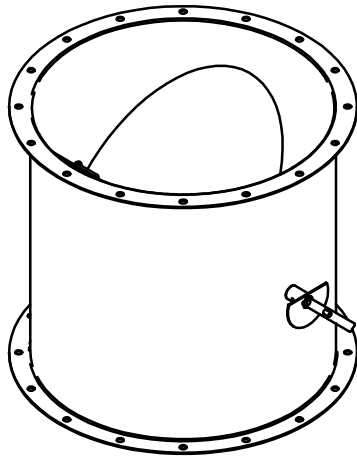


- LSS / SOD – circular single blade shut off damper
- SSVent – rectangular multiblade shut off damper
- S.Ventil R1OVL – circular single blade **weather tight** damper/valve
- RD – circular regulating damper
- BFD – back flow (non return) damper
- BSS – combined fire damper A0, A30 with silencer

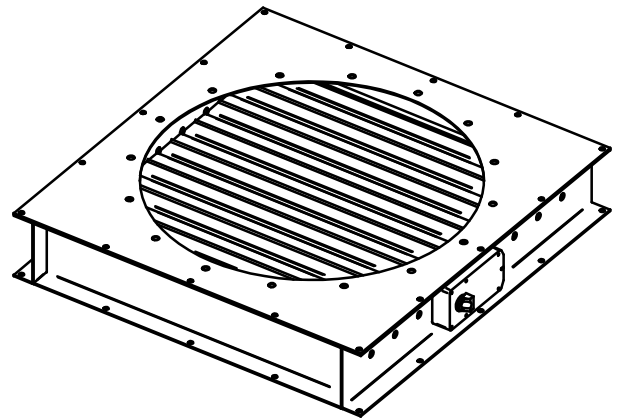


# DAMPERS

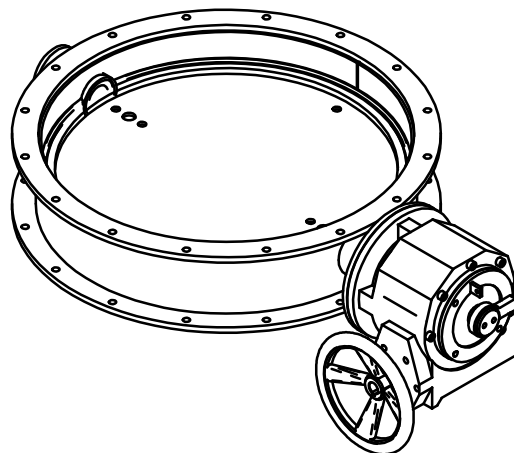
LSS - R



SSVENT

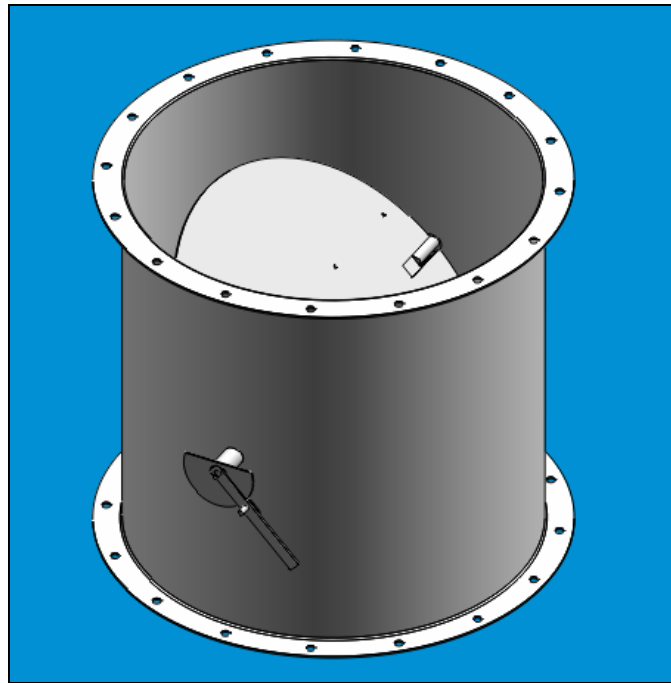


S.VENT - R10VL



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N-6230 SYKKYLVEN, NORWAY  
TEL +47 70 25 40 80 - FAX +47 70 25 29 08  
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### APPLICATION

Used as shut off damper (for non weather tight applications) often mounted directly to fans or hoods. Single blade damper gives low pressure drop, and is suitable for applications with high air speed. Can also be used as regulating damper. Typically used for small to medium fan sizes.

### EXECUTION

Casing/housing made of mild steel, hot dip galvanized. Damper blade and movable parts made of aisi316. Bearings – self lubricating.

### OPTIONAL EXECUTION:

Casing of aisi316L or alum execution. Blade/movable parts always stainless steel.

### SPECIAL DESIGN

- Short casing (damper popping out of one or two side of damper)
- Combined damper with circular silencer.
- With thick walled casing for high vertical loads /open deck mounting.

### ACTUATOR

Manual (standard)

Optional: pneumatic or electric 24-230V (both for safe area or EX zone 1 or 2). Fail safe with limit switches

Electric – up to ø800 size

### OPTIONS:

- With external limit switches and junction box.
- Optional flange standard
- Extended manual arm for remote open/close

