

## Overview

Mist eliminator louvers are used for air intakes for separation of water droplets, moisture and some salt spray from the air stream.

This reduces corrosion, mold and other moisture related problems, and usually mean reduced maintenance and significant savings for the owner.

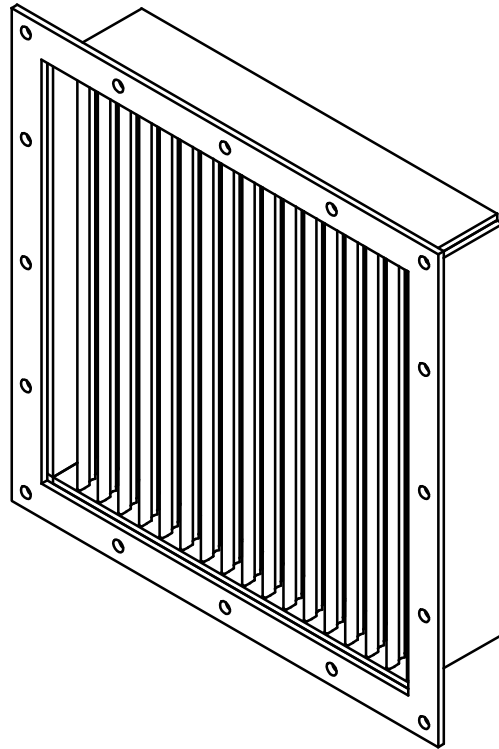
## Models:

- DRS-F and DRS-G                      standard mist eliminator
- DRSL-F and DRSL-G                mist eliminator with weather tight hatch
- SSvent-FS/DRS-G                    mist eliminator with integrated shut off damper.
- DRS-FiMO-F and DRS-FiMi-F        mist eliminator with filter – prefabricated modules
- DRS-FiZO-F and DRS-FiZi-F        Mist eliminator with filter – filter from roll, tailor made sizes

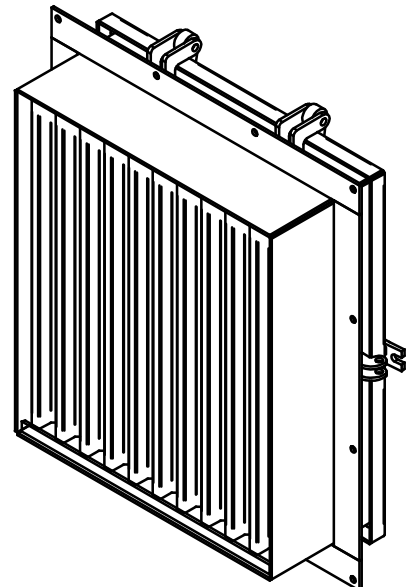
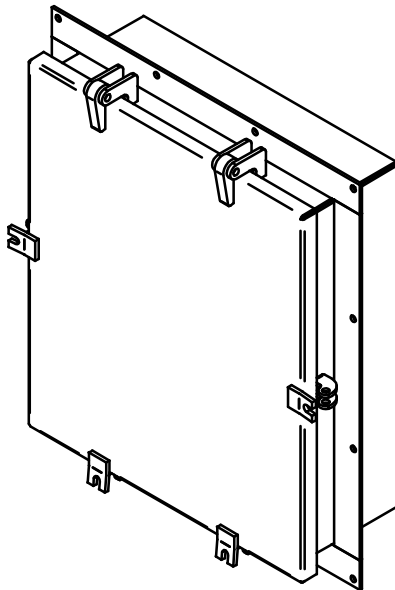


# MIST ELIMINATOR LOUVERS

DRS - F



DRSL - F



N Y B O R G A S

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com



# MIST ELIMINATOR LOUVERS PERFORMANCE DATA

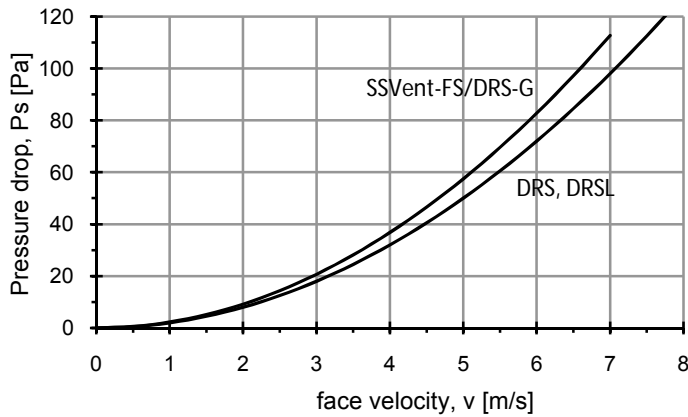
## Performance:

Recommended face (gross) air velocity is 4,5-5 m/s. For louvers with e.g. area < 0,3m<sup>2</sup> it is recommended to reduce this velocity by 5-10% due to smaller net area.

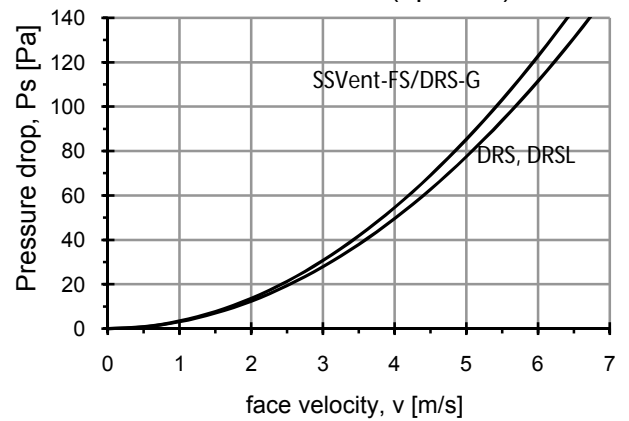
## Calculation of face velocity

Face velocity [m/s] = air flow [m<sup>3</sup>/s] / BxH [m<sup>2</sup>]  
(face velocity = air flow / louver gross area)

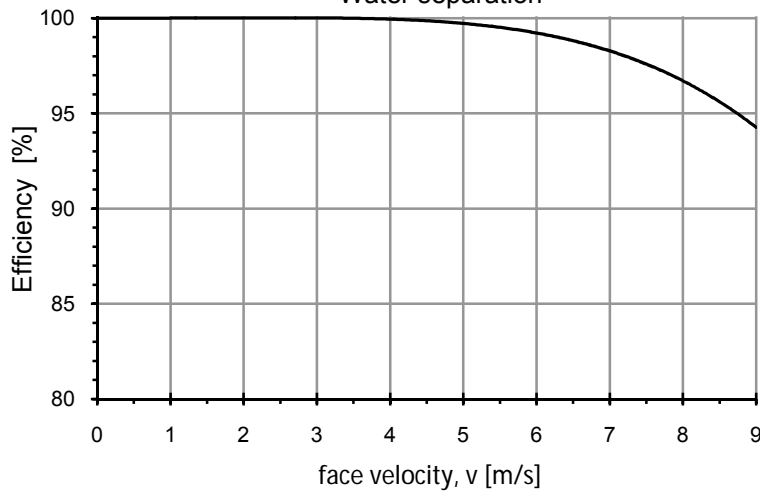
Pressure drop, material: aluminium (standard)



Pressure drop, material: stainless steel  
Aisi304/316 (optional)



Water separation



N Y B O R G A S

N-6230 Sykkylven, Norway

TEL +47 7025 4080 - FAX +47 7025 2908

office@nyborgfan.com - www.nyborgfan.com



### General:

The SSVent-FS is a single stage mist eliminator louver with a integrated closing damper. The louver is made in customer specified sizes.

### Applications:

The SSVent-FS/DRS-G is used as an air intake where weather tight closing is not demanded. The damper is primarily intended as a shut off damper, but can also be used as an air volume control / regulating damper.

### Design and drain

The louver has vertical profiles with grooves/water traps where the water is led down and drained out to the front (outside) at the bottom of the louver. The damper is operated by lever / regulating arm from the outside. The louver is intended for flange mounting to bulkhead and is penetrating the bulkhead.

### Execution

The frame is as standard in mild steel, hot dip galvanized, the mist eliminator is made in sea water resistant alum. All movable parts like damper blades, bolts, shafts, hinges and regulating arm are in stainless steel execution.

### Optional material execution

- Frame and mist eliminator louver in sea water resistant aluminium (damper blades in stainless steel).
- Frame and damper blades in stainless steel and mist eliminator louver in alum.
- Complete louver in stainless steel (aisi 304) or aisi 316 execution.

