DF-Series

Droplet Separators



EQUIPMENT

DF-Series

- High separation efficiency
- Very low pressure drop leading to lower operating costs
- Corrosion resistant
- Simple installation
- Low maintenance cost due to simple operating principle and long lifetime
- Wide face velocity range
- Tailor made sizes, designs and colours
- Customized colours for aluminium separators
- Hygienic design
- Wide range of highest quality material
- In house ISO 9001 certified manufacturing

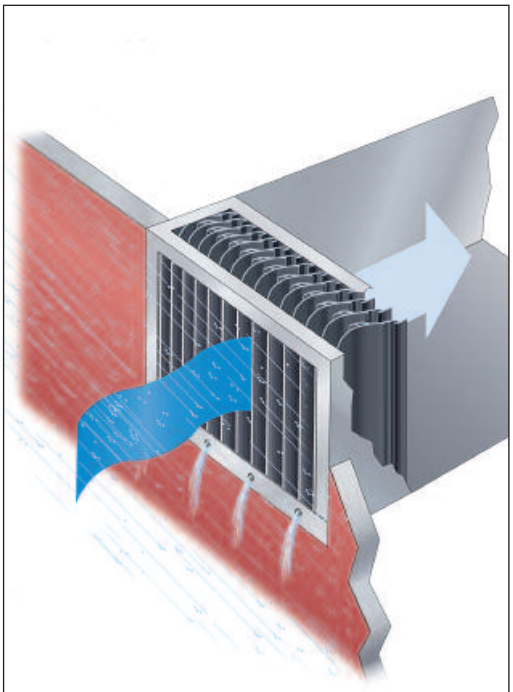
DF-Series droplet separators are ready-to-install droplet separators for use in many application areas, e.g. in HVAC, marine & offshore and land based applications. They are available in various material combinations and configurations to fit a wide range of operating conditions. DF-Series droplet separator provides high efficiency droplet separation and low pressure drop even at high face velocity giving energy saving operation.

The droplet separator can be configured to most individual performance and installation situations, providing a cost effective solution. Alternative material choices and drainage systems, as well as add-on features like flanges and protection mesh are just some of the configuration options.

Separation technology

The droplet separators are available in customized shapes and with surface finish like powder coating, wet-painting, anodizing or others. The streamlined separator deflects the droplet laden gas stream, as a result the momentum of the droplets causes them to impinge onto the profile surface. The droplets coalesce together and form a liquid film, the influence of gravity causes the liquid to drain to the bottom of the profiles. Specially shaped separation chambers improve performance by enhancing the separation of finer droplets and ensuring problem free discharge of liquid.

To avoid "flooding" of the profiles and the possibility of re-entrainment of the separated liquid, the height of the droplet separators is usually limited to 2,500 mm.

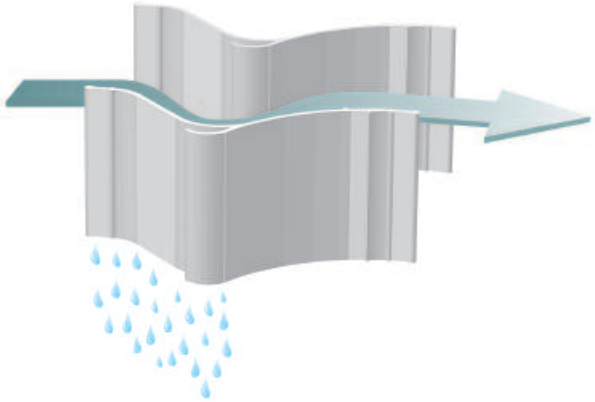


DF-series, principle illustration.

Munters

Products and performances

DF-Series Droplet Separators are developed to suit a wide range of applications, installed as air intakes or inside ventilation systems. They protect the ventilation system from liquids like rain, mist, sea spray, splash water, salt laden droplets, condensed water or, equipped with heated devices, from snow and hail. The droplet separators are available in taylor-made shapes and customized surface finish like powder coating, wet-painting, anodizing or others.