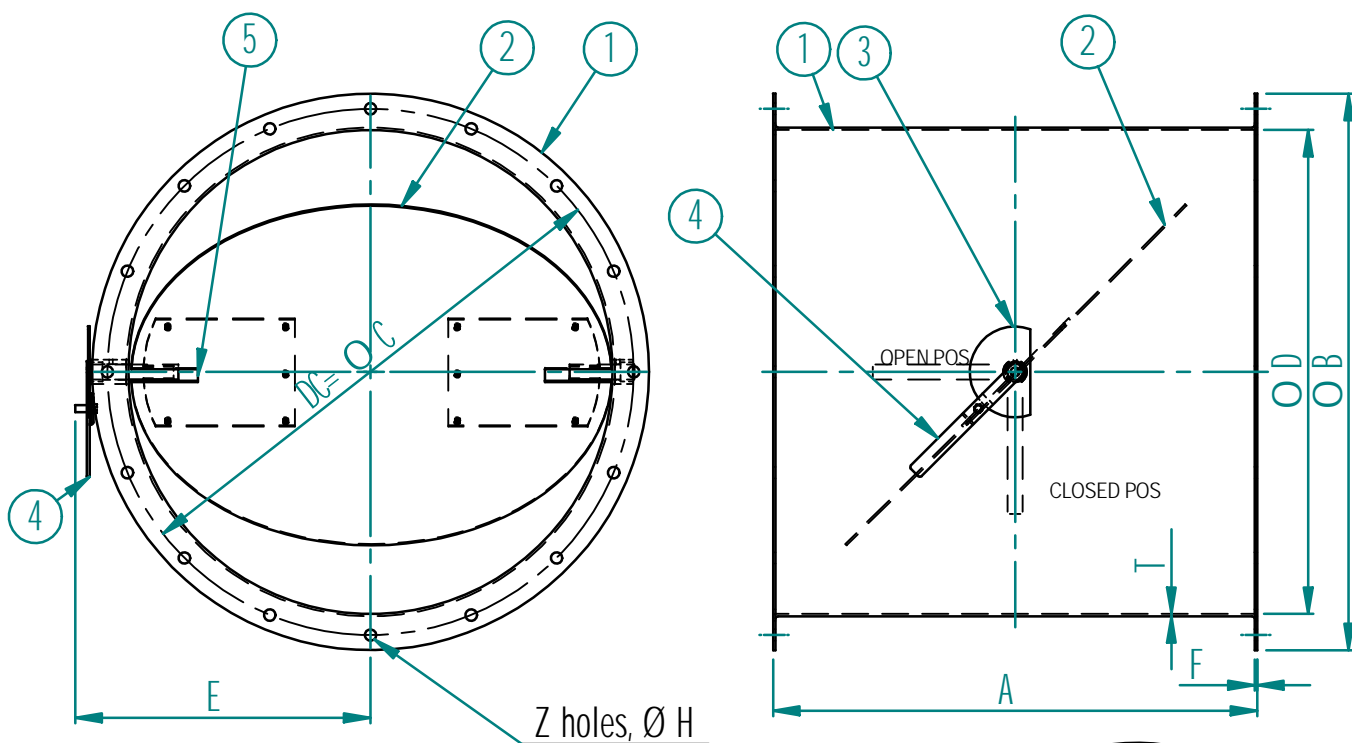
### DAMPER DATA

Max pressure	Up to size ø630: 5000Pa Up to size ø1120: 3000Pa	Flange standard	Nyborg
Blade leakage	Class 2 Acc to EN1751:1998	Max air speed	Up to size ø500: 45m/s Up to size ø1120: 30m/s
Pressure drop coefficient	0,2 for size ø400 0,15 for size ø1000		

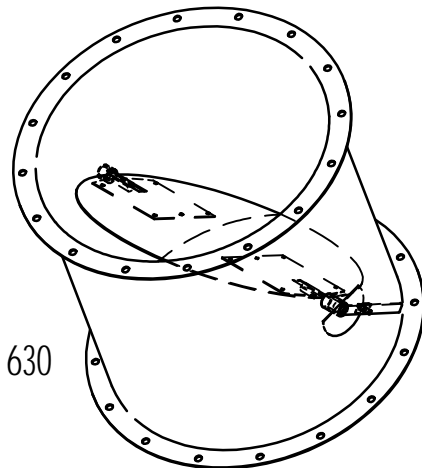


# NYBORG CIRCULAR SHUT-OFF DAMPER

LSS - R



- ① DAMPER HOUSING, Matl. : St.37, Hot Dipped Galvanized
- ② DAMPER PLATE, Matl.: AISI 316L
- ③ OPERATING FIELD, c/w open/closed Indicator
- ④ OPERATING HANDLE, c/w Clamping Screw and Wing Nut
- ⑤ DAMPER SHAFT, Matl. : AISI 316L



To be equipped with actuator (pneumatical or electrical) up to size Ø 630

DIA	A	B	C	Ø D	E	F	T	Z	ØH
200	200	264	242	200	200	3	3	8	12
250	250	334	310	250	225	3	3	8	12
315	315	384	360	315	260	3	3	8	14
355	355	434	405	355	280	3	3	8	14
400	400	484	460	400	300	3	3	12	14
450	450	534	510	450	325	3	3	12	14
500	500	584	560	500	350	3	3	12	14
550	550	656	630	550	375	4	4	16	14
630	630	736	698	630	415	4	4	16	14
710	710	806	775	710	455	4	4	16	14
800	800	906	870	800	500	4	4	16	19
900	900	1028	980	900	550	5	5	16	19
1000	1000	1128	1080	1000	600	5	5	20	19
1120	1120	1228	1200	1120	660	5	5	20	19
1250	1250	1380	1320	1250	725	6	6	24	14

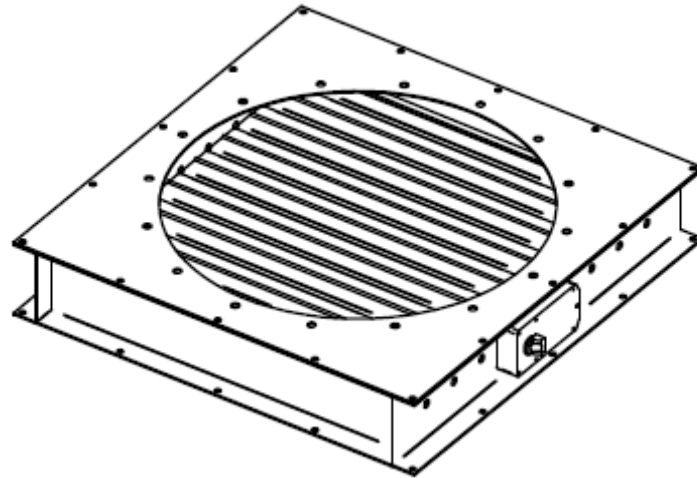
20/11-02

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R.Berge  
4-2224

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

LSS - R



### APPLICATION

The SSVent is a rectangular multiblade shut off damper with circular adapter for mounting directly to axial fan or circular duct. It can also be mounted directly on bulkhead or in rectangular duct. Additional to shut off damper it can also be used as a regulating damper. Suitable for medium to bigger fans

### EXECUTION:

- Frame made in mild steel, hot dip galvanized. Damper blades and movable parts in stainless steel.
- Made in heavy duty design for high vertical load (e.g. fan and/or silencer on top), or thin walled for vertical installation.
- Rectangular size from 0,2x0,2 m up to 2m x 2m. Circular connection from  $\varnothing 250$  to  $\varnothing 1600$ .