### Cut out

$W_{\text{cut out}} = W_{\text{louver}} + 50\text{mm}$ ,  $H_{\text{cut out}} = H_{\text{louver}} + 50\text{mm}$ .  
Radius on cut out: max 50mm.

### Actuator

As standard manual closing from outside (actuator as standard on the right side). Where access to actuator from outside is difficult an electric or pneumatic fail safe actuator can be used. (See chapter for dampers for more info).

### Options

- With wire mesh (12x12x1 aisi316) in front or back side of louver.
- With sand filter in front
- With filter
- Painted (after galvanization).
- Electric or pneumatic actuator for damper.
- With regulating arm on left side.
- With regulating arm from operated from inside.

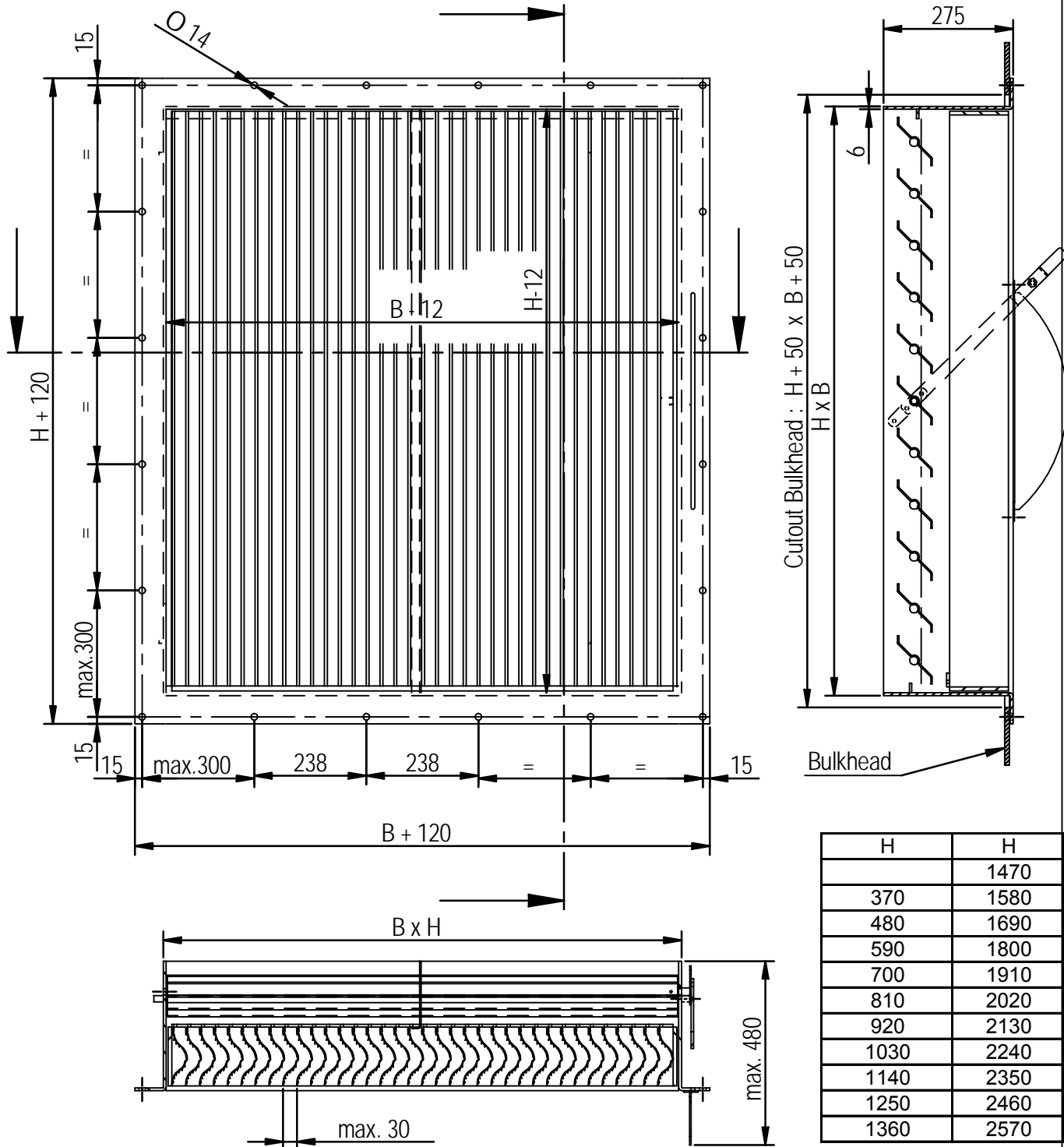
### Special designs:

- With flange on specified placement of louver (louver partly penetrating bulkhead)
- Complete louver designed for mounting on outside of bulkhead
- Without flange for welding to bulkhead



**NYBORG SHUTABLE BLADE DAMPER  
WITH INTEGRATED WEATHER LOUVRE**

**SSVent B x H FS /  
DRS B x H G**



NYBORG BLADE DAMPER SSVent B x H FS , made of hot dipped galv.St.37.  
Damper blades and shafts in AISI 316L.  
NYBORG WEATHER LOUVRE DRS B x H G, made of high tensile  
alum. alloy,salt resistant.

26/03-01

N Y B O R G A S

R.Berge  
4-2104

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

**SSVent B x H FS /  
DRS B x H G**



### General

The DRS-F is a rectangular single stage mist eliminator louver for separation of water droplets and moisture from the air stream. Delivered in customer specified sizes.

### Applications

The louver is primarily used as intake louver. Typical examples are engine room intakes, intake for accommodation, cargo hold etc.

### Models:

- DRS-F with flange for mounting onto bulkhead
- DRS-G without flange for insertion into steel duct, frame or similar.

### Design and drain

The louver has vertical profiles with water traps where the water is led down and drained out to the front (outside) at the bottom of the louver. As standard the mist eliminator louver is penetrating into the bulkhead.

### Execution:

The complete louver is made of sea water resistant alum.

### Optional material execution:

Entire louver in stainless steel, aisi 304 or aisi 316L

### Cut out:

$W_{\text{cut out}} = W_{\text{louver}} + 20$ ,  $H_{\text{cut out}} = H_{\text{louver}} + 20$ .

Max radius on the cut out is 35mm. For a bigger radius the louver must be made with wider flanges..

### Options:

- With wire mesh behind (or in front of) the louver (12x12x1 stainless steel)
- With sand filter in front for easy removal / cleaning (filter class G2 or G3)
- With filter behind louver (for dust/soot) (G3 or G4)
- With drain pipe either with drain to front or to inside.
- ~~Anti~~ Painted

