

# Automatic Twist Flow Strainer ATF



ATF

- Perfect pre-filter
- Great for high contamination levels
- Low pressure drop

## Automatic Twist Flow Strainer

The Schroeder Automatic Twist Flow Strainer (ATF) is designed for the filtration of solid particles from water or fluids similar to water. With filtration ratings between 200  $\mu\text{m}$  and 3,000  $\mu\text{m}$ , the ATF is particularly well suited for separating suspended solid particles, up to several grams per liter, from low-viscosity fluids. In order to filter higher flow rates, the ATF can be supplied as a skid solution (call factory for details).

## Construction and Function

This filter is a hybrid system consisting of a centrifugal separator and an inline filter. The fluid to be cleaned enters the housing tangentially, similar to a centrifugal separator, and accelerates down as a result of the tapered housing. The resulting spiral flow with its centrifugal force carries the coarsest contamination first (its density is obviously higher than that of the fluid) to the inner wall of the housing.

## Filtration

When pressed against the filter wall, the particles settle at a higher density in the lower part of the filter, where they are finally carried out. The remaining smaller, less dense particles are filtered as the fluid passes through the element and exits the filter.

The conical filter element ensures optimum flow characteristics. On one hand it makes possible continual self-cleaning of the filter during operation. While on the other, it makes the pressure drop of the whole filter much lower than compared with a centrifugal separator of a similar size.

## Cleaning Procedure

Both the sediment particles and those separated by the filter element finally collect at the bottom of the housing and are discharged periodically from the system by opening the contamination flap. During this cleaning procedure (depending on the installation of the ATF), part of the untreated fluid flow is used for a few seconds to flush the elements and clean the filter. Because partial flow is used, continuous filtration occurs.

In addition, the ATF is an excellent choice for bypass flow applications which are able to do without a partial flow for short periods of time.

Depending on the application and the amount of solid particles, the cleaning function can be adjusted via a timer function.

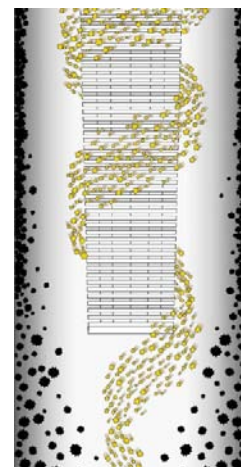
## Special Features of the ATF

The ATF is well suited to high levels of contamination and large fluctuations in the solid particle content of the untreated water.

Due to the use of conical slotted tube and sintered wire meshes, a precise selectivity and therefore a constant filtrate quality is ensured – independent of fluctuations in operating pressure or flow rate.

Due to special flow conditions resulting from the element geometry and their arrangement, the pressure drop on the overall unit is relatively low at < 14.5 psi (1.0 bar).

The pre-filtration of solid particles of a higher density implies that the filter surface area can take a correspondingly higher load and the filter size can therefore be comparatively smaller.