### SPECIAL EXECUTION/DESIGN:

- Frame in stainless steel, aisi304/316 or alum.
- Smaller depth (e.g. 125mm) in case of limited space available.
- Made as combined weather louver with damper (max opening angle of damper blades 45 deg)

### ACTUATOR:

Electric 24-230V (non EX and EX for zone 1 or 2), pneumatic (non EX and EX for zone 1 or 2) or manual actuator.

All electric or pneumatic actuators fail safe and with limit switches as standard.

Pneumatic actuators also with solenoid valve and coil 24 or 230V

### OPTIONS:

- With counter opening blades for parallel air flow
- With indicator on outside
- With manual actuator
- With electric actuator with regulation / modulation of opening angle.
- With limitation for opening angle (e.g. max 45 deg)
- With wire mesh (typical if installed in ship side)
- Special flange or hole pattern
- With circular adaption, one or both sides.
- With gasket for low leakage
- With external limit switches and junction box.
- Special coating for actuator for outdoor mounting

### DAMPER DATA

Max pressure	Max 1700Pa up to size 1250x1250 Max 2500PA up to size 900x900
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Blade leakage	Class 2 acc to EN1751:1998
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Flange standard	Nyborg
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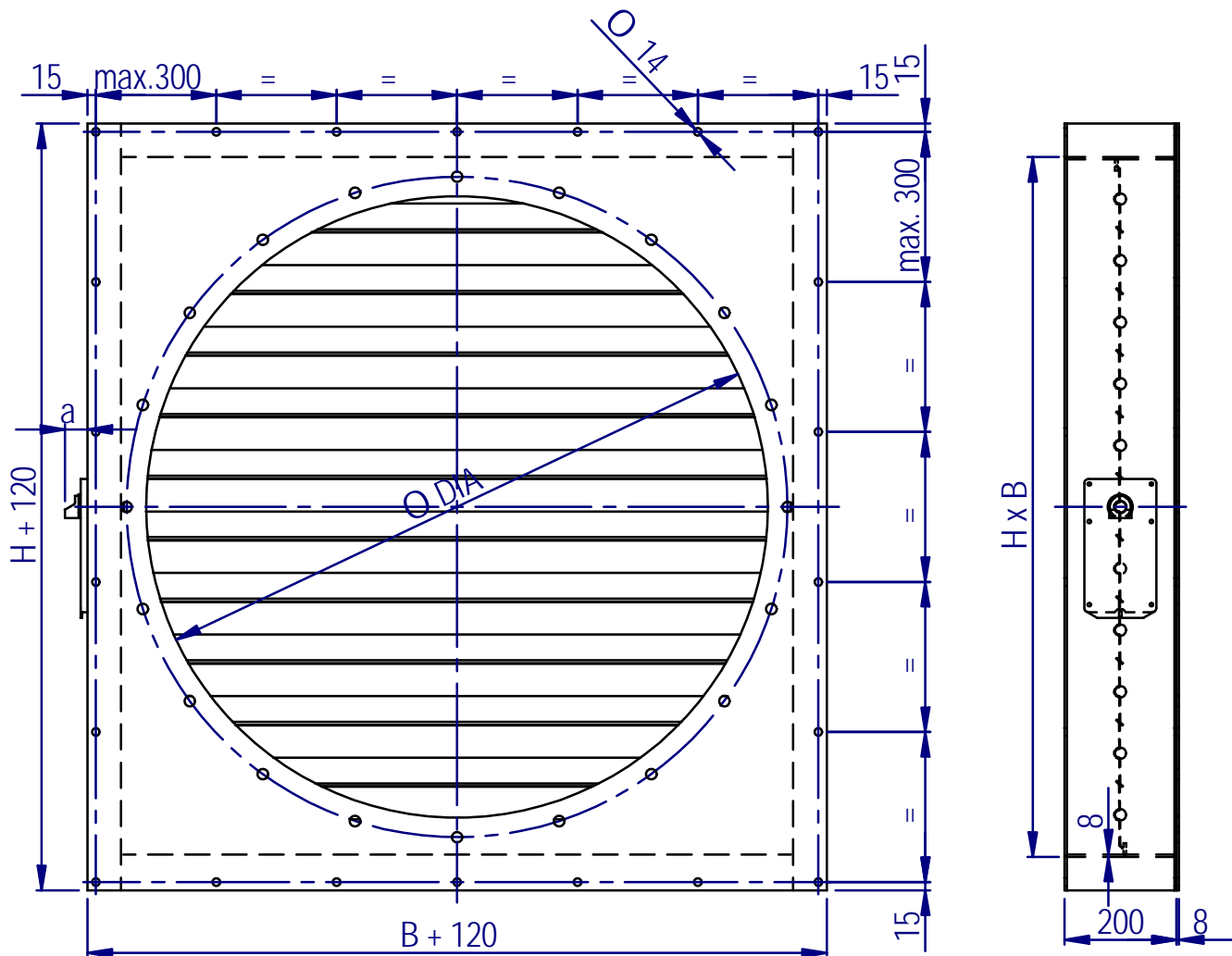
Pressure drop coefficient	Appr 0,35 for size 700x700 Appr 0,25 for size 1250x1250
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Max recommended air speed	30m/s
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# NYBORG RECTANGULAR SHUT-OFF DAMPER