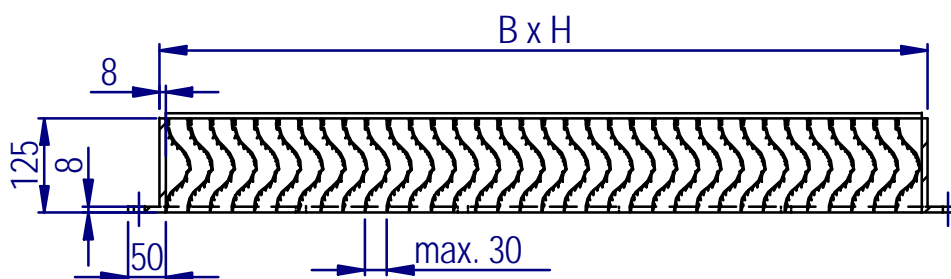
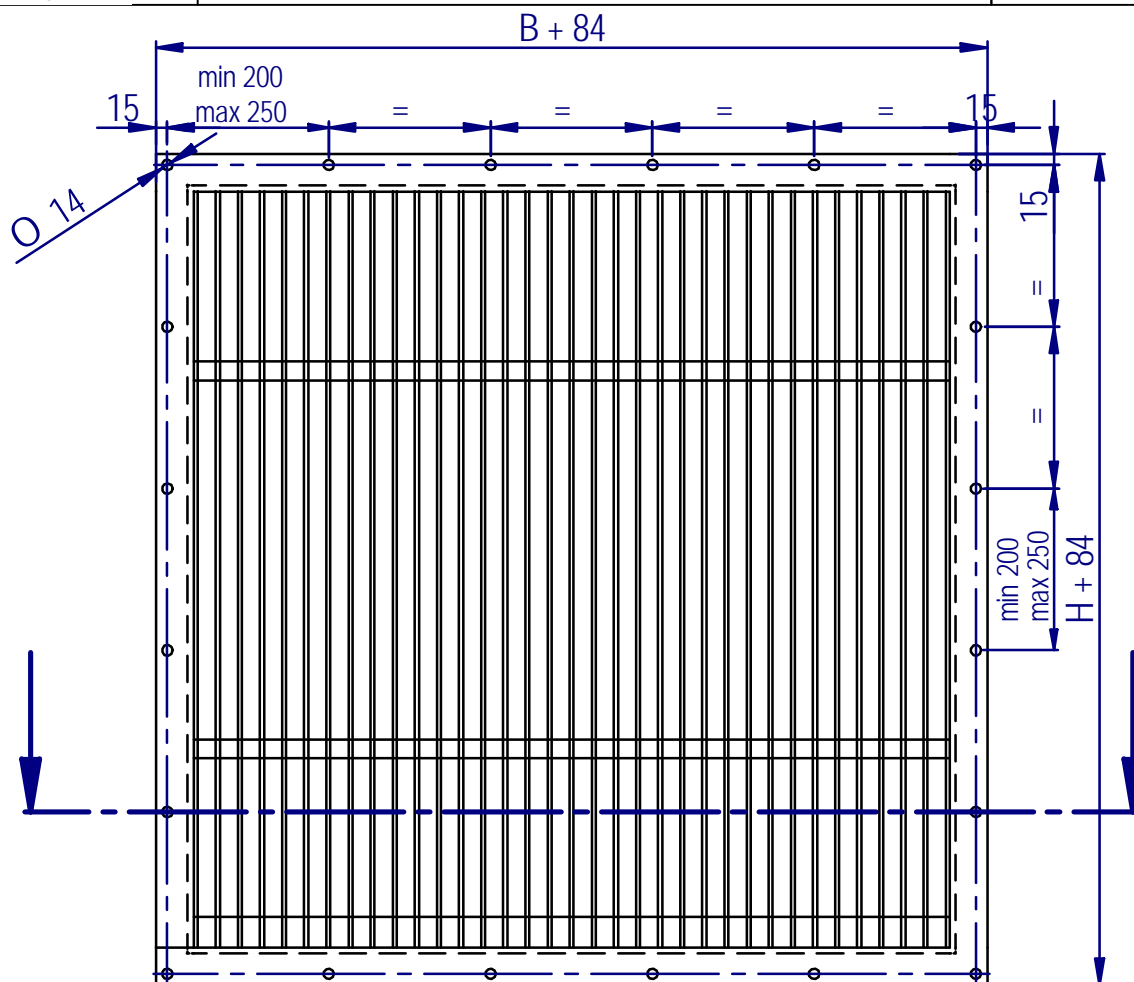
### Special designs:

- With access door (e.g. 800x800mm)
- Hinged execution (entire louver) for access
- For mounting entirely on the outside of bulkhead.
- One or more sides of louver inclined (e.g. triangular shape).



# NYBORG HIGH EFFICIENCY DROPLETS SEPARATOR

**DRS  
B x H F**



NYBORG HIGH EFFICIENCY DROPLET SEPARATOR  
DRS B x H F,  
made of high tensile alum.alloy, salt resistant.  
Bulkhead Cutout :  $H + 20 \times B + 20$

**4-2101**

N Y B O R G A S

**29/08-04  
R.Berge**

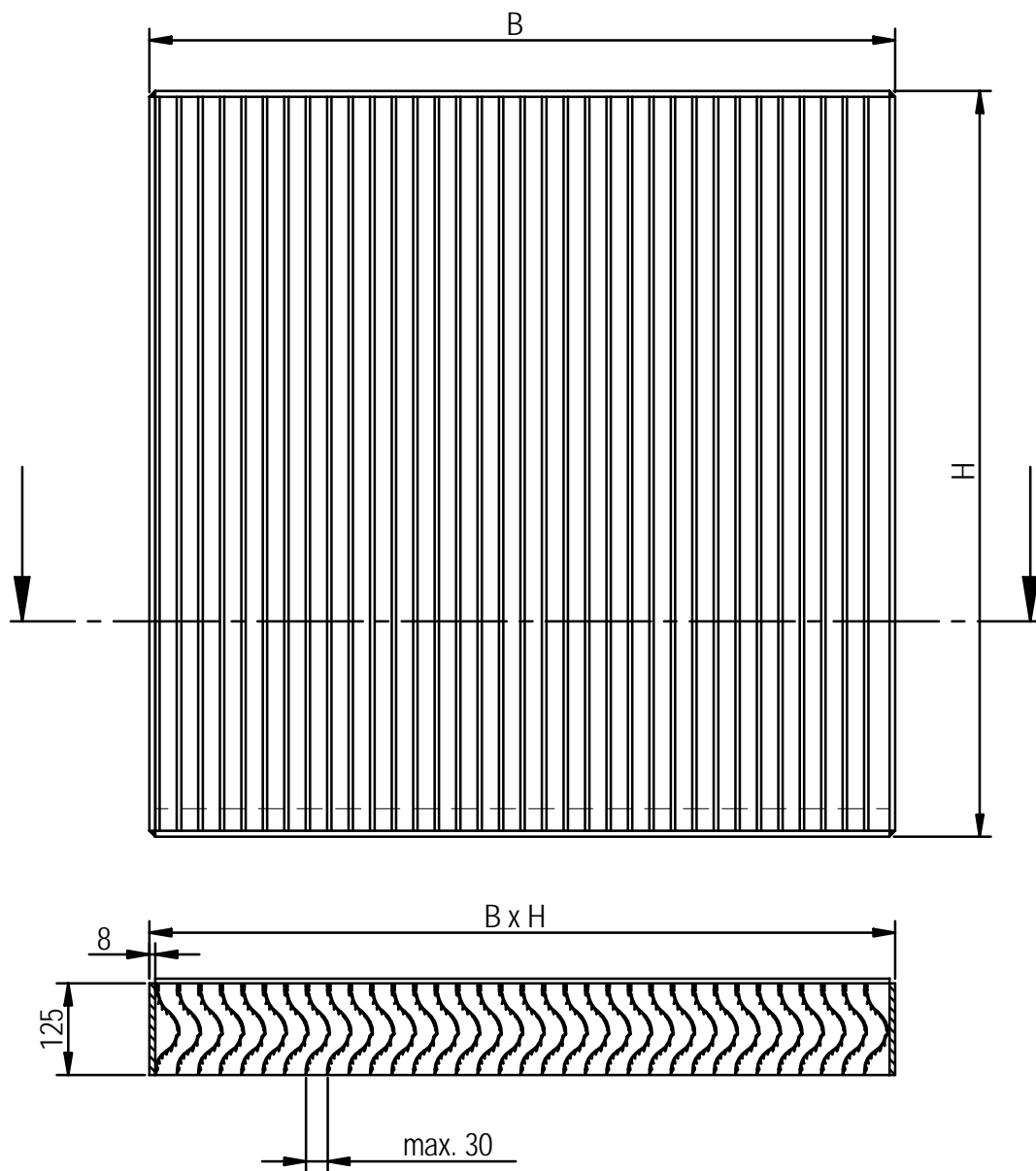
N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

**DRS  
B x H F**



NYBORG HIGH EFFICIENCY  
DROPLETS SEPARATOR

DRS  
B x H G



NYBORG HIGH EFFICIENCY DROPLET SEPARATOR  
DRS B x H G ,  
made of high tensile alum. alloy, salt resistant.

29/08-00

N Y B O R G A S

R.Berge  
4-2102

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

DRS  
B x H G





### General:

The DRSL is a single stage mist eliminator for separation of water droplets and moisture with a weather tight hatch. The louver is made in customer specified sizes.

### Applications:

The louver is primarily used as air intake / supply louver where you have demand for weather tight closing. It can also be used as an alternative to a shut off damper. Typical applications are intake for accommodation, technical rooms, etc.

### Models

- **DRSL-F:** with flange for bolting to bulkhead
- **DRSL-G:** without flange for welding to bulkhead (e.g. for curved bulkhead)

### Design and drain

The mist eliminator part of the louver has vertical profiles with water traps. The water is led down and drained out to the front (outside) at the bottom of the louver.

The hatch can be top-, bottom-, left- or right hinged. The hinges are equipped with grease nipples for lubrication.

### Execution

The frame and hatch are executed in mild steel, hot dip galvanized. The mist eliminator part is executed in sea water resistant alum. Locking bolts, toggles and nuts are in aisi 316

### Optional Execution.

- All louver in sea water resistant aluminium
- Frame and hatch in stainless steel (aisi 304 or 316), mist eliminator louver in sea water resistant alum.
- All louver in stainless steel (frame, hatch and mist eliminator).

