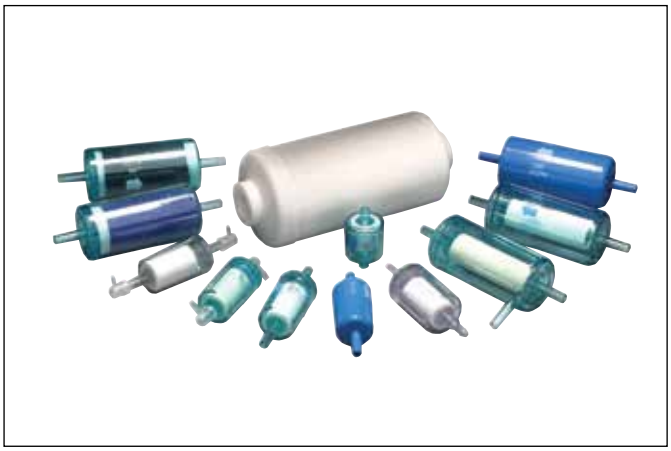
Balston OEM Disposable Filter Solutions



Balston Disposable Filter Units

Ideal for the following gas filtration applications:
Final filter for air logic devices
Protection of pneumatic components
Filtration of portable environmental sampling devices
Filtration of samples to on-line analyzers
Protection of Pneumatic temperature controls

Ideal for the following liquid filtration applications:
Filtration of liquid with minimum holdup volume
Filtration of liquid samples to analyzers

Additional applications in the following industries:
Instrument & Controls
HVAC
Dental
Automotive
Food Packaging

Parker Hannifin Corporation, the leader in separation and filtration technologies, is pleased to present a brochure designed to help OEM customers choose the best Balston disposable filter product for industrial, commercial, measurement and control applications.

Balston brand disposable filter units (DFU) consist of a microfibre filter cartridge permanently bonded into a sealed plastic holder with 125 psig pressure ratings, temperatures to 275°F, and available in low and high flow models. The economical DFU offers all of the advantages of microfibre filter cartridges for high efficiency liquid and gas filtration, combined with the economics and convenience of complete disposability.

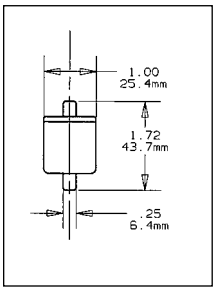
Our years of experience in fitting products to individual applications has led to the creation of a variety of standard products that can be ordered off the shelf for general purpose filtration requirements or can be custom designed for all types of specialty applications.

If you do not see the specific configuration, size or material that you are looking for, our OEM engineering team will be happy to review your requirements and design product to your exact specifications.

If you have questions, or would like to place an order, please call 1-800-343-4048.

Filter Cartridge and Housing Selection

Miniature General Purpose



Model 9933-03

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.004L

Ordering Information

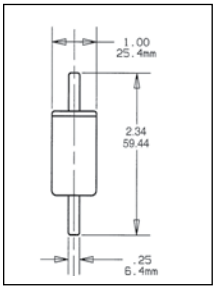
A9933-03-□ Box of 100 bulkpack

C9933-03-□ Box of 500 bulkpack

Available in Type U and grades A, B, C and D.

See pages 55-58 for detail of types, grades, application, and installation information.

General Purpose - Minimal Length



Model 9930-05

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.01L

Ordering Information

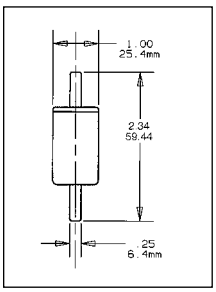
A9930-05-□ Box of 100 bulkpack

C9930-05-□ Box of 500 bulkpack

Available in Type U and in the following grades: A, B, C, D

See pages 55-58 for detail of types, grades, application, and installation information.

General Purpose DFU - Low Flow Gas



Model 9933-05

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.01L

Ordering Information

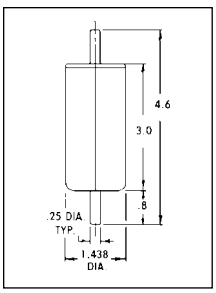
A9933-05-□ Box of 100 bulkpack

C9933-05-□ Box of 500 bulkpack

Available in Type U and in the following grades: A, B, C, D. Also available with adsorbents 000, 101, 103, 107.

See pages 55-58 for detail of types, grades, application, and installation information.