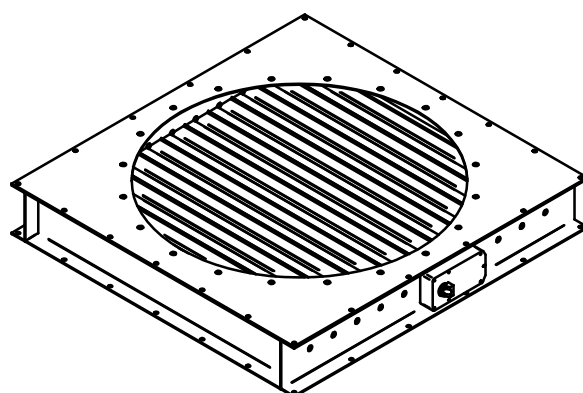
SSVent



NYBORG RECTANGULAR SHUT-OFF DAMPER,  
 DESIGNED FOR CIRCULAR APPLICATION,  
 SSVent BxH, made of hot dipped galv. Steel.  
 Damper blades and shafts in AISI 316L.  
 Adapterplate is made of hot dipped galv. steel.  
 Equipped with electrical or pneumatical actuators.

Actuator	a
N	100
B	80
E	200

DIA	B	H
710		810
800	900	920
900	1000	1030
1000	1100	1140
1120	1250	1250
1250	1360	1360
1400	1500	1580
1600	1750	1800



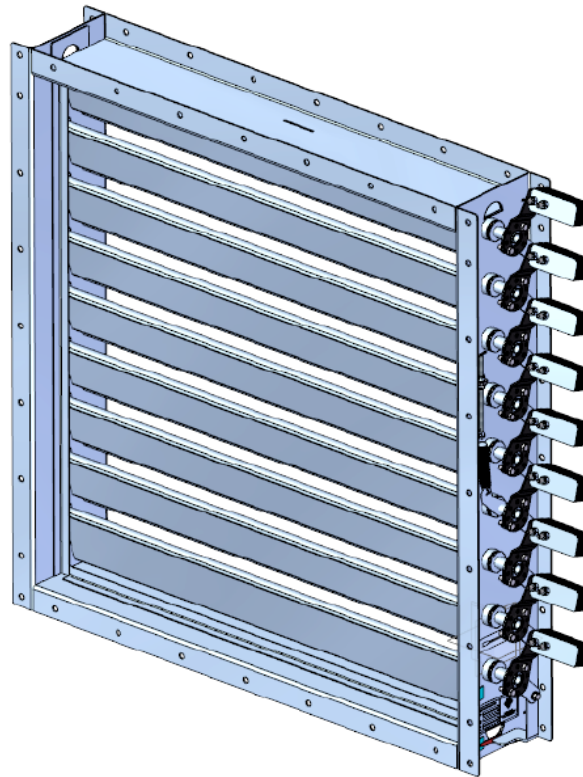
19/11-02

N Y B O R G A S

R.Berge  
4-2225

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

SSVent



## APPLICATION

The back flow (or non return) damper is used in ventilation system where back flow or return air is to be prevented. Typically used for two fans in parallel (one running, one standby) to prevent backflow over idle fan. The damper is fully mechanically, opening on air flow, closing on gravity.

## EXECUTION

Designed for marine application. Standard execution in aisi316L, ...

Made in custom made sizes, from size 100x100 mm to 1600x1600 mm

Made in balanced version for low pressure drop (suitable for low air speeds), or unbalanced version for higher air speed (at lower cost).

## OPTIONAL EXECUTION

- Frame in hot dip galvanized execution, blades in stainless steel (304/316) or alum.
- Frame in alum and blades in alum or stainless steel.

## SPECIAL DESIGN

Can be made with smaller depth (200 and 250 mm) if space is limited.

## INSTALLATIONS

- Vertical (for horizontal air flow)
- Horizontal, air up
- Horizontal, air down (should be used with caution)

## OPTIONS

- Regulation possibility (to allow damper to work as regulating damper as well)
- Low or high temperature operation
- With sealing gaskets for low leakage (norsok demand)
- Adapting plates for circular adaption
- Lenkage arm on right side (seen from outlet)
- With special flange
- With spring for closing
- With circular adapter (for duct of fan connection)
- Special frame thickness (e.g. if installed under fan)



# BACK FLOW (NON RETURN) DAMPERS

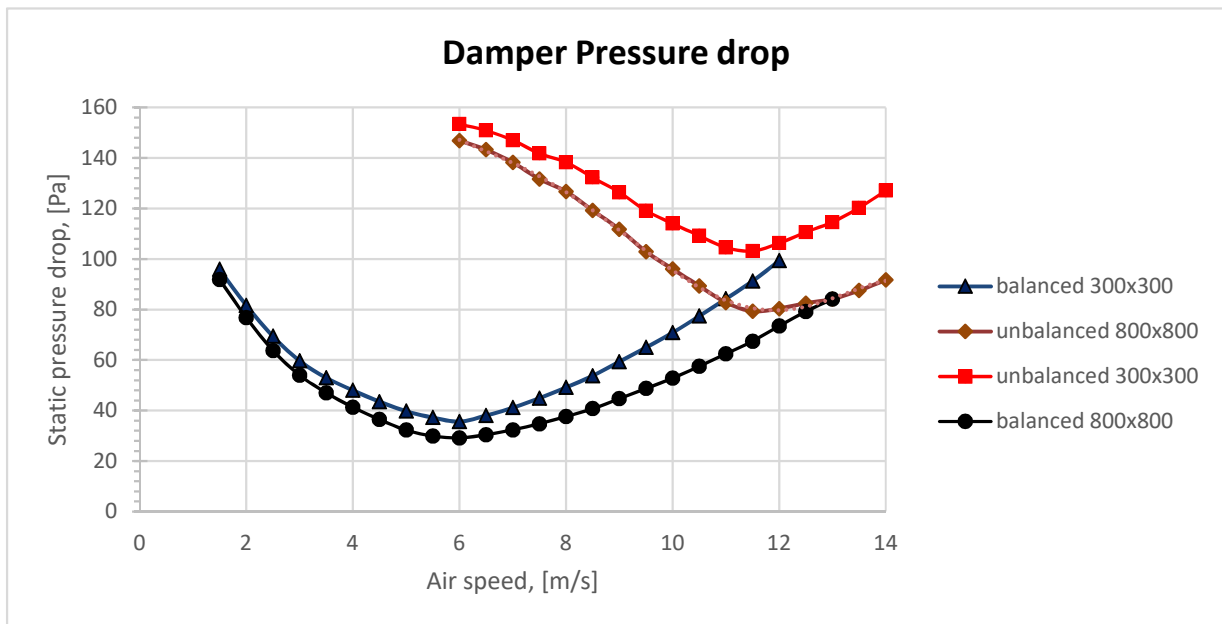
Performance data at 20°C.,  $r = 1,205\text{kg/m}^3$