### Cut out

$$W_{\text{cut out}} = W_{\text{louver}}, H_{\text{cut out}} = H_{\text{louver}}$$

Radius on cut out: For standard design the louver will not conflict with cut out. If the louver is special designed to penetrate the bulkhead Rmax is 20mm.

### Options

- Wire mesh (12x12x1 aisi316) behind (or in front) of louver.
- With sand filter in front of louver
- With filter behind louver
- With locking arm for keeping louver in open position at specified angle (e.g. 30deg) – for top hinged louvers
- With locking bolt for locking hatch to bulkhead (must be welded to bulkhead) (for side- or bottom hinged louver).
- With drainpipe either to outside or to inside.
- Painted (after galvanization).

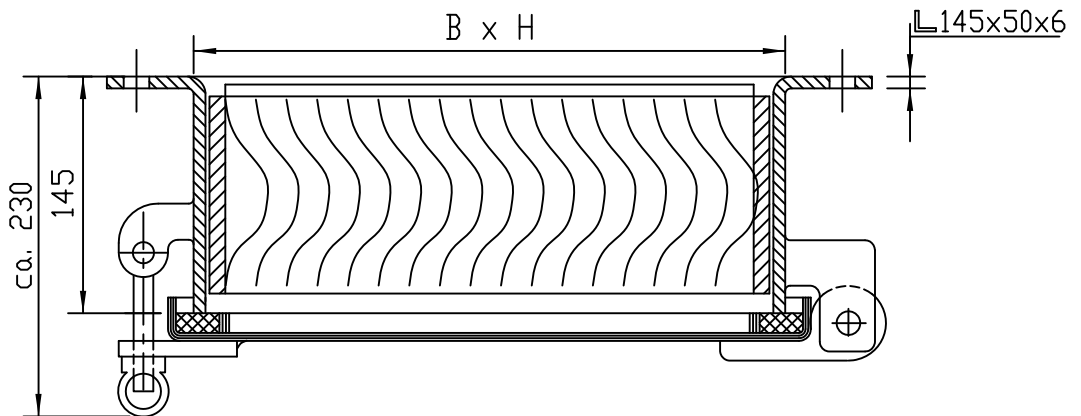
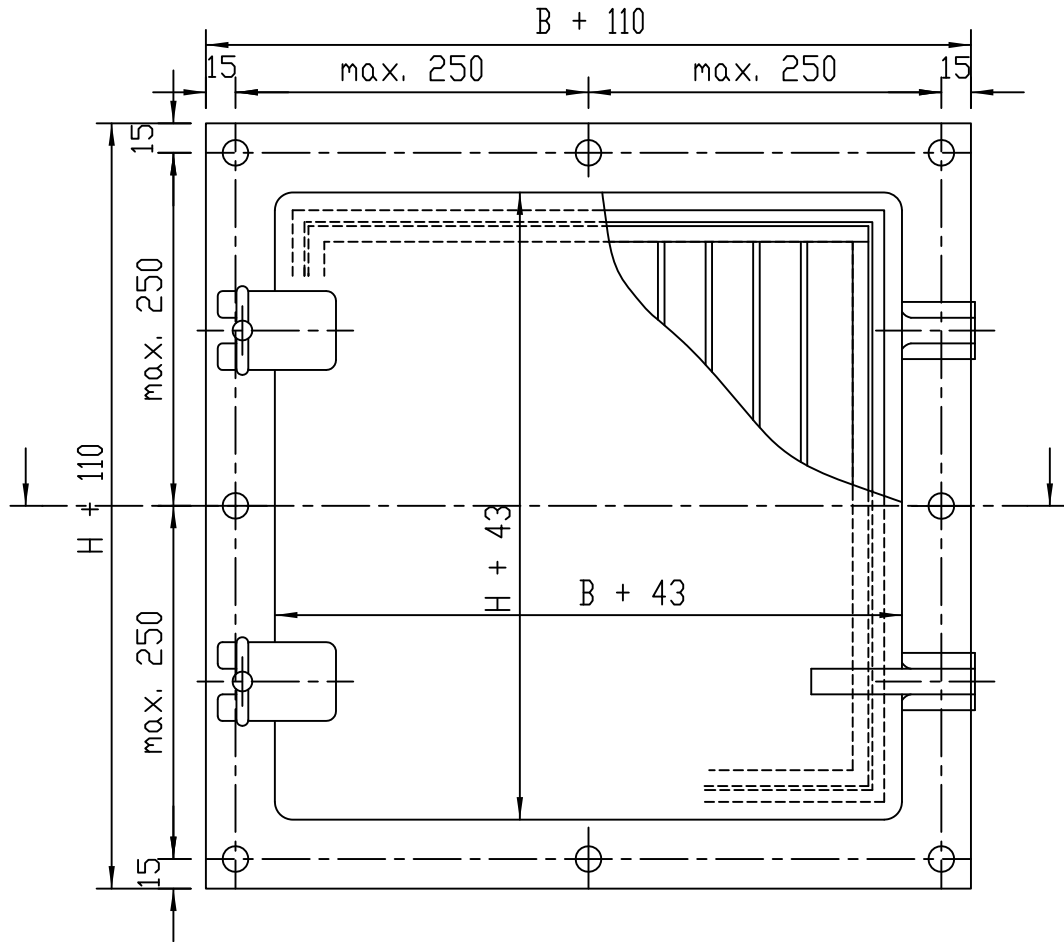
### Special designs:

- Folded hatch (e.g. where space for hatch is limited).
- Divided hatch (e.g. one louver with one bottom- and one top hinged hatch).
- Louver with hatch for 270 deg opening.
- With short frame (louver is partly penetrating the bulkhead).



WEATHER LOUVRE WITH VERTICAL  
BLADES AND HINGED COVER

DRSL  
B x H F



Weather Louvre with Vertical Blades and Hinged Cover

- \* The Outer Flanged Frame :Matl. Hot Dipped Galv. Steel.
- \* The Inner Frame c/w Vertical Blades : Matl. : Alum. Alloy.
- \* Heavy Duty Neoprene Gasket. \* Top- or Sidehinged Cover.
- \* Hinges and Screw Joints in Stainless Design.
- \* B x H, Measurement for Cutting Torch on Bulkhead.

Date : 01.09.2000

Tegn : 4-1459

Name : R.Berge

N Y B O R G A S

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

DRSL  
B x H F



# MIST ELIMINATOR LOUVER with filter (prefabricated modules)

**DRS-FiMO-F  
& DRS-FiMi-F  
BxH**

## General

The DRS-F w filter is a two stage intake louver with a mist eliminator louver in front followed by a filter as the 2<sup>nd</sup> stage. The filter section is made up by prefabricated modules in standard sizes.

The filter prevents soot, dust, sand, insects or salt etc from being sucked into the ventilation system and the rooms to be ventilated.

## Applications:

Used for air intake where removal of soot, sand, dust, moisture, insects etc from the air stream is desired. Typically used for engine room intake, accommodation, but can also be used as pre-filter, e.g. for turbo intake.

## Models

- DRS-FiMO-F with hinged louver for access to filter from front (outside).
- DRS-FiMi-F with access to filter from inside (back side of louver).

## Design and drain

The louver has vertical profiles with grooves/water traps where the water is led down and drained out to the front (outside) at the bottom of the louver.

The louver is only made in certain step sizes due to using prefabricated standard filter modules. Standard filters from most filter manufacturers can be used.

For the DRSFaF-F, there is one detachable bar, giving an opening of min 560x900 (WxH) if access to inside is needed.

## Execution:

the louver and the filter frame are made in sea water resistant aluminium. The frames for the prefabricated filter usually are made of plastic.

## Special execution:

Louver and filter frame in stainless steel.

Mist eliminator louver in alum and frame in stainless steel.

## Cut out:

$W_{\text{cut out}} = W_{\text{louver}} + 20$ ,  $H_{\text{cut out}} = H_{\text{louver}} + 20$ .

Max radius on the cut out is 35mm . For a bigger radius the cut out can be increased to +40mm.

## Special design.

- Louver and filter section for mounting completely on outside on bulkhead (e.g. if limited space behind louver/filter).
- With access to filter from the side (through inspection hatch).

## Filter/Performance

Filter can be delivered in EU 3, 4, 5, 6 and 7 class.