Benefits DF Series Droplet Separator

- Reduction of corrosion and maintenance
- Increase of filter lifetime
- Reduction of moisture throughout the system
- Low pressure drop and high separation efficiency

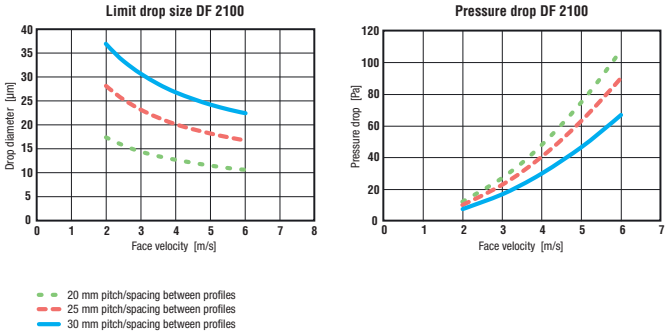
DF 2100

The DF 2100 droplet separator is an excellent choice for keeping rain, mist and larger fog water droplets out of a building or marine ventilation system. This helps to reduce corrosion, to increase filter lifetime and to reduce moisture throughout the system.

Target applications

- Air intakes
- Removal of condensate behind cooling coils
- Air washers
- As air straightener before spray humidifiers

The unit is suitable for use at face velocities between **2 and 6 m/s.**



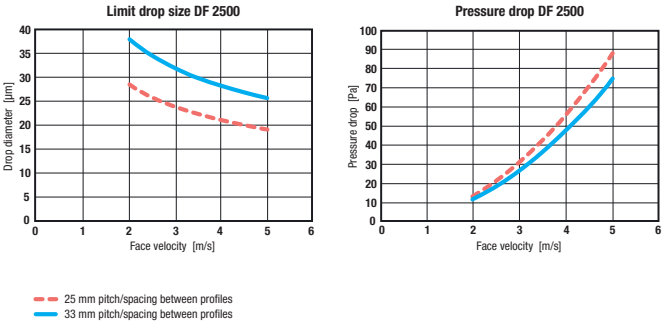
DF 2500

The DF 2500 droplet separator is the best choice, when droplets behind cooling coils needs to be removed. Condensed droplets could be carried over into the system. This carry-over could wet downstream filters, increasing pressure drop and reducing filter lifetime as well as being carried into ductwork. Eliminating moisture carry-over into ductwork reduces corrosion and maintenance, eliminates unsightly leakage from HVAC outlets, and reduces the growth of odour causing possible pathogenic bacteria.

Target applications

- Air intakes (exhaust)
- Removal of condensate behind cooling coils

The unit is suitable for use at face velocities between **2 and 5 m/s.**



Additional benefits DF 2500

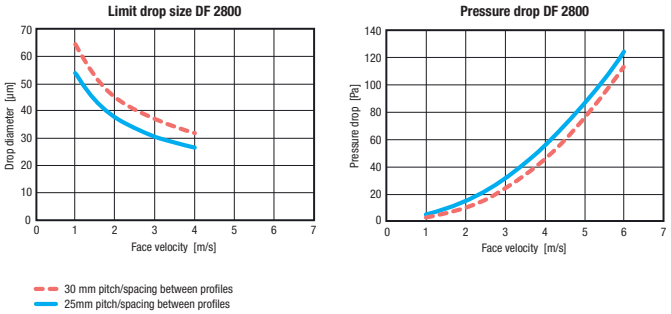
- Energy saving due to low pressure drop
- High efficient mist elimination

DF 2800

The DF 2800 droplet separator combines reliability with a cost effective alternative. Whenever a mist eliminator has not necessarily to be tailor-made, this aluminium separator is a good choice.