**BFD**

## Damper Data

Max pressure	4000Pa (higher pressures on request)
Closed damper blade leakage	Class 2 acc to EN1751: 1998
Earthing boss	Standard, on lenkage arm side
Max recommended air speed	15 m/s (higher on request)
Flange	Iso 15138 or Nyborg standard
Position indicator	yes, open/close

Operating temperature	-25 to +60C (lower and/or higher temperature optional)
Material frame	aisi316L (aisi304, alum or hot dip galvanized as option)
Material blades	Aisi316L (alternative aisi304)
Lenkage arm side	Left side seen from outlet
Regulating possibility	Optional
Installation	Vertical, horizontal (air up) or horizontal (air down)



Pressure drops for sizes 300mm x 300mm and 800mm x 800mm, balanced and unbalanced respectively.

Pressure drops increases with smaller damper sizes. Interpolate in for other sizes

Pressure drop for rectangular duct connection to damper, for circular adaption, pressure drop will be higher

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

Haugsethvn 72, N-6230 Sykkylven, Norway

TEL +47 7025 4080 - FAX +47 7025 2908

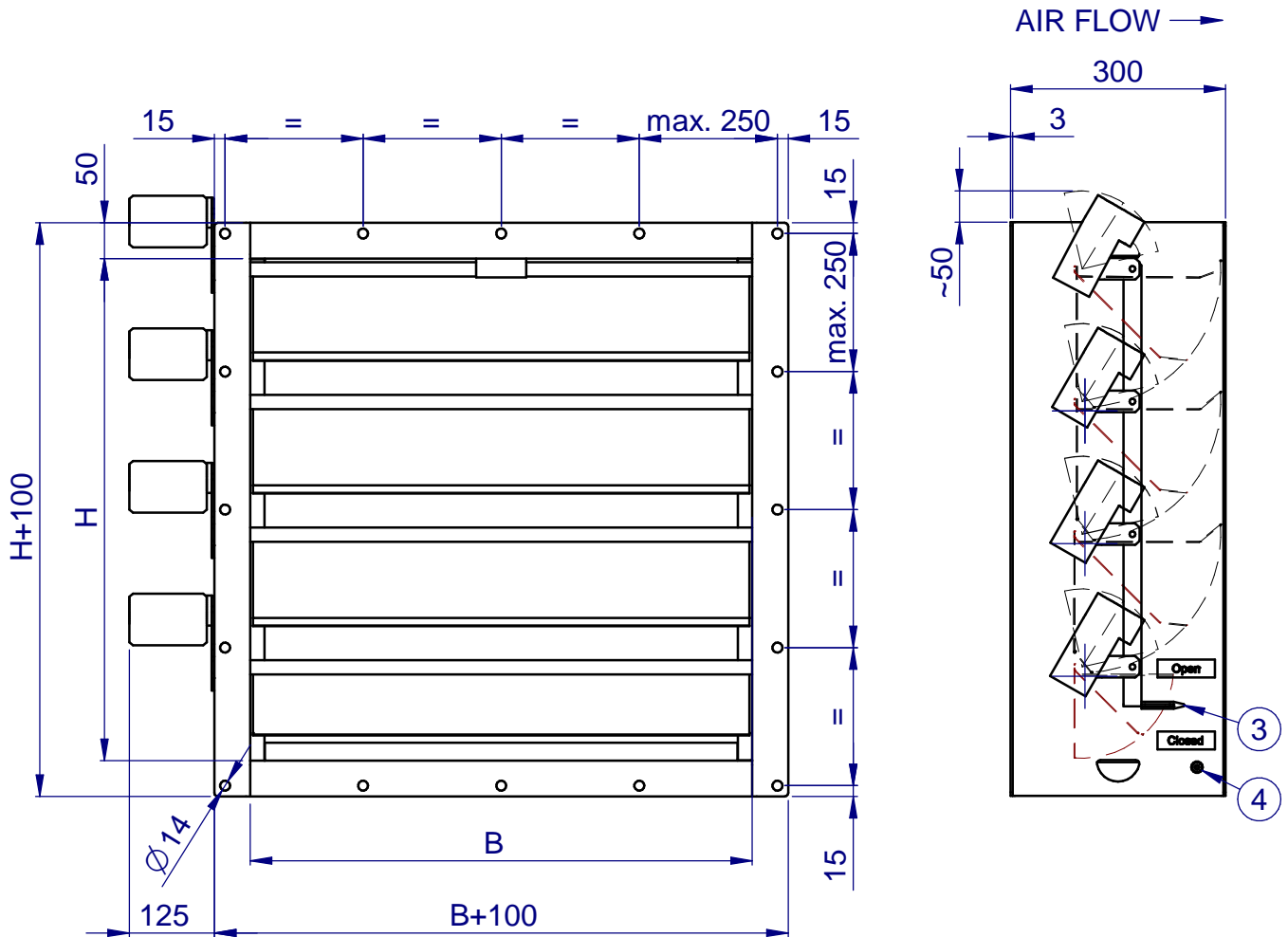
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# Back Flow Damper