The prefabricated modules gives a high effective filter area, superior filtration, lower pressure drop and long time between filter change compared to plan filters

## (Filter) Maintenance

When filter has reached recommended pressure drop it should be cleaned or changed.

Time between change of filter will depend of environment for ship operation. A quick locking system makes filter changes quick and simple.

## Options:

- Louver equipped with pressure meter for indication of time for filter change.
- Drainpipe, either to outside or inside.
- wire guard for louver on inside (or outside), 12x12x1 stainless steel.
- Pre-filter (EU2) in front of louver to prolong lifetime for the (more expensive) main filters.

N Y B O R G A S

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com



# MIST ELIMINATOR LOUVERS with filter (prefabricated modules)

DRS FiMO-F  
& DRS FiM -F  
BxH

## Filters

Filter characteristics	Filter class				
	G3 (EU3)	G4 (EU4)	F5 (EU5)	F6 (EU6)	F7 (EU7)
Initial pressure drop [Pa]	40	85	90	135	140
Rec. final press. drop	250	400	290	650	650
Average arresistance		0,92	0,95		
Dust holding cap	4kg/m2	3kg/m2	3kg/m2	6kg/m2/@800Pa	5kg/m2/@800Pa
Filter suitable for	course dust, insects, sand	also soot, some moisture	also finer soot, some moisture	also moisture	also salt, moisture,
Depth of filter [mm]	292	96	48	292 (140)	292 (140)
Nominal face velocity [m/s]	3	2,75	2,5	3,1	3,1
Max rec. face velocity [m/s]	3,5	3,5	3,25	4	4

Table 14.1 - filter characteristics

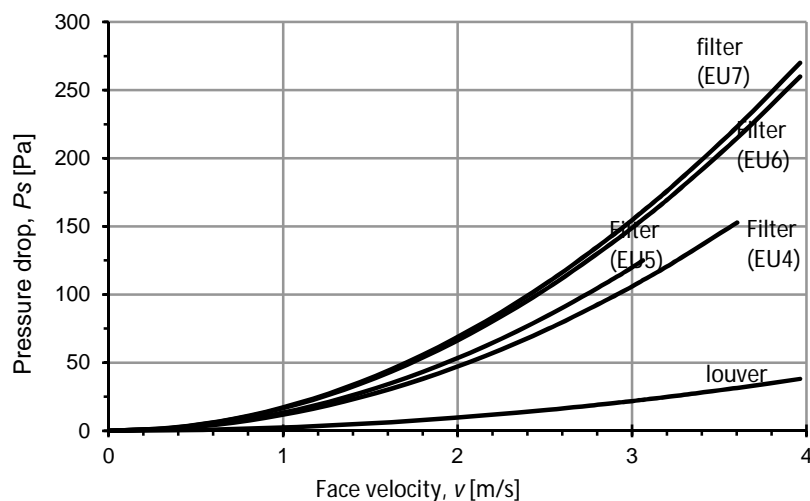
## Dimensions:

Only stepwise sizes available. Face area indicated in table.

B \ H	315	620	930	1235	1545	1850	2160	2475	2785	3090
315		0,2		0,39		0,58		0,78		0,97
620	0,19	0,39	0,58	0,77	0,96	1,15	1,34	1,53	1,72	1,91
930		0,58		1,15		1,72		2,29		2,87
1235	0,39	0,77	1,15	1,53	1,91	2,29	2,67	3,05	3,43	3,81
1545		0,96		1,91		2,86		3,81		4,76
1850	0,58	1,15	1,72	2,29	2,86	3,42	3,99	4,56	5,14	5,7
2160		1,34		2,67		4		5,33		6,65
2475	0,78	1,54	2,3	3,06	3,83	4,58	5,34	6,1	6,87	7,63
2785		1,73		3,44		5,16		6,87		
3090	0,97	1,91	2,87	3,81	4,76	5,7	6,65	7,63		

Table 14.2: face area as function of louver dimensions.

= not applicable



### Calculation of air flow through louver

Air flow [m<sup>3</sup>/s] = face velocity [m/s] \* face area [m<sup>2</sup>]

### Pressure drop

Total pressure drop = pressure drop louver + pressure drop filter.

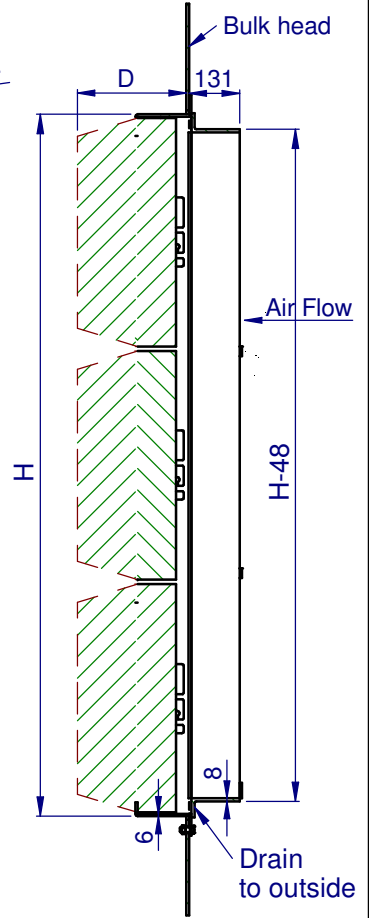
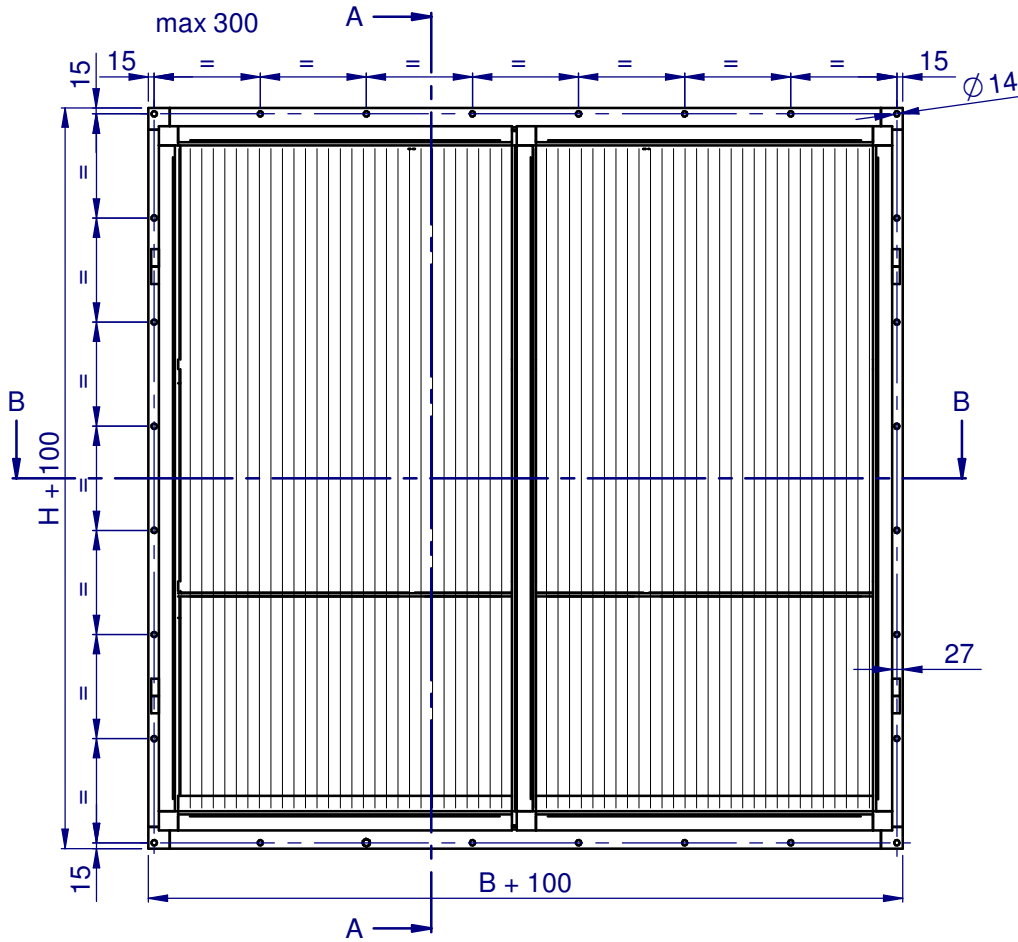
N Y B O R G A S