Target applications
- Air intakes (exhaust)
- Air intakes in marine & offshore ventilation systems
- Air intakes in land based ventilation systems

The unit is suitable for use at face velocities between **1 and 4 m/s.**



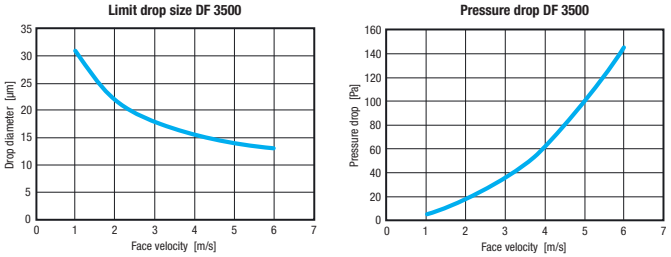
Additional benefits DF 2800
- Low pressure drop
- Very thin design, 97 mm
- Cost effective due to standardization

DF 3500

The DF 3500 droplet separator is an excellent choice for air intakes in marine and offshore applications.

Target applications
- Air intakes in marine & offshore ventilation systems
- High face velocities
- Suitable for harsh conditions

The unit is suitable for use at face velocities between **1 and 6 m/s.**



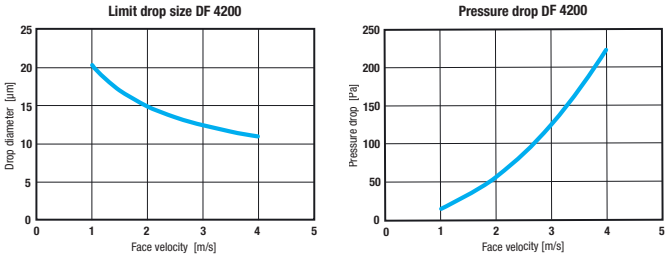
Additional benefits DF 3500
- Efficient droplet separation even at high face velocity peaks
- Highest protection against splash water, sea spray, mist and smallest fog droplets

DF 4200

The DF 4200 droplet separator is designed for use in many applications, for example: air washers, spray humidifiers and low velocity air intakes.

Target applications
- Air washers
- Spray humidifiers
- Low velocity air intakes

The unit is suitable for use at face velocities between **1 and 4 m/s.**



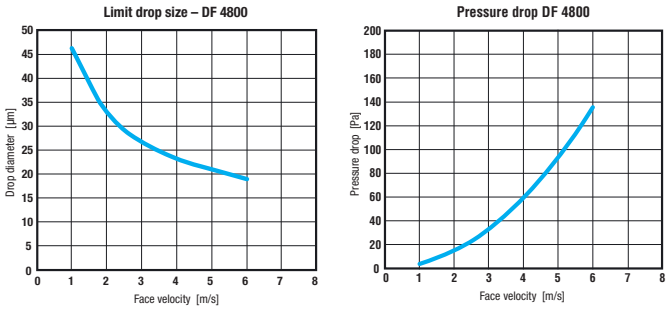
Additional benefits DF 4200
- Especially designed to handle high liquid volumes.

DF 4800

The DF 4800 droplet separator is an excellent choice for keeping rain, mist and larger fog water droplets out of a building or marine ventilation system. DF 4800 droplet separator is designed for use in many applications and for an easy integration into the superstructure.

Target applications
- Air intakes in marine & offshore ventilation systems
- Air intakes in land based ventilation systems

The unit is suitable for use at face velocities between **1 and 6 m/s.**

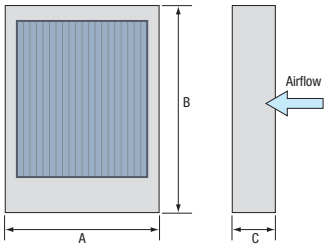


Additional benefits DF 4800
- Very easy to install
- Very thin design (100 mm)

For any data outside the specified range, please contact your nearest Munters representative.