BFD - BxH



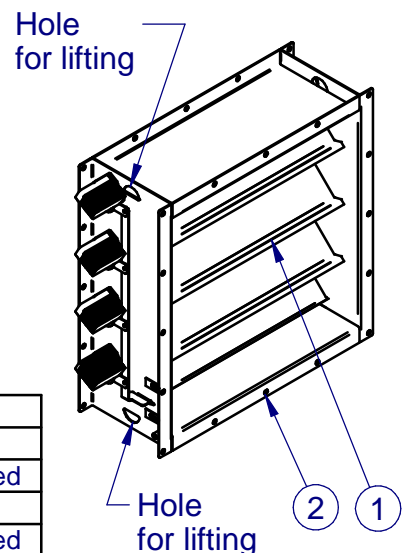
Damper to be made in custom made sizes BxH  
 Frame – optional material: AISI316L  
 Optional flange standard: acc. to ISO 15138  
 Optional – counter weights for balanced damper

Installations:  
 Vertical (horizontal air flow)  
 Horizontal (vertical air flow, up)  
 Horizontal (vertical air flow, down)

Max width of damper, normal design 1500mm

H- Standard Heights
370
555
740
925
1110
1295
1480
1665
1850
2035
2220
2405
2590

Item	Description	Material
1	Blade Assembly	AISI 304/316L
2	Housing	Mild Steel, HD Galvanized
3	Indicator	AISI 304/316L
4	Earthing Stud	Mild Steel, HD Galvanized



Drawing no. 4-50000

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

2016-09-09  
 K. PACYK

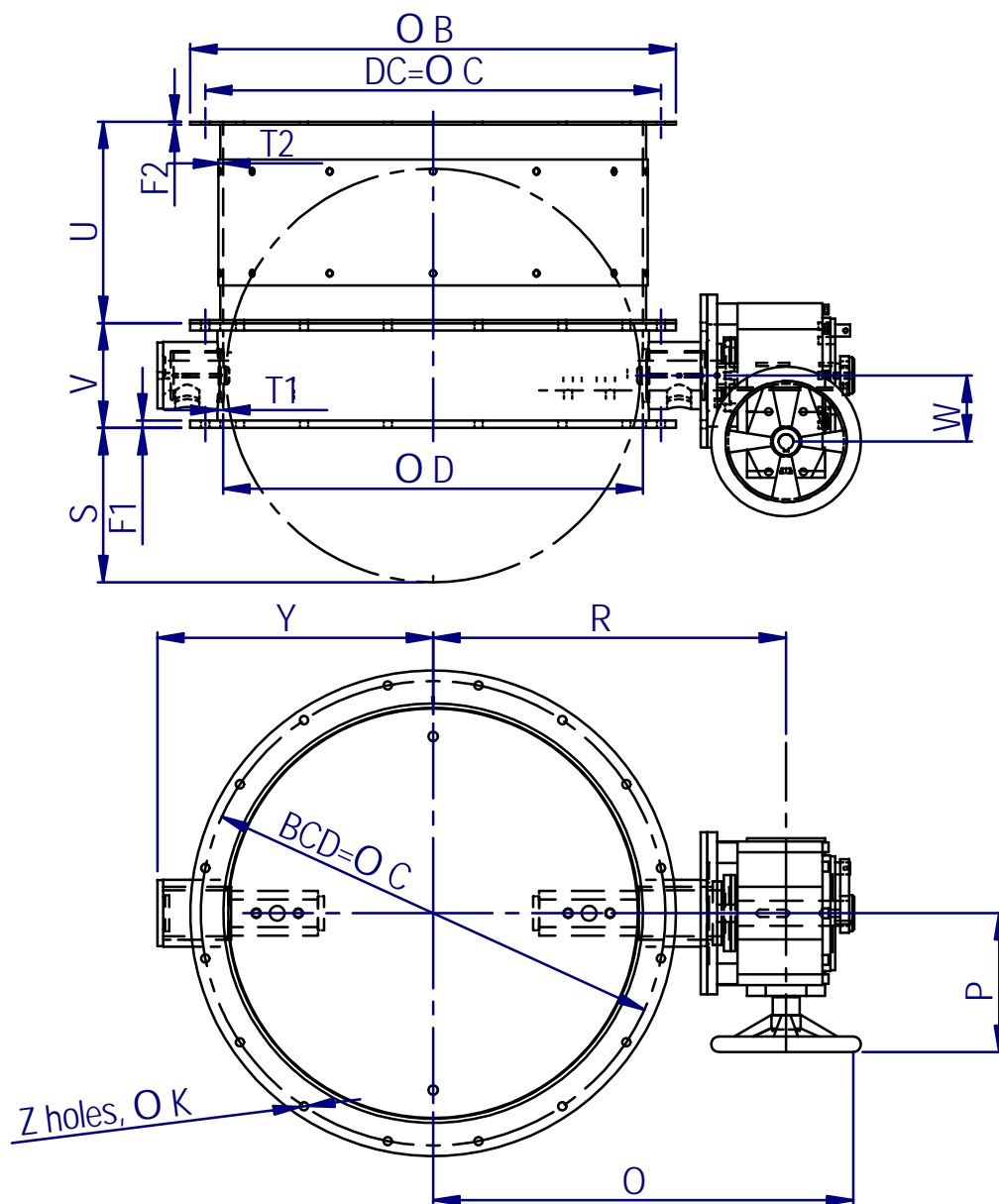
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**BFD**