# MIST ELIMINATOR LOUVER

with FILTER, Prefabricated filter modules  
Hinged for access from front

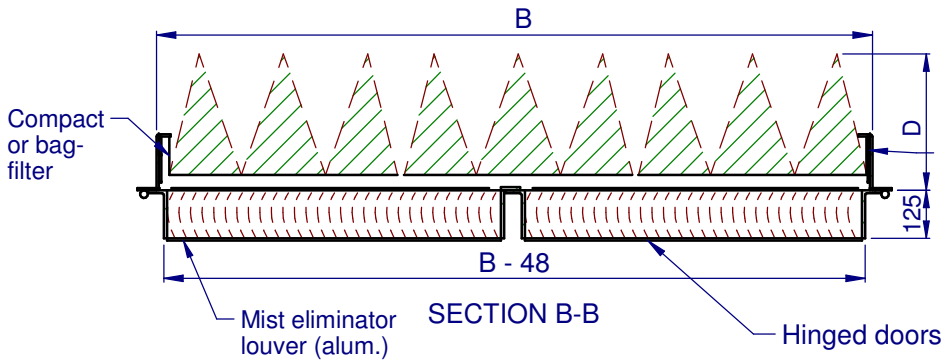
## DRS-FIMO-F B x H



SECTION A-A

Cutout:  
B louver + 20mm  
H louver + 20mm  
Rmax 35mm

One door B < 1400  
Two doors B > 1400



SECTION B-B

Dimensions, WxH [mm], and face area [m2]

W \ H	315	620	930	1235	1545	1850	2160	2475	2785	3090
315		0,2		0,39		0,58		0,78		0,97
620	0,19	0,39	0,58	0,77	0,96	1,15	1,34	1,53	1,72	1,91
930		0,58		1,15		1,72		2,29		2,87
1235	0,39	0,77	1,15	1,53	1,91	2,29	2,67	3,05	3,43	3,81
1545		0,96		1,91		2,86		3,81		4,76
1850	0,58	1,15	1,72	2,29	2,86	3,42	3,99	4,56	5,14	5,7
2160		1,34		2,67		4		5,33		6,65
2475	0,78	1,54	2,3	3,06	3,83	4,58	5,34	6,1	6,87	7,63
2785		1,73		3,44		5,16		6,87		
3090	0,97	1,91	2,87	3,81	4,76	5,7	6,65	7,63		

Calculation of air flow  
through louver  
Air flow [m3/s] = face velocity  
[m/s] \* face area [m2]

Tegn.nr.: 4-2268

**NYBORG AS**

Dato: 28.03.2012  
Tegn. av: SA.Drabløs

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

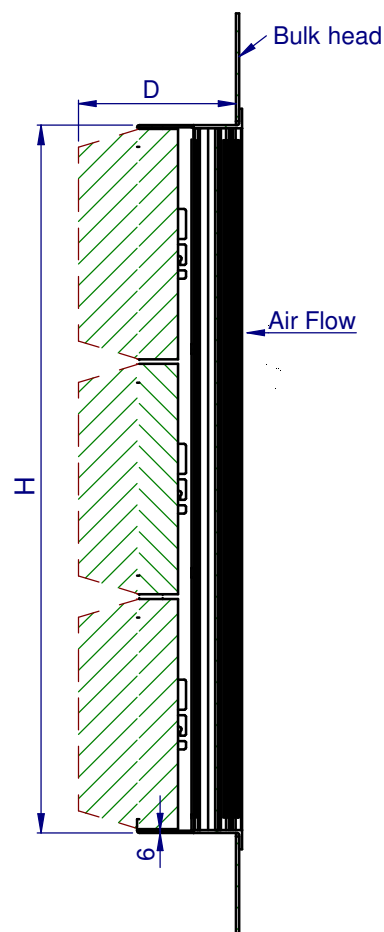
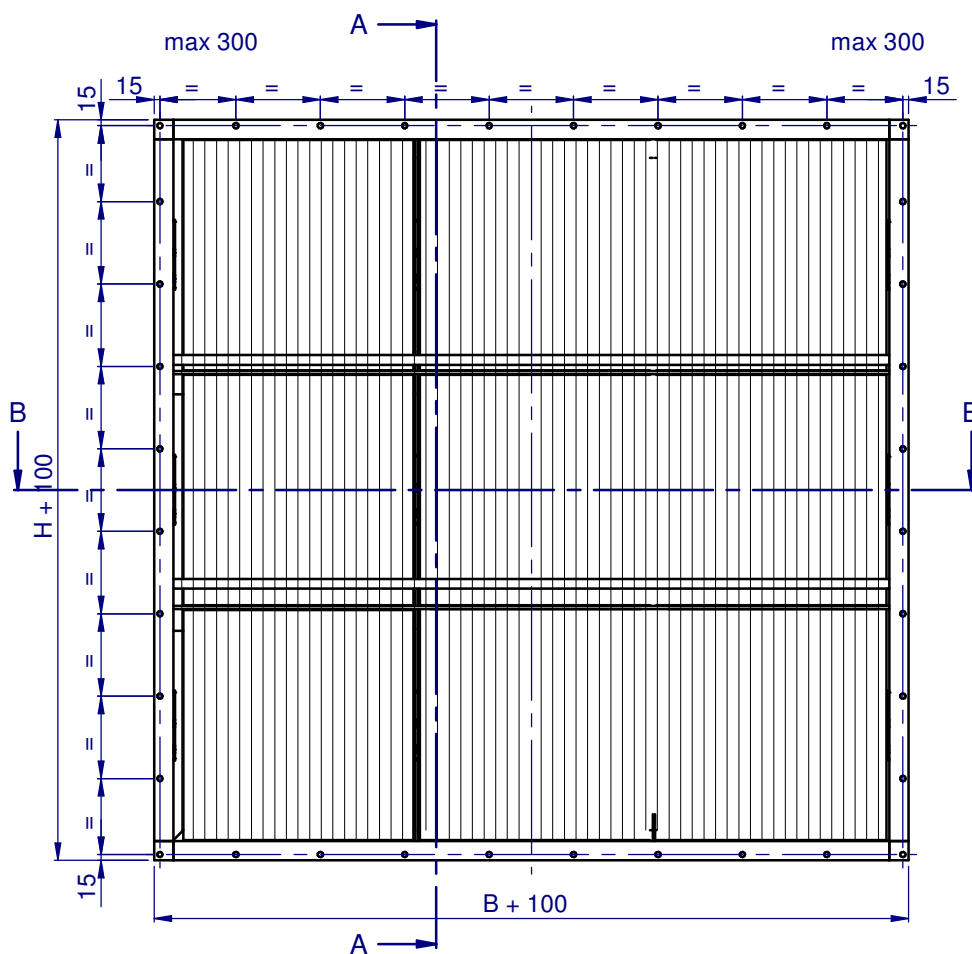
## DRS-FIMO-F B x H



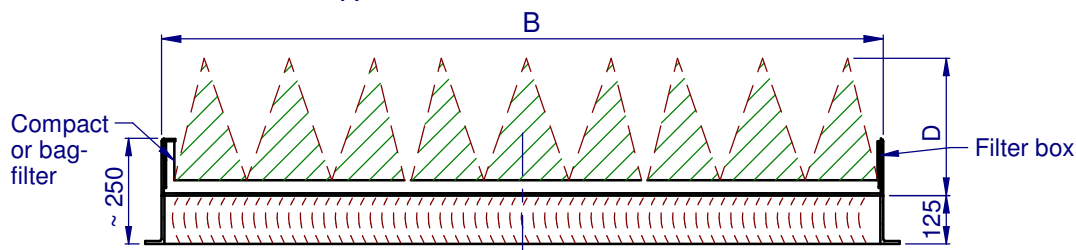
# MIST ELIMINATOR LOUVER

with FILTER, Prefabricated filter modules  
For access to filters from inside

## DRS-FiMi-F B x H



SECTION A-A



SECTION B-B

Cutout:  
B louver + 20mm  
H louver + 20mm  
Rmax 35mm

Dimensions, WxH [mm], and face area [m2]

W \ H	315	620	930	1235	1545	1850	2160	2475	2785	3090
315		0,2		0,39		0,58		0,78		0,97
620	0,19	0,39	0,58	0,77	0,96	1,15	1,34	1,53	1,72	1,91
930		0,58		1,15		1,72		2,29		2,87
1235	0,39	0,77	1,15	1,53	1,91	2,29	2,67	3,05	3,43	3,81
1545		0,96		1,91		2,86		3,81		4,76
1850	0,58	1,15	1,72	2,29	2,86	3,42	3,99	4,56	5,14	5,7
2160		1,34		2,67		4		5,33		6,65
2475	0,78	1,54	2,3	3,06	3,83	4,58	5,34	6,1	6,87	7,63
2785		1,73		3,44		5,16		6,87		
3090	0,97	1,91	2,87	3,81	4,76	5,7	6,65	7,63		

Calculation of air flow through louver  
Air flow [m3/s] = face velocity [m/s] \* face area [m2]

Tegn.nr.: 4-2286

**N Y B O R G A S**

Dato: 07.05.2012  
Tegn. av: SA.Drablø

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

## DRS-FiMi-F B x H



# MIST ELIMINATOR LOUVER with filter (in tailor made sizes)

DRS-FiZO-F &  
DRS-FiZi-F  
BxH

## General

The DRS-FiZO and FiZi are two stage mist eliminator louvers with the filter behind as the 2<sup>nd</sup> stage. The filter is cloth from roll that is fastened to a frame. The louver can be made in tailor made sizes, but has standard heights in steps of 60mm.