Type, material, installation depth and liquid load

Type	Pitch/spacing [mm]	Width** A [mm] min–max	Height** B [mm] min–max	Maximum liquid load – measured under ideal conditions at 20 °C, 1 bar [g water / kg air]	Face velocity [m/s]	Pitch [mm]
DF 2100	20, 25, 30	300–2,500	300–2,500	200	4.5	20
DF 2500	25,33			20	4.0	33
DF 2800	25,30, 33[1)], 40[1)]	300–2,000	300–2,000	20	4.0	25
DF 3500	–	300–2,500	300–2,500	250	4.5	–
DF 4200	–			300	4.0	–
DF 4800	–	300–2,000	300–2,000	14	4.0	–



[1)] *Preferably for exhaust.*
** *Standard tolerance on width and height: +0, –5 mm.*

Type code	Material*		Depth C [mm]						Operating temp °C min–max
	Frame	Profile	DF 2100	DF 2500	DF 2800	DF 3500	DF 4200	DF 4800	
1b	304	PPTVb***	206	136			186		+5–+80
1w	304	PPTVw***	206	136			186		+5–+80
2b	316L	PPTVb***	206	136		165			+5–+80
2w	316L	PPTVw***	206	136					+5–+80
3b	316Ti	PPTVb***	206	136		165	186		+5–+80
3w	316Ti	PPTVw***	206	136			186		+5–+80
4b	AlMg3	PPTVb***	206	136		165			+5–+80
4w	AlMg3	PPTVw***	206	136					+5–+80
5p	AlMg3	PVC	206						-10–+60
6p	316L	PVC	206						-10–+60
7a	AlMg3	AlMgSi0.5	206[2)]	136[2)]	97[2)]				+5–+80
8a	AlMg3	AlMgSi0.5	190	120		145		100	
9l	316L	316L	190						

[2)] *With PPTV spacers.*
* *Available with surface finish like powder coating, wet-painting, anodizing or others upon request.*
*** *Special polypropylene compound for min operating temperature –40 °C upon request.*

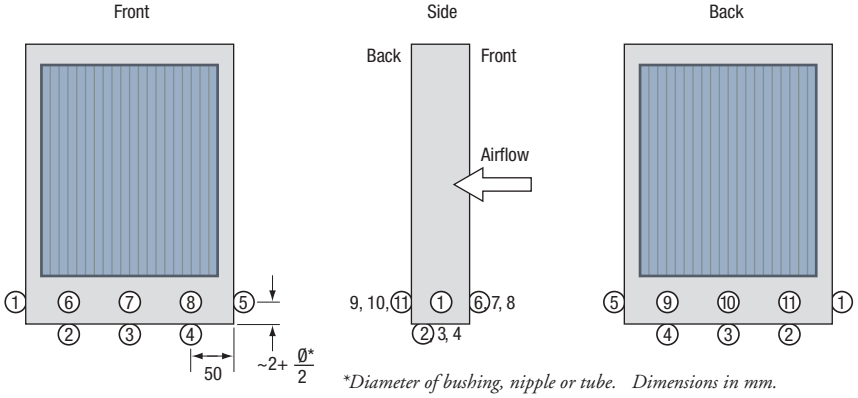
PPTV	Talcum reinforced polypropylene (b = black, w = white)
PVC	Polyvinyl chloride (color: grey)
AlMgSi0.5	Aluminium alloy
AlMg3	Aluminium alloy
304	Stainless steel (AISI 304, DIN 1.4301)
316L	Stainless steel (AISI 316L, DIN 1.4404)
316Ti	Stainless steel (AISI 316Ti, DIN 1.4571)

Special material and configurations upon request.

Drainage positions

Code for drainige position, put P before the position number, e.g., P9 or P6,8,9,10 if more outlets are to be used.

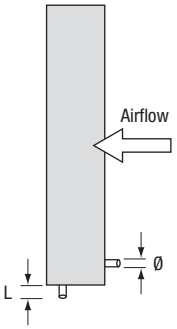
Note: DF 2800 are not available with P1, P5 and P12.



**Diameter of bushing, nipple or tube. Dimensions in mm.*

⑫ *Slot throughout the entire bottom for use with separate housing/tray.*

Drawing for fittings (see next page).