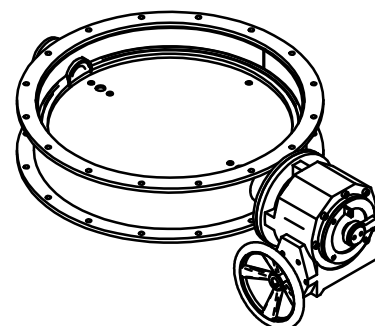


# WEATHER TIGHT BUTTERFLY VALVE with drain gap for overflow water

**S.Ventil  
R1(2)OVL**



Size	ØB	ØC	ØD	O	P	R	Y	S	U	V	W	F1	F2	T1	T2	Z	K
150	225	200	150	200	200		105	40	160	70	70	6	6	8	3	6	12
200	267	242	200	220	200		130	65	160	70	70	7	8	9	3	8	12
260	337	310	260	276	225		168	73	160	112	90	12	8	11	3	8	12
300	387	360	300	300	250		194	86	210	124	110	13	10	12	4	8	14
350	437	405	350	325	300		240	111	210	126	110	13	10	12	4	8	14
400	488	460	400	350	310		270	136	210	126	110	13	10	12	4	12	14
450	550	510	450	380	370		305	153	260	140	132	14	12	13	4	12	14
500	600	560	500	415	370		335	178	260	140	132	14	12	13	4	12	14
550	660	630	550	445	400		360	190	260	162	140	14	12	13	4	16	14
630	740	698	630	490	460		400	228	260	162	140	15	12	14	5	16	14
700	810	775	700	675	320	515	465	258	336	162	122	13	12	10	6	16	14
800	912	870	800	725	320	565	515	306	340	162	122	13	12	12	6	16	19
900	1032	980	900	770	320	610	560	360	425	162	122	13	15	12	6	16	19
1000	1132	1080	1000	855	320	695	650	390	425	162	153	13	15	12	8	20	19
1100	1233	1180	1100	905	320	745	695	445	450	162	153	13	15	12	8	20	19
1120	1252	1200	1120	915	320	755	705	465	450	162	153	13	15	12	8	20	19
1200	1333	1280	1200	955	320	795	750	488	500	162	153	13	15	12	8	24	19
1250	1380	1320	1250	980	320	820	775	500	500	162	153	13	15	12	8	24	19



4-2157

N Y B O R G A S

28/03-03  
R.Berge

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

**S-Ventil  
R1(2)OVL**

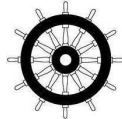


# FIRE DAMPER

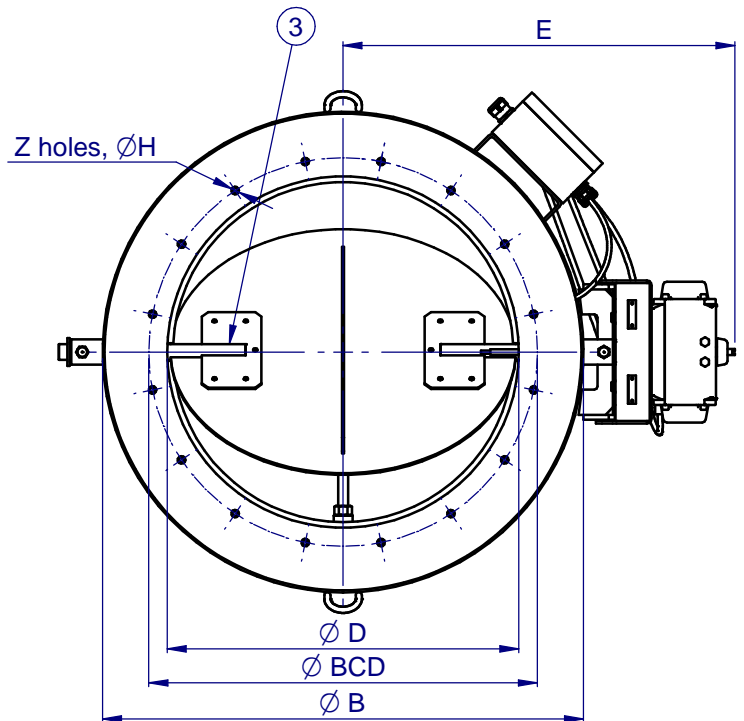
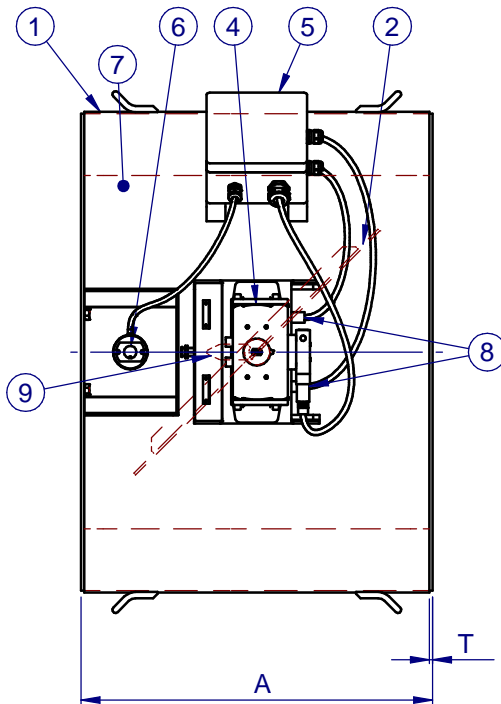
## BSS 250÷1400 R-LD, R-LD-SK

### Class: A-0, A-15, A-30

BSS ... R-LD

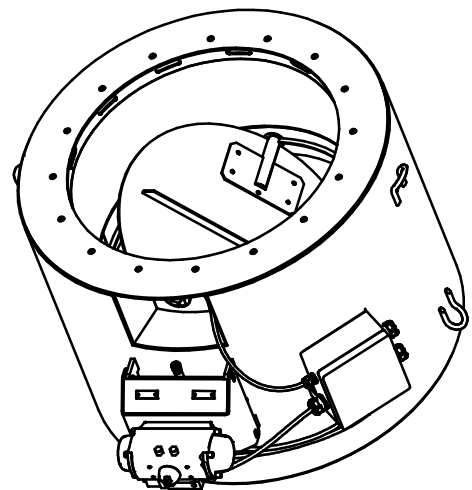


1463/15



- ① DAMPER HOUSING, Matl.: St37, Hot Dipp Galvanized
- ② DAMPER BLADE, Matl.: AISI 316L
- ③ DAMPER SHAFT, Matl.: AISI 316L
- ④ ACTUATOR, Pneumatic, spring-return
- ⑤ TERMINAL BOX, Matl.: GRP
- ⑥ Thermoelectric SENSOR, 72°C
- ⑦ INSULATION, Matl.: Mineral Wool
- ⑧ Open / Close SENSOR
- ⑨ Open / Close INDICATOR