Backflush Mode



Filtration Mode

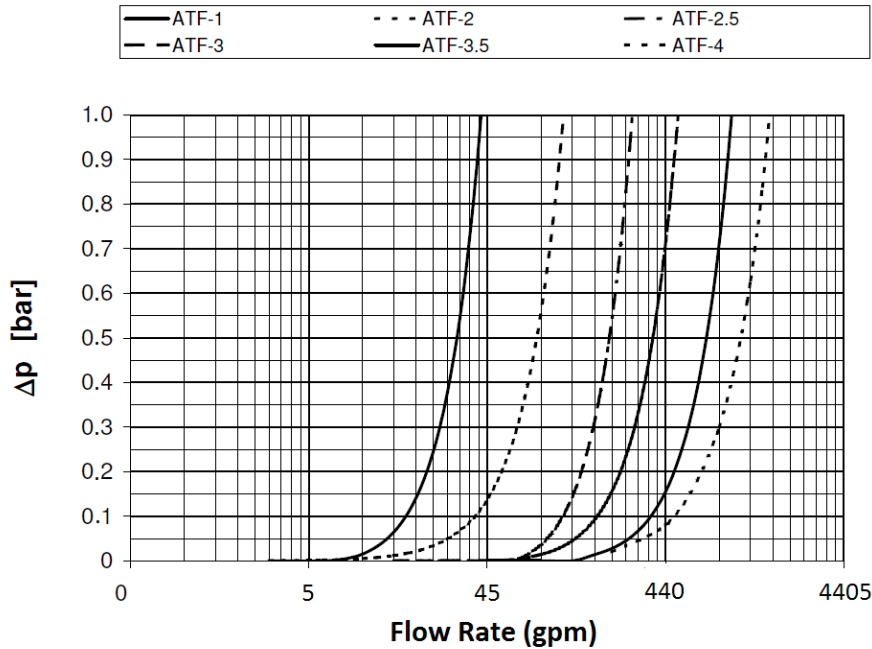
# Automatic Twist Flow Strainer ATF

The filter elements are cleaned solely by flushing with untreated fluid.

The ATF saves on space in comparison to conventional separating units, such as lamellar separators or sand filters.

Several ATF's can be integrated into systems, and as a result, can adapt to the required flow rates.

The filter element of the ATF is maintenance-friendly, as it is equipped with a flange cover. On sizes 2 to 4, it is also possible to replace the filter element without needing to open the filter.



**Pressure Drop Graph**

The ATF is sized based on the pressure drop curve. A further factor in the calculation is the flow velocity through the inlet flange. It should not exceed 13.12 feet/minute (4 m/s).

In order to be able to size the ATF correctly, the following design data should be available:

- Flow rate
- Type of medium
- Materials / resistance
- Viscosity
- Required filtration rating
- Particulate loading in the fluid
- Solid particle type and density / densities
- Operating pressure
- Operating temperature

**Filter Calculation and Sizing**

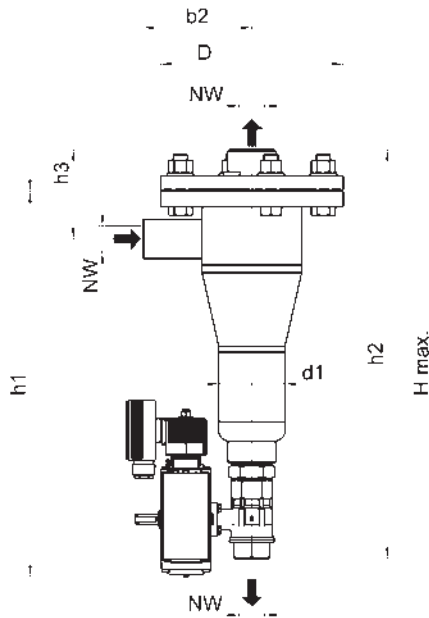


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**Industries Served**

35 gpm  
132 L/min

230 psi  
16 bar



Filter Size	NW in (mm)	H Max. in (mm)	h1 in (mm)	h2 in (mm)	h3 in (mm)	b2 in (mm)	D in (mm)	d1 in (mm)	Installation Height in (mm)
ATF 1	0.04 (1)	19.29 (490)	17.52 (445)	18.50 (470)	4.06 (103)	4.92 (125)	8.27 (210)	3.00 (76.1)	13.78 (350)

## Filter Housing Specifications

**Filtration Rate:** 200-3000 µm slotted tube only

**Operating Rate:** 32°F - 194°F (0°C - 90°C)

**Housing Material:** Stainless Steel or Carbon Steel

**Size:** 1

**Flow Rate:** 35 gpm  
(132 L/m)

**Pressure Rating:** 230 psi  
(16 bar)

**Connections Inlet/Outlet:** 1" NPT  
(G 1")

**Connection Discharge Line:** 1" NPT  
(G 1")

**Filter Area:** 23 in<sup>2</sup>  
(150 cm<sup>2</sup>)

**Weight:** 33 lbs  
(15 kg)

**Volume:** 0.5 gal  
(1.8 L)

# Automatic Twist Flow Strainer ATF-1

# ATF

## How to Build a Valid Model Number for a ATF-1:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF										

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF	1	EPZ	1	E	NN	10	0	X	UKS2	200