General Purpose DFU - Higher Flow



Model 9933-11

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.02L

Ordering Information

A9933-11-□ Box of 100 bulkpack

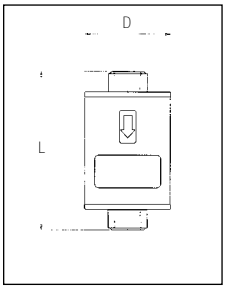
C9933-11-□ Box of 500 bulkpack

Available in Type U and in the following grades: A, B, C, D. Also available with adsorbents 000, 101, 103, 107.

See pages 55-58 for detail of types, grades, application, and installation information.

Filter Cartridge and Housing Selection

General Purpose for Gases - Highest Flow



Model 7825

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	125°F (52°C)
Inlet / Outlet Ports:	1/4" FNPT
Drain:	None
Housing Material of Construction:	PolyPropylene
L= Length:	Available 6", 8", 10", 12"
D= Diameter:	2.5"

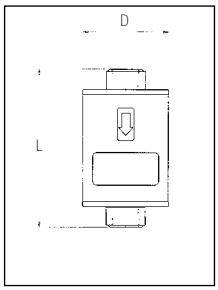
Ordering Information

A7825-□□-□□□ Box of 100 bulkpack

C7825-oo-ooo Box of 500 bulkpack

Available in Type Q and in the following grades: A, B, C, D. Also available with adsorbents 000, 101, 103, 107. Please consult OEM Technical Support for information on flow rates for these configurations. 3/8" NPT, 3/8" and 1/4" Tube Quick Disconnect are available upon request.

General Purpose for Liquids - Highest Flow



Model 7825

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	125°F (52°C)
Inlet / Outlet Ports:	1/4" FNPT
Drain:	None
Housing Material of Construction:	Polypropylene
L= Length:	Available 6", 8", 10", 12"
D= Diameter:	2.5"

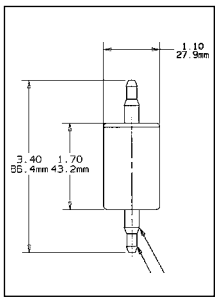
Ordering Information

A7825-□□-□□□ Box of 100 bulkpack

C7825-□□-□□□ Box of 500 bulkpack

Available with integral liquid cartridge in grades ranging from 75 micron to .22 micron at 80% efficiency rating. Please consult OEM Technical Support for information on flow rates for these configurations. 3/8" NPT, 3/8" and 1/4" Tube Quick Disconnect are available upon request.

General Purpose with Integral Barb Fittings



Model 4433-05

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1st Tier: 1/4" Tube 2nd Tier: 3/8" Tube
Drain:	None
Material of Construction:	Nylon
Internal Volume:	.01L

Ordering Information

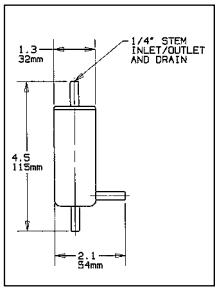
A4433-05-□ Box of 100 bulkpack

C4433-05-□ Box of 500 bulkpack

Available in Type U and in grades: A, B, C and D

See pages 55-58 for detail of types, grades, application, and installation information.

General Purpose with Drain Port



Model 8833-11

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	1/4" Tube
Housing Material of Construction:	Nylon
Internal Volume:	.02L

Ordering Information

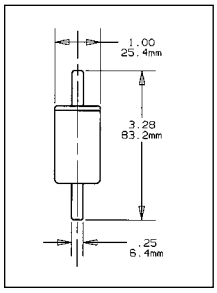
A8833-11-□ Box of 100 bulkpack

C8833-11-□ Box of 500 bulkpack

Available in Types U and X and in the following grades: A, B, C, D, S. Also available with adsorbents 000, 101, 103, 107. See pages 55-58 for detail of types, grades, application, and installation information.

Filter Cartridge and Housing Selection

High Chemical Resistance - Low Flow



Model 9922-05

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	275°F (135°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	PVDF
Internal Volume:	.01L

Ordering Information

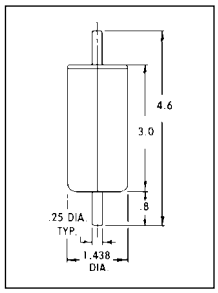
A9922-05-□ Box of 100 bulkpack

C9922-05-□ Box of 500 bulkpack

Available in Type Q and in the following grades: A, B, C, D. Also available with adsorbents 000, 101, 103, 107.