## Applications:

Used for air intake where removal of soot, sand, dust, moisture, insects etc from the air stream is desired. Typically used for engine room intake, accommodation, but can also be used as pre-filter, e.g. for turbo intake.

## Models

- DRS-FiZO-F with hinged louver for access to filter from outside (front).
- DRS-FiZi-F with access to filter from inside (back side of louver).

## Design and drain

The louver has vertical profiles, and the separated water droplets are led down and drained to the front (outside)

## Execution:

the louver is made in sea water resistant aluminium, while the frame for the filter is as standard stainless steel, aisi 304.

## Special execution:

- Louver and filter frame in stainless steel.
- Mist eliminator louver in alum and frame in stainless steel.

## Cut out:

$$W_{\text{cut out}} = W_{\text{louver}} + 40, H_{\text{cut out}} = H_{\text{louver}} + 40.$$

Max radius on the cut out is 60mm. For a bigger radius the louver must be made with wider flanges.

## Special design.

- Louver and filter section for mounting completely on outside on bulkhead (e.g. if limited space behind louver/filter).
- With access to filter from the side (through inspection hatch).

## Filter/Performance

Filter can be delivered in EU 3, 4 or 5 class. The filter cloth is synthetic filter and is washable.

## (Filter) Maintenance

When filter has reached recommended pressure drop it should be cleaned or changed.

Time between change of filter will depend of environment. A quick locking system makes filter changes quick and simple.

## Options:

- Louver equipped with pressure meter for indication of time for filter change.
- Drainpipe, either to outside or inside.
- wire guard for louver on inside (or outside), 12x12x1 stainless steel.

**N Y B O R G A S**

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com



**MIST ELIMINATOR LOUVERS  
with filter (from roll)  
in customer specified sizes**

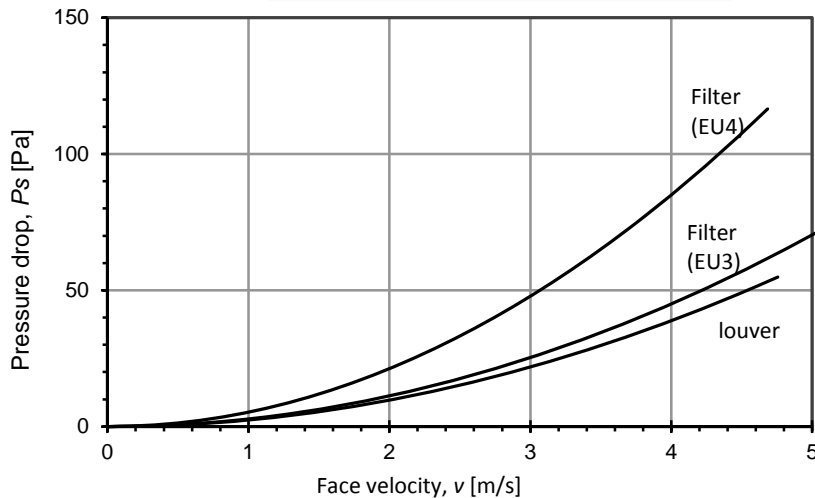
**DRS-FiZO-F  
& DRS-FiZi-F  
BxH**

**Filters**

Filter characteristics	Filter class	
	G3 (EU3)	G4 (EU4)
Initial pressure drop [Pa]	35	65
Rec. final press. drop [Pa]	225	250
Average arresistance [%]	83	94
Filter suitable for	course dust, insects, sand	also soot, some moisture
Depth of filter [mm]	250	250
Nominal face velocity [m/s]	4	3,75
Max rec. face velocity [m/s]	5	4,5

Table 14.3 - filter characteristics

**Pressure drop with depth of filter = 250mm (D=250).**



**Calculation of air flow through louver**

Air flow [m<sup>3</sup>/s] = face velocity [m/s] \* face area [m<sup>2</sup>]

**Pressure drop**

Total pressure drop = pressure drop louver + pressure drop filter.

Pressure drop is based on standard depth of filterbox of 230-240mm. A shorter filter box will give a higher pressure drop.

**N Y B O R G A S**

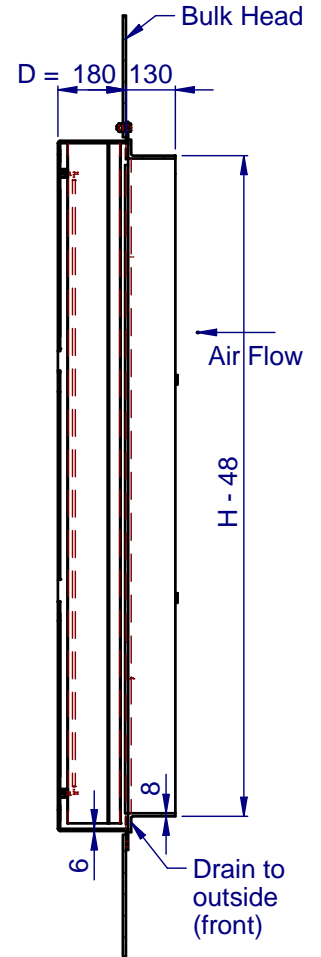
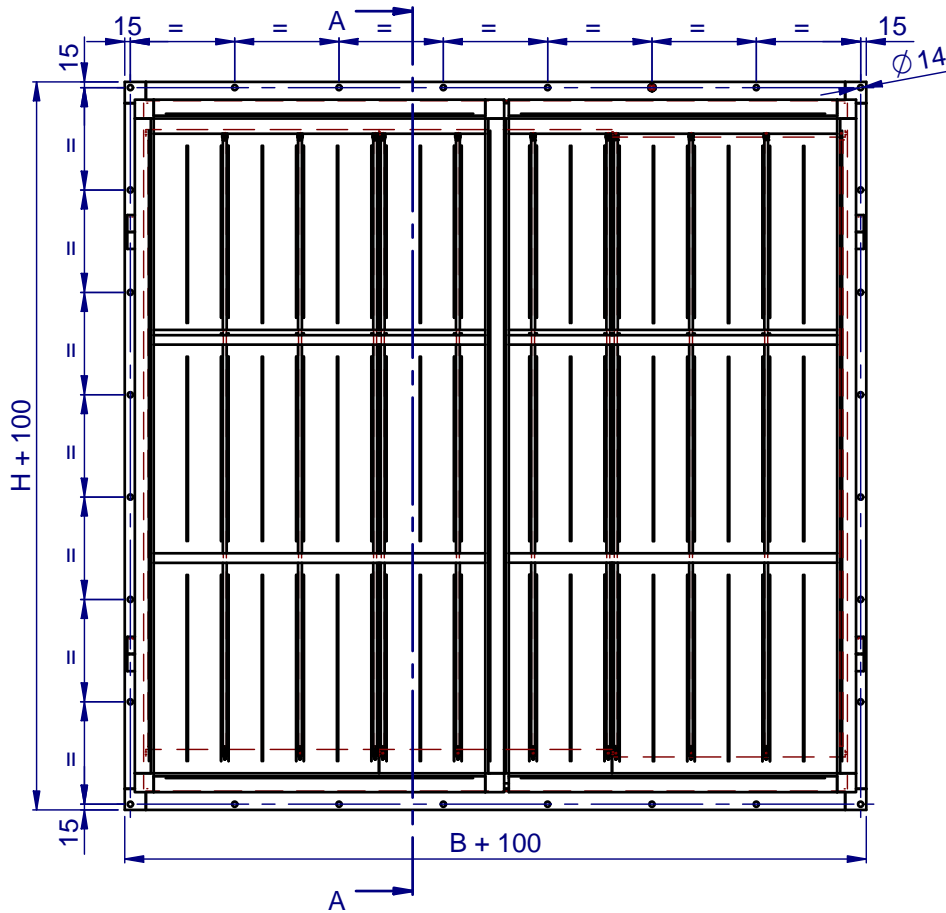