= ATF1EPZ1ENN100XUKS2200

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Size	Control Type	Voltage
ATF	1 = Inlet/outlet 1" NPT	0 = No controls M = Manual valve EP = Electro-pneumatic discharge valve, without timer control EPZ = Electro-pneumatic discharge valve, with timer control E = Electric discharge valve, without timer control EZ = Electric discharge valve, with timer control	1 = 230 VAC, 60 Hz, Single Phase 2 = 110VAC, 60 Hz, Single Phase 3 = 24VAC, 60 Hz, Single Phase 4 = 24VDC

BOX 5	BOX 6	BOX 7	BOX 8
Housing Material	Discharge Valve	Pressure Rating	Accessories
N = Carbon Steel E = Stainless Steel A = for ANSI flanges, also add A J = for JIS flanges, also add J T = NPT thread (size 1 only), also add T P = Internal Coating with 2-K polyurethane paint, also add P	0 = None NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1) NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1) NV = Butterfly valve, cast housing coated, disc Stainless Steel, cuff Viton (not available on size 1) BN = Butterfly valve, cast housing coated, disc Bronze, cuff NBR (not available on size 1) BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1) BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1) E = Ball valve Stainless Steel (size 1 only) M = Ball valve brass (size 1 only)	10 = 145 psi (10 bar) 16 = 230 psi (16 bar)	0 = none 1 = Base frame (sizes 2, 2.5 and 3 only) 2 = Mounting clips (sizes 2, 2.5 and 3 only) 3 = Differential pressure gauge in aluminum (fitted to customer's equipment) 4 = Differential pressure gauge in stainless steel (fitted to customer's equipment) 5 = Differential pressure gauge in brass (fitted to customer's equipment)

BOX 9	BOX 10	BOX 11
Modification Number	Element Set	Filtration Rating
X = latest version supplied by factory	UKS1 = Conical Slotted Tube for size 1 UKS2 = Conical Slotted Tube for size 2 UKS2.5 = Conical Slotted Tube for size 2.5 UKS3 = Conical Slotted Tube for size 3 UKS3.5 = Conical Slotted Tube for size 3.5 UKS4 = Conical Slotted Tube for size 4	200 = 200 µm (not for size 4) 300 = 300 µm (not for size 4) 500 = 500 µm 1000 = 1000µm 2000 = 2000µm 3000 = 3000µm