See pages 55-58 for detail of types, grades, application, and installation information.

High Chemical Resistance DFU -Higher Flow



Model 9922-11

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	275°F (135°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	PVDF
Internal Volume:	.02L

Ordering Information

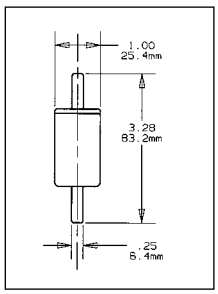
A9922-11-□ Box of 100 bulkpack

C9922-11-□ Box of 500 bulkpack

Available in Types Q and in the following grades: A, B, C, D

See pages 55-58 for detail of types, grades, application, and installation information.

Oil Indicating DFU



Model 9900-05

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1/4" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.01L

Ordering Information

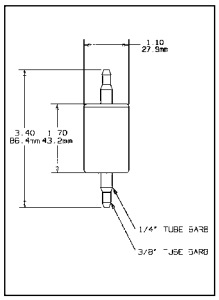
A9900-05-□ Box of 100 bulkpack

C9900-05-□ Box of 500 bulkpack

Available in Type K and in grade B.

See pages 41-44 for detail of types, grades, application, and installation information.

General Purpose with Integral Barb Fittings - For Less Critical Applications



Model 4433-05-10P

Specifications	
Max. Pressure at 110°F (43°C):	125 psig (8.62 barg)
Max. Temp. at 0 psig:	230°F (110°C)
Inlet / Outlet Ports:	1st Tier: 1/4" Tube 2nd Tier: 3/8" Tube
Drain:	None
Material of Construction:	Nylon
Internal Volume:	.01L

Ordering Information

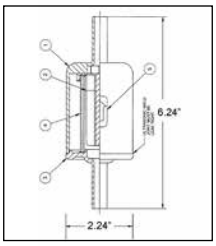
A4433-05-10P Box of 100 bulkpack

C4433-05-10P Box of 500 bulkpack

Retention efficiency of plastic filter element is 100 micron nominal.

Filter Cartridge and Housing Selection

Large Capacity High Flow DFU



Model 8800-12

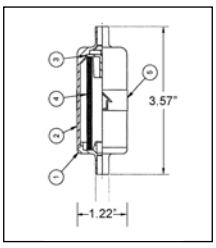
Specifications	
Max. Pressure at 110°F (43°C):	50 psig (0.34 barg)
Max. Temp. at 0 psig:	150°F (67°C)
Inlet / Outlet Ports:	1/2" Tube
Drain:	None
Housing Material of Construction:	Nylon
Internal Volume:	.138L

Ordering Information

8800-12-□ Box of 1

Available in Types Q and X and in the following grades: A, B, C, D

Large Capacity High Flow DFU Intake Filter



Model 9953-11

Specifications	
Max. Pressure at 110°F (43°C):	2 psig (0.14 barg)
Max. Temp. at 0 psig:	125°F (52°C)
Inlet / Outlet Ports:	.032" OD
Drain:	None
Housing Material of Construction:	Polypropylene
Internal Volume:	0.033L

Ordering Information

9953-11-□ Box of 10

Available in Types Q and X and in the following grades: A, B, C, D

Filter Cartridge and Housing Selection

Disposable Adsorption Units (DAUs) contain a bed of adsorbent granules. Utilizing a wide choice of adsorbents, the DAUs selectively remove vapors from air and other gases.

Because the adsorbed vapor remains trapped in the solid bed, the DAU has a fixed upper limit of total weight of vapor which can be captured. It is usually not feasible to regenerate the filter when it has reached its adsorption limit. DAUs should be used only when small quantities of vapor are to be removed.

Considerations in Using Adsorbent Cartridges

The following factors should be considered when selecting a DAU:

1 Solid adsorbents are effective only for vapors. Since liquids will damage or inactivate most solid adsorbents, the DAU must be preceded by an efficient coalescing filter.

2 In contrast with Microfibre Filters, which operate at their initial efficiency throughout their life, adsorbent cartridges have a limited holding capacity. When the adsorption capacity is reached, no further adsorption occurs. The limiting capacity, or "breakthrough" point, is not sharply defined, and the exit vapor concentration will increase rapidly as saturation is approached. To avoid unwanted vapor contaminants downstream, it is necessary to change the adsorbent cartridge well before it has reached its ultimate adsorption capacity.