Fittings specifications

Tubes			
Fitting code	AlMgSi0.5 Ø [mm]	AISI 316 Ti*, DIN 1.4571	
			Ø [mm]
A8	25	DN15	21.3
A9	35	DN25	33.7
A10	45	DN40	48.3
A11	50	DN50	60.3

Standard length L= 50mm.

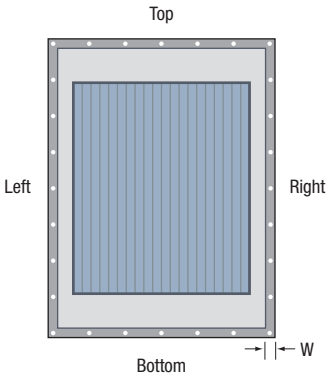
Bushing			
Fitting code	Rp	AlMgSi0.5 L [mm]	AISI 316 Ti*, DIN 1.4571 L [mm]
B2	3/4"	40	36
B3	1"	45	43
B8	1 1/4"	50	48
B4	1 1/2"	55	48
B5	2"	60	56

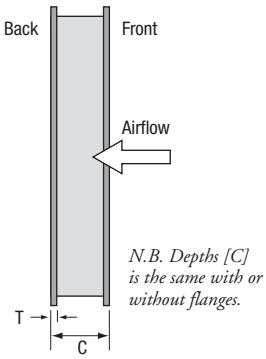
Half bushing			
Fitting code	Rp	AlMgSi0.5 L [mm]	AISI 316 Ti*, DIN 1.4571 L [mm]
C2	3/4"	17	17
C3	1"	20	19
C8	1 1/4"	22	22
C4	1 1/2"	22	22
C5	2"	26	26

Weld-on nipple			
Fitting code	Rp	AlMgSi0.5 L [mm]	AISI 316 Ti*, DIN 1.4571 L [mm]
D2	3/4"	50	40
D3	1"	60	40
D8	1 1/4"	65	50
D4	1 1/2"	75	50
D5	2"	75	50

**AISI 316L, DIN 1.4404 upon request. Bushing/ Half bushing / weld-on nipple in accordance with chosen frame material and according to DIN EN 10241 (DIN 2986 / DIN 2982), material AISI 316 Ti, DIN 1.4571, witworth-thread according to DIN EN 10226-1 (DIN 2999).*







N.B. Depths [C] is the same with or without flanges.

Hole configuration

Code	According to
FL0	Without drillings
FL1	DIN24193
FL2	Eurovent
FL3	Norsok
FL4	Munters
FL5	Customized*

**Submit information.*

Bird protection grid**

Code	Position
G1	Front
G2	Back

***Openings approx. 12×12 mm*
Wire diameter approx. 2 mm.
Material AISI 316Ti, DIN 1.4571, AlMgSi0.5 or AlMg3. Other material and grid openings upon request.

Flanges specifications

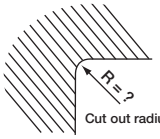
Flange code	Position
F0	No flange
F1	Top & bottom front
F2	Left & right front
F3	All sides front
F4	Top & bottom back
F5	Left & right back
F6	All sides back
F7	Top & bottom, front & back
F8	Left & right, front & back
F9	All sides front & back

Note: Limited configuration for DF 2800 marked in green.

Flange – Thickness*, T	
code	[mm]
T2	2
T3**	3
T4	4
T5	5
T6	6

** Other thinckness or width upon request.*
*** Standard thickness.*

Width*, W	
code	[mm]
W30	30
W40	40
W50	50
W60	60



Please forward details of the cut out – put R before the dimension in mm.
e.g., R150

Customized droplet separators

DF series droplet separators are developed to suit a wide range of applications. The various outfit options cover the most typically occurring installation variations. However, tailor made droplet separators are frequently delivered based on customers' individual specifications.

Material certificates can be delivered for most materials upon request. Fractional efficiency curves for given face velocities are delivered on special request.

For hygienic-proof HVAC equipment DF 2100 droplet separator can be delivered in accordance with the standards VDI 6022, VDI 3803, DIN 1946 (specify H in order code).