## Filter Model Number Selection

RF3-C

RF3-0

RF3-1

RF3-2

RF3-2.5

RF3-3

RF3-4

RF3-5

RF3-6

RF3-7

RF3-8

RF5

RF7

RF4-1

RF4-2

BWF

RFH-1

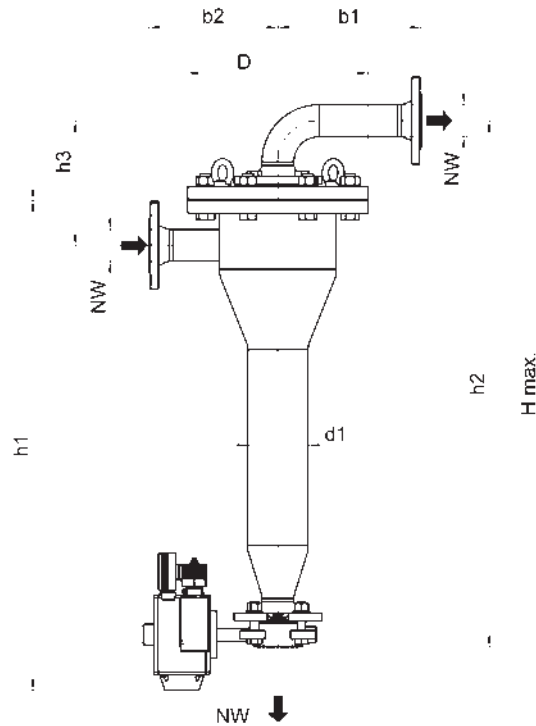
RFH-2

RFH-4

**ATF**

480 gpm  
1816 L/min

230 psi  
16 bar



Filter Size	NW in (mm)	H Max. in (mm)	h1 in (mm)	h2 in (mm)	h3 in (mm)	b1 in (mm)	b2 in (mm)	D in (mm)	d1 in (mm)	Installation Height in (mm)
ATF 2	1.97 (50)	45.67 (1160)	36.42 (925)	39.17 (995)	9.25 (235)	10.63 (270)	9.57 (243)	13.39 (340)	4.50 (114.3)	19.69 (500)
ATF 2.5	3.15 (80)	56.50 (1435)	44.88 (1140)	48.62 (1235)	12.40 (315)	8.66 (10.24)	11.02 (280)	15.55 (395)	5.50 (139.7)	25.59 (650)
ATF 3	3.94 (100)	68.90 (1750)	55.12 (1400)	59.06 (1500)	13.78 (350)	10.24 (260)	12.68 (322)	17.52 (445)	8.63 (219.1)	39.37 (1000)

### Filter Housing Specifications

<b>Filtration Rate:</b> 200-3000 µm slotted tube only			
<b>Operating Rate:</b> 32°F - 194°F (0°C - 90°C)			
<b>Housing Material:</b> Stainless Steel or Carbon Steel			
<b>Size:</b>	<b>2</b>	<b>2.5</b>	<b>3</b>
<b>Flow Rate:</b>	110 gpm (416 L/m)	260 gpm (984 L/m)	480 gpm (3652 L/m)
<b>Pressure Rating:</b>	145 or 230 psi (10 or 16 bar)	145 or 230 psi (10 or 16 bar)	145 or 230 psi (10 or 16 bar)
<b>Connections Inlet/Outlet:</b>	2" Flange (DN 50)	3" Flange (DN 80)	4" Flange (DN 100)
<b>Connection Discharge Line:</b>	2" Flange (DN 50)	3" Flange (DN 80)	4" Flange (DN 100)
<b>Filter Area:</b>	55 in <sup>2</sup> (360 cm <sup>2</sup> )	150 in <sup>2</sup> (966 cm <sup>2</sup> )	266 in <sup>2</sup> (1720 cm <sup>2</sup> )
<b>Weight:</b>	132 lbs (60 kg)	297 lbs (135 kg)	440 lbs (200 kg)
<b>Volume:</b>	3.5 gal (13.5 L)	7.4 gal (28 L)	14.5 gal (55 L)

# Automatic Twist Flow Strainer ATF-2, ATF-2.5, ATF-3

**ATF**

How to Build a Valid Model Number for a ATF-2, 2.5 and 3:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF										

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF	2	EPZ	1	E	NN	10	0	X	UKS2	200

= ATF2EPZ1ENN100XUKS2200

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Size	Control Type	Voltage
ATF	2 = Inlet/outlet 2" ANSI flange 2.5 = Inlet/outlet 3" ANSI flange 3 = Inlet/outlet 4" ANSI flange	0 = No controls M = Manual valve EP = Electro-pneumatic discharge valve, without timer control EPZ = Electro-pneumatic discharge valve, with timer control E = Electric discharge valve, without timer control EZ = Electric discharge valve, with timer control	1 = 230 VAC, 60 Hz, Single Phase 2 = 110VAC, 60 Hz, Single Phase 3 = 24VAC, 60 Hz, Single Phase 4 = 24VDC

BOX 5	BOX 6	BOX 7	BOX 8
Housing Material	Discharge Valve	Pressure Rating	Accessories
N = Carbon Steel E = Stainless Steel A = for ANSI flanges, also add A J = for JIS flanges, also add J T = NPT thread (size 1 only), also add T P = Internal Coating with 2-K polyurethane paint, also add P	0 = None NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1) NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1) NV = Butterfly valve, cast housing coated, disc Stainless Steel, cuff Viton (not available on size 1) BN = Butterfly valve, cast housing coated, disc Bronze, cuff NBR (not available on size 1) BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1) BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1) E = Ball valve Stainless Steel (size 1 only) M = Ball valve brass (size 1 only)	10 = 145 psi (10 bar) 16 = 230 psi (16 bar)	0 = none 1 = Base frame (sizes 2, 2.5 and 3 only) 2 = Mounting clips (sizes 2, 2.5 and 3 only) 3 = Differential pressure gauge in aluminum (fitted to customer's equipment) 4 = Differential pressure gauge in stainless steel (fitted to customer's equipment) 5 = Differential pressure gauge in brass (fitted to customer's equipment)