# MIST ELIMINATOR LOUVER

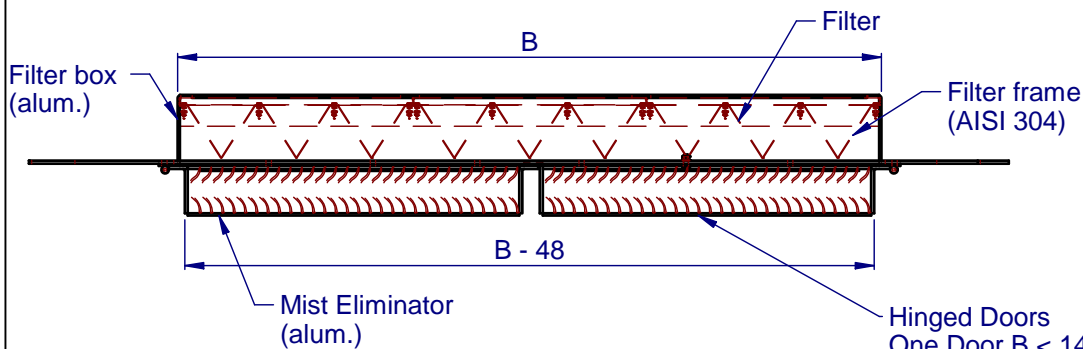
With FILTER, customer made sizes  
Hinged for access from front

## DRS-FiZO-F B x H



SECTION A-A

Cut out in bulk head  
B louver + 40mm  
H louver + 40mm  
Rmax 65mm



Standard heights in steps of 60mm

H [mm]

280	940	1600	2260
340	1000	1660	2320
400	1060	1720	2380
460	1120	1780	2440
520	1180	1840	2500
580	1240	1900	
640	1300	1960	
700	1360	2020	
760	1420	2080	
820	1480	2140	
880	1540	2200	

Dimensions:

B min 200mm

H min 280mm

D (Depth) 180 standard. Min 130mm

Tegn.nr.: 4-2271

N Y B O R G A S

Dato: 03.01.2011  
Tegn. av: SA.Drabløs

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

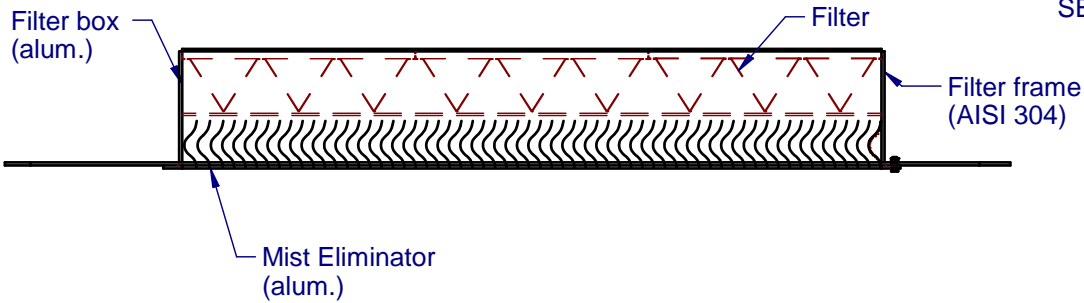
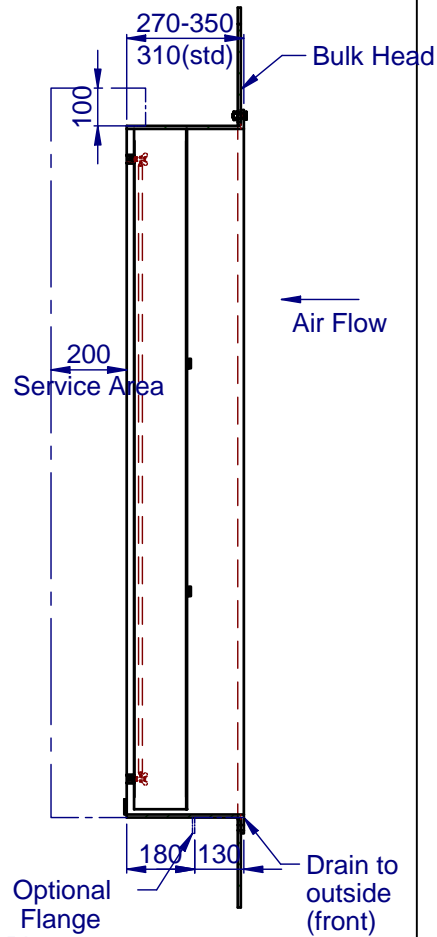
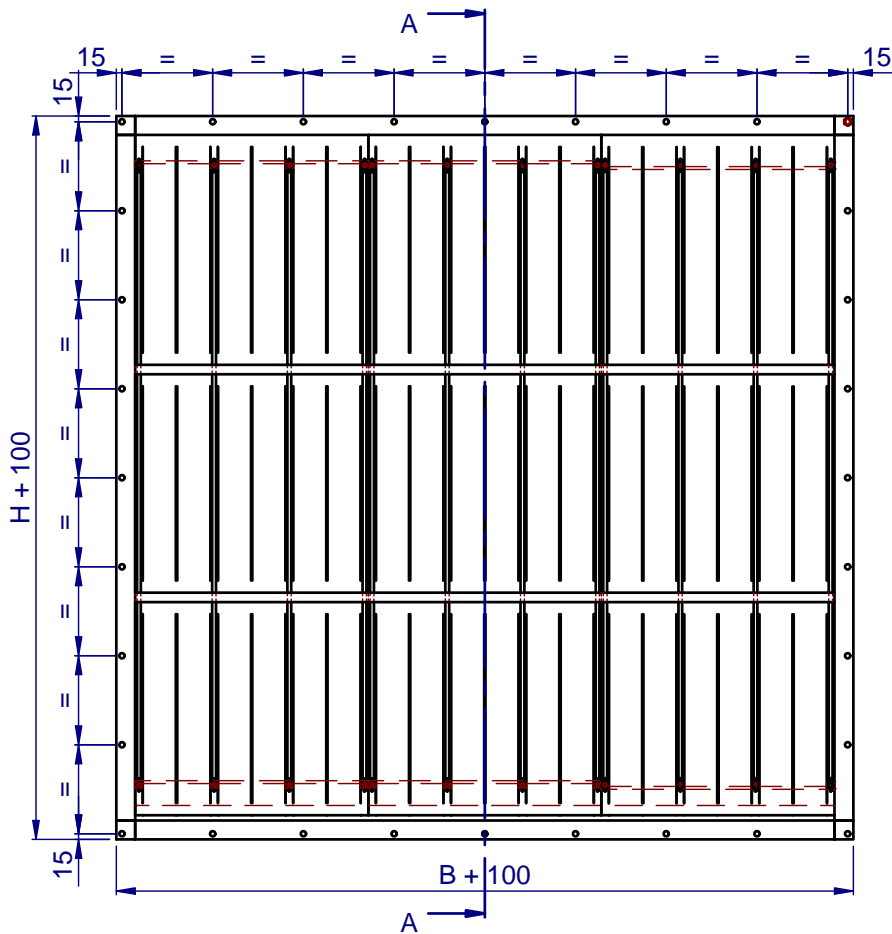
## DRS-FiZO-F B x H



# MIST ELIMINATOR LOUVER

With FILTER, customer made sizes  
Access from inside (back side)

**DRS-FiZi-F**  
**B x H**



Cut out in bulk head  
B louver + 40mm  
H louver + 40mm  
Rmax 65mm

Standard heights in steps of 60mm

H [mm]

280	940	1600	2260
340	1000	1660	2320
400	1060	1720	2380
460	1120	1780	2440
520	1180	1840	2500
580	1240	1900	
640	1300	1960	
700	1360	2020	
760	1420	2080	
820	1480	2140	
880	1540	2200	

Minimum dimensions:

B min 200mm

H min 280mm

Tegn.nr.: 4-2279

N Y B O R G A S

Dato: 06.05.2011  
Tegn. av: SA.Drabløs

N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
office@nyborgfan.com - www.nyborgfan.com

**DRS-FiZi-F**  
**B x H**