Order information

DF YYYY-X-X-X-X-X-X-X-X-X-X-X-X

Type code
Pitch/spacing, mm
Width, mm
Height, mm

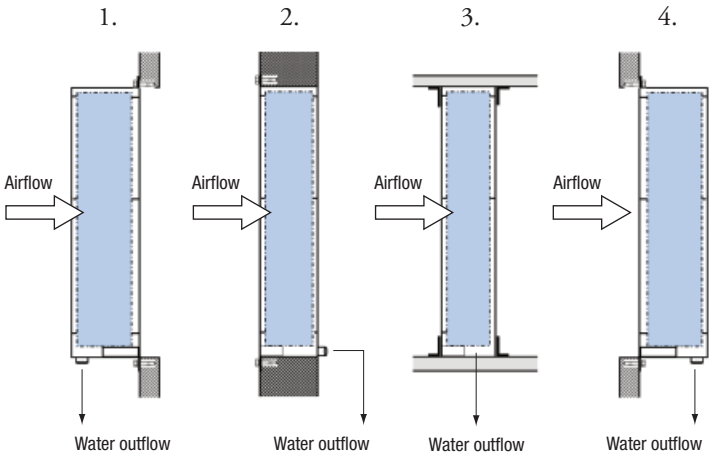
Options
- Drainage position(s) code
- Fitting code
- Flange position code
- Flange thickness code
- Flange width code
- Flange hole configuration
- *Protection grid position(s) code
- *Radius code

e.g., DF 2100-8a-25-1000-1000-P3-A11-F3-T3-W50-FL4

**Please skip if not applicable*

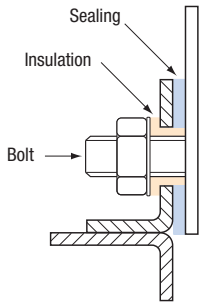
Examples of installation

1. The droplet separator is flanged onto a wall opening and the water drains vertically outside of the wall.
2. The droplet separator is flanged into a wall opening and the water drains controlled into an internal tray (not shown in the drawing)
3. The droplet separator is installed in the air duct and stands in between angled profiles that are connected to the air duct. The water drains through the bottom into a try that is below the air duct.
4. The droplet separator is installed from inside.



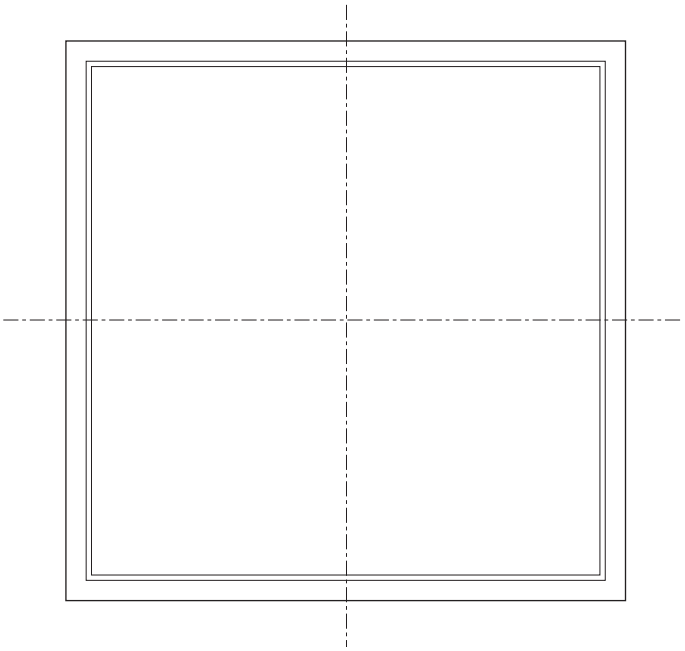
Note: Please submit information about the cut out radius [R].

5.



Galvanic separation of carbon steel structure from the mist eliminator (made of stainless or aluminium).

Drill pattern sketch



The DF-Series is developed and produced by Munters Euroform GmbH, Germany.

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