BOX 9	BOX 10	BOX 11
Modification Number	Element Set	Filtration Rating
X = latest version supplied by factory	UKS1 = Conical Slotted Tube for size 1 UKS2 = Conical Slotted Tube for size 2 UKS2.5 = Conical Slotted Tube for size 2.5 UKS3 = Conical Slotted Tube for size 3 UKS3.5 = Conical Slotted Tube for size 3.5 UKS4 = Conical Slotted Tube for size 4	200 = 200 µm (not for size 4) 300 = 300 µm (not for size 4) 500 = 500 µm 1000 = 1000µm 2000 = 2000µm 3000 = 3000µm

**Filter Model Number Selection**

RF3-C

RF3-0

RF3-1

RF3-2

RF3-2.5

RF3-3

RF3-4

RF3-5

RF3-6

RF3-7

RF3-8

RF5

RF7

RF4-1

RF4-2

BWF

RFH-1

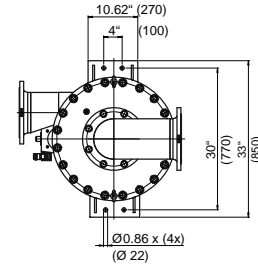
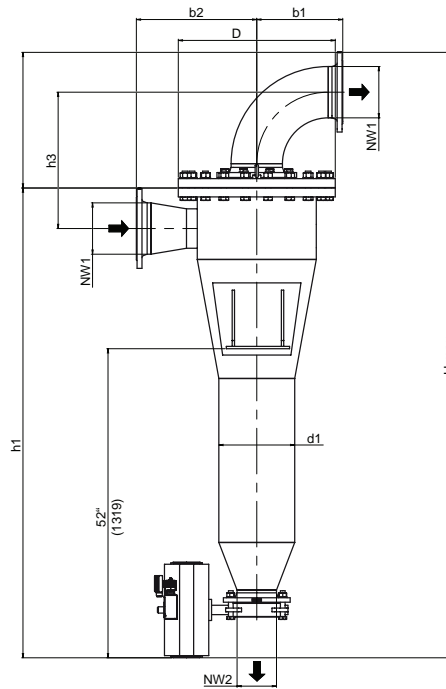
RFH-2

RFH-4

**ATF**

1760 gpm  
6662 L/min

230 psi  
16 bar



Filter Size	NW1 in (mm)	NW2 in (mm)	H Max. in (mm)	h1 in (mm)	h2 in (mm)	h3 in (mm)	b1 in (mm)	b2 in (mm)	D in (mm)	d1 in (mm)	Installation Height in (mm)
ATF 3.5	5.91 (150)	3.94 (100)	88.98 (2260)	70.28 (17.85)	77.95 (1980)	18.82 (478)	11.18 (284)	17.13 (435)	22.24 (565)	10.75 (273)	51.18 (1300)
ATF 4	7.87 (200)	5.91 (150)	101.77 (2585)	78.94 (2005)	88.19 (2240)	22.91 (582)	14.45 (367)	20.24 (514)	26.38 (670)	12.75 (323.9)	40.06 (1170)

## Filter Housing Specifications

<b>Filtration Rate:</b>	200-3000 µm slotted tube only	
<b>Operating Rate:</b>	32°F - 194°F (0°C - 90°C)	
<b>Housing Material:</b>	Stainless Steel or Carbon Steel	
<b>Size:</b>	3.5	4
<b>Flow Rate:</b>	965 gpm (3652 L/m)	1760 gpm (6662 L/m)
<b>Pressure Rating:</b>	145 or 230 psi (10 or 16 bar)	145 or 230 psi (10 or 16 bar)
<b>Connections Inlet/Outlet:</b>	6" Flange (DN 150)	8" Flange (DN 200)
<b>Connection Discharge Line:</b>	4" Flange (DN 100)	6" Flange (DN 150)
<b>Filter Area:</b>	540 in <sup>2</sup> (3500 cm <sup>2</sup> )	605 in <sup>2</sup> (3900 cm <sup>2</sup> )
<b>Weight:</b>	578 lbs (263 kg)	920 lbs (418 kg)
<b>Volume:</b>	34 gal (130 L)	60 gal (230 L)

