4" NPT, female - P/N 11970
Connector	1/4" tubing to 1/4" tubing - P/N 11971
Elbow	1/4" tubing to 1/8" NPT female (for manual drain on Type 8833-11) - P/N 11972

For connections to low pressure plastic tubing

Tubing with 1/4" ID may be slipped over the DFU end fittings and held with tubing clamps. Parker Hannifin Corp. supplies plastic barbs to connect the DFU to smaller diameter plastic tubing. The connection is suitable for pressures to 50 psig.

DFU to 1/16" ID tubing	P/N 14000 (bag of 20 barbs)
DFU to 1/8" ID tubing	P/N 14001 (bag of 20 barbs)

Parker Hannifin Corp. also offers a manual drain valve for removal of coalesced liquids from the Type 8833-11-DX

Drain Valve	1/8" NPT (male) x 1/8" ID tubing (requires elbow part 11972) P/N 20125

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Principal Specifications

Model	9922-05	9900-05, 9933-05	4433-05	9922-11	9933-11	8833-11
Inlet and Outlet Ports	1/4" Tubing	1/4" Tubing	1st Tier/Barb 1/4" Tube 2nd Tier/Barb 3/8" Tube	1/4" Tubing	1/4" Tubing	1/4" Tubing
Drain	None	None	None	None	None	1/4" Tubing
Material of Construction	PVDF	Nylon	Nylon	PVDF	Nylon	Nylon
Filter Cartridge Length	1.25" (3.2 cm)	1.25" (3.2 cm)	1.25" (3.2 cm)	2.25" (5.7 cm)	2.25" (5.7 cm)	2 1/4"
Maximum Temperature (1)	275°F (135°C)	230°F (110°C)	230°F (110°C)	275°F (135°C)	230°F (110°C)	230°F (110°C)
Maximum Pressure (2)	125 psig	125 psig	125 psig	125 psig (2)	125 psig (2)	125 psig (2)
Dimensions	1.0"D X 3.25"L (2.5 cm X 6 cm)	1.0"D X 3.25"L (2.5 cm X 6 cm)	1.0"D X 3.43"L (2.5 cm X 8.72 cm)	1.4"D X 4.6"L (9.1 cm X 12 cm)	1.4"D X 4.6"L (9.1cm X 12 cm)	1.4"D X 4.6"L (9.1 cm X 12 cm)

Ordering Information

For assistance, call toll-free at 1-800-343-4048 8AM to 5PM Eastern Time

Model	**9922-05**	**9900-05**	**4433-05**	**9933-05**	**9922-11**	**9933-11**	**8833-11**
Filter Cartridges Available in types Q and X (3)	9922-05-❑ Box of 10	9900-05-❑	4433-05-❑	9933-05-❑	9922-11-❑	9933-11-q	8833-11-q

Notes:

1 At 0 psig

2 At 110°F (43°C)

3 To designate the grade of filter tube in the DFU, insert Grade letters after DFU designation. For example, to obtain a grade BQ filter tube in a DFU 9922-05, order: 9922-05-BQ. Please note the following limitations:

DFU	Supplied With These Grades
4433-05, 9900-05, 9922-05, 9933-05	DQ, BQ, AQ (BK) (4)
9922-11, 9933-11	DX, BX, AQ
8822-11, 8833-11	DX, BX

4 The BK Grade filter has a color indicating feature, which turns the cartridge red when saturated with oil.

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