3 Adsorption is reversible, if operating conditions change, a vapor may desorb rather than adsorb. For example, if a temporary surge in vapor impurity concentration causes a relatively high concentration to be adsorbed on the solid, a subsequent decrease in inlet vapor composition will result in desorption of vapor from the solid to the gas stream.

4 The efficiency of a given adsorbent for a given vapor depends upon the specific operating conditions. Therefore, again in contrast to filtration, it is not possible to assign a single efficiency rating to an adsorbent. While it is not possible to predict or guarantee an adsorption efficiency for any specific set of conditions, it is possible to enhance the conditions beneficial to adsorption and avoid conditions which interfere with adsorption. Conditions which aid adsorption are: low temperature, high pressure, low flow rate, and absence of competing vapors (particularly water vapor).

Adsorbent	Grade	Use For
Carbon	000	Compressor oil vapors, C_5 and heavier hydrocarbons, aromatics, oxygenated hydrocarbons, chlorinated organics, freons, carbon disulfide.
Silica Gel	101	Recommended only for water vapor.
Molecular Sieve Type 13X	103	Most C_4 and lighter hydrocarbons, ethylene, propylene, acetylene, ethylene oxide, ammonia, mercaptans, sulfur hexafluoride, triethylamine, and smaller amines.
Mixed Sodium & Calcium Hydroxides	107	All acidic gases, including sulfur trioxide, sulfur dioxide, nitrogen dioxide, carbon dioxide, hydrogen sulfide, hydrogen chloride, phosphorus trichloride, boron trifluoride.

Notes:

1 Please refer to Ordering Information for complete explanation of nomenclature.

2 In DAU 9933-05-107 and DAU 9933-11-107, color indicator turns violet when adsorbent is spent.

3 In DAU 9933-05-101 and 9933-11-101, adsorbent turns pink when vapor capacity is reached.

4 Maximum operating temperature is 180°F.

How to Specify your Balston DFU/DAU

The Chart below illustrates how to configure the DFU part number when ordering.

Body Size
2 digit number

03=smallest solids capacity, available in Q-type & DAU type
05=medium solids capacity, available in Q-type & DAU type
06=6" length, available in 7825 style w/ Q, LP, & DAU type
08=8" length, available in 7825 style w/ Q, LP, & DAU type
10=10" length, available in 7825 style w/ Q, LP, & DAU type
11=high solids capacity, available in Q , X type & DAU type
12=12" length, available in 7825 style w/ Q, LP, & DAU type

Packaging
A or C letter designation
A=100 per box, Not Bagged
C=500 per box, Not Bagged

Note: All Dau's are individually bagged to insure media integrity

Connection Style
2 Digit Number
99=No Drain
88=Drain
78=1/4" NPT Ports
44=Barbed Version

Body/Material
2 digit number
00=Clear Nylon, Std Ends
30=Tinted Nylon, Short Ends
33=Tinted Nylon, Std Ends
22=PVDF, (Kynar) Std Ends
25=PolyPropylene 2.5" Diameter

Cartridge Grade
3 digit number

To determine required efficiency, please refer to the general grade description flow rate information. When selecting X or Q type cartridges, A, B, C, or D positioned before the cartridge type will determine the retention efficiency. When selecting cartridge type, do not overspecify. Select the coarsest grade which is adequate for the application. Coarser Grade filters provide lower pressure drop and longer life than finer filters. When selecting DAU grades refer to the chart on page 5 to determine the adsorbent appropriate for the application.

Specify your part number with the above guidelines. Please refer to pages 38-40 to confirm the grades, sizes and materials available in each housing type.

Custom configurations, Private labelling available-Please Ask for a quote!! We will happily engineer product to your specific requirements

Call 800-343-4048 to place your order.

We would be pleased to answer all of your technical questions. Our technical staff is available from 8am-5pm Eastern Time.

Technical Specifications

Filtration Efficiency

The Balston® Microfibre® Disposable Filter Unit (DFU) may be used to filter liquids or gases; therefore, each DFU has two retention ratings. Liquid ratings are defined as 98% retention of the stated particle size; gas ratings are defined as percentage retention of 0.01 micron particles.