# Automatic Twist Flow Strainer ATF-3.5, ATF-4

**ATF**

How to Build a Valid Model Number for a ATF-3.5, 4:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF										

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	BOX 7	BOX 8	BOX 9	BOX 10	BOX 11
ATF	3.5	EPZ	1	E	NN	10	0	X	UKS2	200

= ATF3.5EPZ1ENN100UKS3.5200

BOX 1	BOX 2	BOX 3	BOX 4
Filter Series	Size	Control Type	Voltage
ATF	3.5 = Inlet/outlet 6" ANSI flange 4 = Inlet/outlet 8" ANSI flange	0 = No controls M = Manual valve EP = Electro-pneumatic discharge valve, without timer control EPZ = Electro-pneumatic discharge valve, with timer control E = Electric discharge valve, without timer control EZ = Electric discharge valve, with timer control	1 = 230 VAC, 60 Hz, Single Phase 2 = 110VAC, 60 Hz, Single Phase 3 = 24VAC, 60 Hz, Single Phase 4 = 24VDC

BOX 5	BOX 6	BOX 7	BOX 8
Housing Material	Discharge Valve	Pressure Rating	Accessories
N = Carbon Steel E = Stainless Steel A = for ANSI flanges, also add A J = for JIS flanges, also add J T = NPT thread (size 1 only), also add T P = Internal Coating with 2-K polyurethane paint, also add P	0 = None NN = Butterfly valve, cast housing coated, disc Stainless Steel, cuff BR (not available on size 1) NE = Butterfly valve, cast housing coated, disc Stainless Steel, cuff EPDM (not available on size 1) NV = Butterfly valve, cast housing coated, disc Stainless Steel, cuff Viton (not available on size 1) BN = Butterfly valve, cast housing coated, disc Bronze, cuff NBR (not available on size 1) BE = Butterfly valve, cast housing coated, disc Bronze, cuff EPDM (not available on size 1) BV = Butterfly valve, cast housing coated, disc Bronze, cuff Viton (not available on size 1) E = Ball valve Stainless Steel (size 1 only) M = Ball valve brass (size 1 only)	10 = 145 psi (10 bar) 16 = 230 psi (16 bar)	0 = none 1 = Base frame (sizes 2, 2.5 and 3 only) 2 = Mounting clips (sizes 2, 2.5 and 3 only) 3 = Differential pressure gauge in aluminum (fitted to customer's equipment) 4 = Differential pressure gauge in stainless steel (fitted to customer's equipment) 5 = Differential pressure gauge in brass (fitted to customer's equipment)

BOX 9	BOX 10	BOX 11
Modification Number	Element Set	Filtration Rating
X = latest version supplied by factory	UKS1 = Conical Slotted Tube for size 1 UKS2 = Conical Slotted Tube for size 2 UKS2.5 = Conical Slotted Tube for size 2.5 UKS3 = Conical Slotted Tube for size 3 UKS3.5 = Conical Slotted Tube for size 3.5 UKS4 = Conical Slotted Tube for size 4	200 = 200 µm (not for size 4) 300 = 300 µm (not for size 4) 500 = 500 µm 1000 = 1000µm 2000 = 2000µm 3000 = 3000µm

**Filter Model Number Selection**

- RF3-C
- RF3-0
- RF3-1
- RF3-2
- RF3-2.5
- RF3-3
- RF3-4
- RF3-5
- RF3-6
- RF3-7
- RF3-8
- RF5
- RF7
- RF4-1
- RF4-2
- BWF
- RFH-1
- RFH-2
- RFH-4

**ATF**