Retention Efficiency Grade	Gas Efficiency (at .01µm)	Liquid Efficiency (98% retention)
DQ,DX, DU	93%	25 µm
CQ, CU	98%	8 µm
BQ,BK,BX, BU	99.99%	2 µm
AQ	99.9999+%	0.9 µm

Note: Consult OEM Technical Support for information on flow rates for 8", 10", and 12" lengths.

Pressure Drop Specification	Models 8822-11, 9922-05, 9922-11	Models 9900-05, 4433-05 8833-11, 9933-05, 9933-11, 7825
Max. DP:		
Gases		
• Flow per arrow	80 psid (5.5 bard)	50 psid (3.4 bard)
• Flow opposite arrow	20 psid (1.4 bard)	20 psid (1.4bard)
Liquids		
• Flow per arrow	50 psid (3.4 bard)	50 psid (3.4 bard)
• Flow opposite arrow	20 psid (1.4 bard)	20 psid (1.4 bard)

Flow Rates	Air Flow at 2 psi (0.1 barg) drop, standard cu. ft. per min. (SCFM/Nm³/hr) at indicated line pressure PSIG/BARG						
DFU Type	**2/0.1**	**20/1.4**	**40/2.8**	**60/4.1**	**80/5.5**	**100/6.9**	**125/8.6**
8833-11-DX, DU 9922-11-DQ 9933-11-DU	1.8/3.1	3.6/6.1	5.8/9.9	8.0/13.6	10.0/17.0	12.0/20.4	14.6/24.8
8833-11-BX, BU 9922-11-BQ 9933-11-BU	0.9/1.5	1.8/3.1	2.9/4.9	4.0/6.8	5.0/8.5	6.0/10.2	7.3/12.4
9933-05-DU 9922-05-DQ 4433-05-DU 4433-05-10P	1.2/2.0	2.5/4.2	3.9/6.6	5.4/9.2	6.8/11.6	8.3/14.1	10.1/17.2
9933-05-BU 9922-05-BQ 9900-05-BK	0.8/1.4	1.6/2.7	2.6/4.4	3.6/6.1	4.4/7.5	5.4/9.2	6.6/11.2
9933-03-DU 9933-03-BU	0.6/1.0 0.4/0.7	1.25/2.1 0.8/1.4	1.9/3.2 1.3/2.2	2.7/4.6 1.8/3.1	3.4/5.8 2.2/3.7	4.1/7.0 2.7/4.6	5.1/8.7 3.3/5.6
9933-11-DAU 9922-11-DAU	0.7/1.2	1.7/2.9	2.5/4.2	3.7/6.3	4.3/7.3	5.0/8.5	5.7/9.7
9933-05-DAU 9922-05-DAU 4433-05-DAU	0.5/0.8	1.2/2.0	1.9/3.2	2.6/4.4	3.3/5.6	4.06.8	4.7/8.0
8833-11-AQ 9922-11-AQ	0.45/0.8	0.9/1.5	1.8/3.1	2.0/3.4	2.5/4.2	3.0/5.1	3.8/6.5
9933-05-AQ 9922-05-AQ	0.4/0.7	0.8/1.4	1.3/2.2	1.8/3.1	2.2/3.7	2.7/4.6	3.3/5.6
7825-06-BQ	3.5/5.9	7.1/12.1	10.4/17.7	13.0/20.4	16.25/27.6	17.55/29.8	20.1/34.2
7825-06-DQ	5.0/8.5	11.0/18.7	16.0/27.2	20.0/34.0	25.0/42.5	27.0/45.9	31.0/52.7
7825-06-DAU	3.5/5.9	7.25/12.3	10.3/17.5	13.0/22.1	15.5/26.3	17.3/29.4	19.5/33.1

Chemical Compatibility, Models 9922-05, 9922-11 Polyvinylidene fluoride (PVDF), opaque

Suitable: Water (to 200°F/135°C); concentrated nitric, sulfuric, and hydrochloric acids; chlorine (gas or liquid); sodium hypochlorite; ethylene oxide (gas or liquid); Freons; hydrogen peroxide (all concentrations); bromine (dry and aqueous solutions); all chlorinated solvents except methylene chloride; all aromatic and aliphatic solvents; all alcohols and glycols; aniline; phenol; ammonia (gas, liquid, or aqueous).

Limited Use: Acetone MEK, Dioxane, furfural, methylene chloride.

Unsuitable: THF, DMF, ethylene diamine, chlorosulfonic acid, ethanolamine, pyridine, sulfur trioxide.

Chemical Compatibility, Models 9900-05, 8833-11, 9933-05, 9933-11, 4433-05 - Nylon, clear

Suitable: Water (to 158°F/70°C); benzene, toluene, other aromatic hydrocarbons; hydrocarbon solvents and fuels; perchloroethylene; trichloroethylene; nitric acid (to 10%); sulfuric acid (to 40%); hydrochloric acid (to 10%); most salt solutions; sodium and potassium hydroxide (to 50%).

Limited Use: Water at 176°F (80°C); acetone; MEK; acetaldehyde; ammonia (to 25%).

Unsuitable: Water (above 194°F/90°C), alcohols, glycols, phenol, aniline, DMF, concentrated acids, chlorine.

Media Selection

General Description

K Type Filter: Designed with integral dye to indicate presence of oil. Polyolifin binder with borosilicate glass fibers. Available in style 9900-05.

LP Filter: Designed to filter liquids with high solids contents. Have an integral prefilter and an external support structure (flow direction is inside to outside). Available in style 7825 only. Polyolifin binder with glass borosilicate fibers.

X-Type Filter: Used for solids and relatively large amounts of suspended liquids in gases. Provide excellent chemical resistance, temperature resistance to 300°F and good mechanical handling properties. These cartridges have thick walls for coalescing efficiency. Flourocarbon Resin Binder available in style 8833-11 DFU's.

P-Type Filter: Used for less critical applications. 100 Micron nominal rated plastic filter element. Available in style 4433-05 only.

Q-Type Filter: Used for solids and trace amounts of liquids in gases. Similar to X-type cartridges in chemical and temperature resistance. Flourocarbon Resin Binder. Available in 9922-05, 9922-11 styles.

U Type Filter: Used for solids and trace amounts of liquids in gases. Specifically designed to have same chemical and temperature resistance as nylon, plastic housings. Polyolifin binders with borosilicate glass fiber that produces pure while filter media. Available in styles 4433-05, 9933-05, 9933-11.

DAU Grades: Please see page 55 for complete description.

Recommended Grade

Gas Filtration		Liquid Filtration (select particle and size retention)	
Grade DQ,DX	General Purpose	Grade DQ,DX	General Purpose
Grade BQ,BK,	Complete oil and/or water droplet removal Note: Grade BK contains a visual oil indicator which turns a portion of the surface of the cartridge pink when saturated with oil.	Grade CQ	Removes almost all visible particles
		Grade BQ,BX	Removes all visible particles and most colloidal haze
		Grade AQ	All submicron particles
Grade AQ	Commercially sterile	Grade AAQ	All submicron particles

Installation Instructions

Primary flow should be in the direction of the arrow (inside-to-outside of the filter cartridge). Moderate reverse flow can be tolerated without damage, as in a vent or breather application. Slip-on tubing (1/4" ID) may be used for low pressure applications. For high pressure applications, compression tubing fittings recommended by the manufacturers for use with 1/4" OD plastic tubing are satisfactory to 125 psig. Consult OEM Techincal Support for information on Parker Hannifin tube fittings, regulators, valves etc. (Call Parker at 1-800-343-4048, 8AM to 5PM EasternTime.)

For connections to pressure pipe or tubing	For connections to low pressure plastic tubing
Compression fittings for 1/4" O.D. tubing may be obtained from Parker-Hannifin Corp.	Tubing with 1/4" ID may be slipped over the DFU end fittings and held with tubing clamps. Plastic barbs are available to connect the DFU to smaller diameter plastic tubing. The connection is suitable for pressures to 50 psig.
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 Corporation.	DFU to 1/16" ID tubing P/N 14000 (bag of 20 barbs)
Connector 1/4" tubing to 1/4" NPT, female - P/N 11970	DFU to 1/8" ID tubing P/N 14001 (bag of 20 barbs)
Connector 1/4" tubing to 1/4" tubing - P/N 11971	Parker offers a manual drain valve for removal of coalesced liquids from the Type 8833-11-DX.
Elbow 1/4" tubing to 1/8" NPT female (for manual drain on Type 8833-11) - P/N 11972	Drain Valve 1/8" NPT (male) x 1/8" ID tubing (Requires elbow part 11972) P/N 20125

Notes:
1 DFU 9933-05-AQ (or others with Nylon housings) may be sterilized with ethylene oxide or by autoclaving to 230°F. For autoclaving to 275°F, use DFU 9922-05-AQ (or others with PVDF housings).