DIA	A	ØB	BCD	E	T	Z	ØH	mass, kg
250	280	456	295	480	4	8	M10	50
315	315	521	360	520				60
400	400	606	459	560	5	12		80
450	450	656	509	590				90
500	500	706	559	610	6	16		100
560	560	766	619	630				110
630	630	838	689	670				150
710	710	918	769	710				175
800	800	1008	859	750	8	24		210
900	900	1108	959	800				250
1000	1000	1212	1059	860	8	32	395	
1120	1120	1332	1209	920			480	
1250	1250	1462	1339	980			570	
1400	1400	1612	1489	1060			M12	680



Order example: **BSS 710 R-LD / A-30**  
 710 – Diameter / Length  
 R-LD – Mounted on a deck  
 R-LD-SK – Mounted on a bulkhead  
 A-30 – Class acc. to FTP Code

Draw. no.: 4-50007

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

Date: 2015-01-21  
 Drawn: A. Świeca

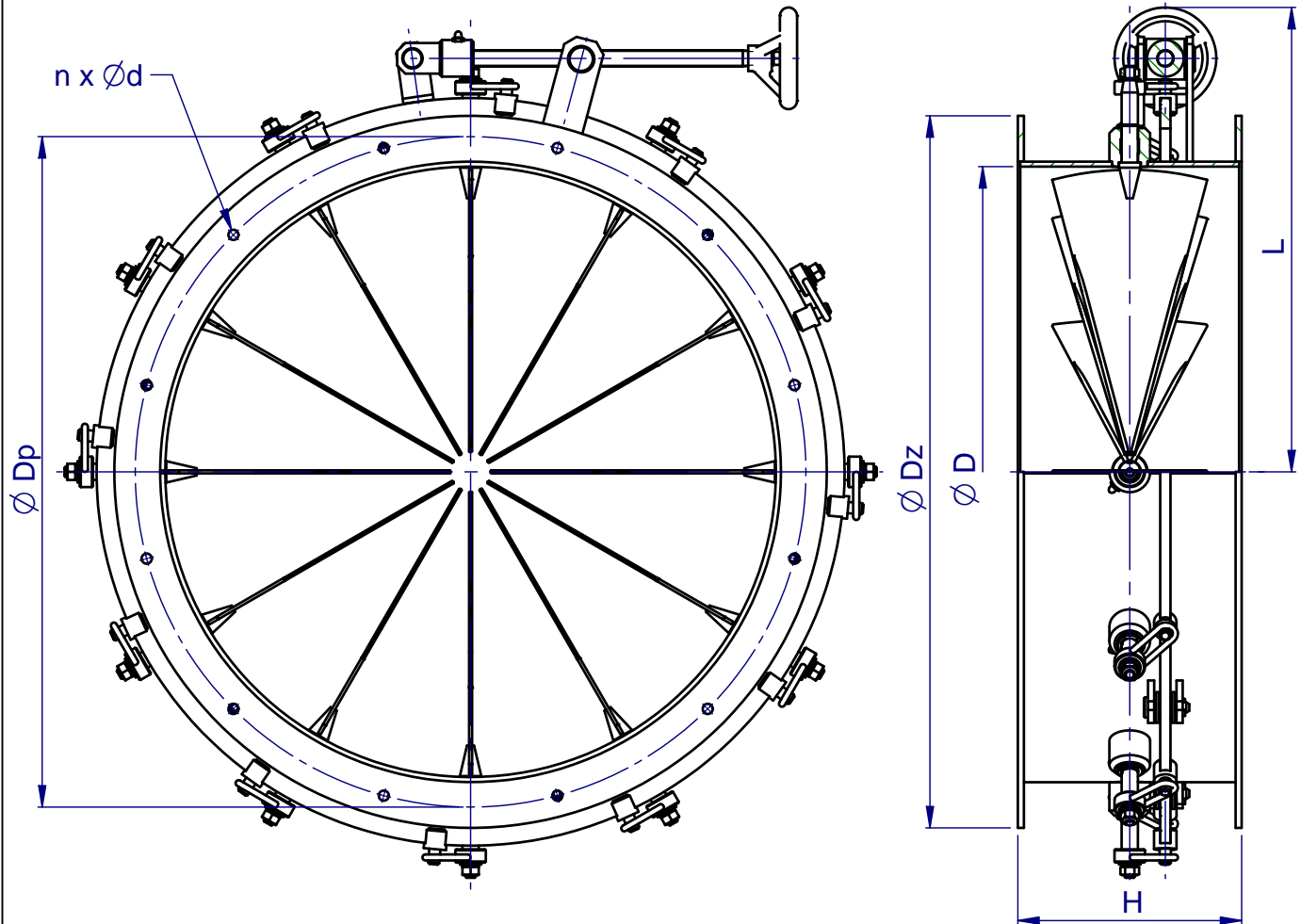
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 office@nyborgfan.com - www.nyborgfan.com

BSS ... R-LD



# REGULATING DAMPER Manually Controlled

RD-R 31,5 ÷ 125



Type	D	Dp	Dz	H	L	d	n	Weight
	[mm]							pc's
RD-315	315	360	395	160	300	10	8	25,1
RD-400	400	459	500	180	365	12	12	30,3
RD-500	500	559	600	200	430	12	12	47,2
RD-560	560	619	660	210	465	12	16	52,3
RD-630	630	689	730	220	500	12	16	58,3
RD-710	710	769	810	207	534	12	16	60,0
RD-800	800	859	900	224	585	12	24	80,0
RD-1000	1000	1059	1100	280	685	12	24	108
RD-1250	1250	1339	1410	330		14	32	370

Regulating dampers are normally installed at fan inlet for regulating of air flow. The damper will give symmetrical inflow to the fan. Application for Vertical or Horizontal installation.

### EXECUTION:

- Stainless steel AISI 304 or AISI 316L, or optional painted carbon steel (not recommended for marine application)
- Flange: hole pattern acc. to ISO 15138
- Standard execution (45 °C) or Heat resistant (up to 350 °C)
- Option: heavy flange (in case of heavy vertical load)

When ordering, please state the following data:  
impeller rotation direction: Right (RD) or Left (LG)

Draw. no.: 4-50012

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

Date: 2017-02-06  
Drawn: R. Hensler

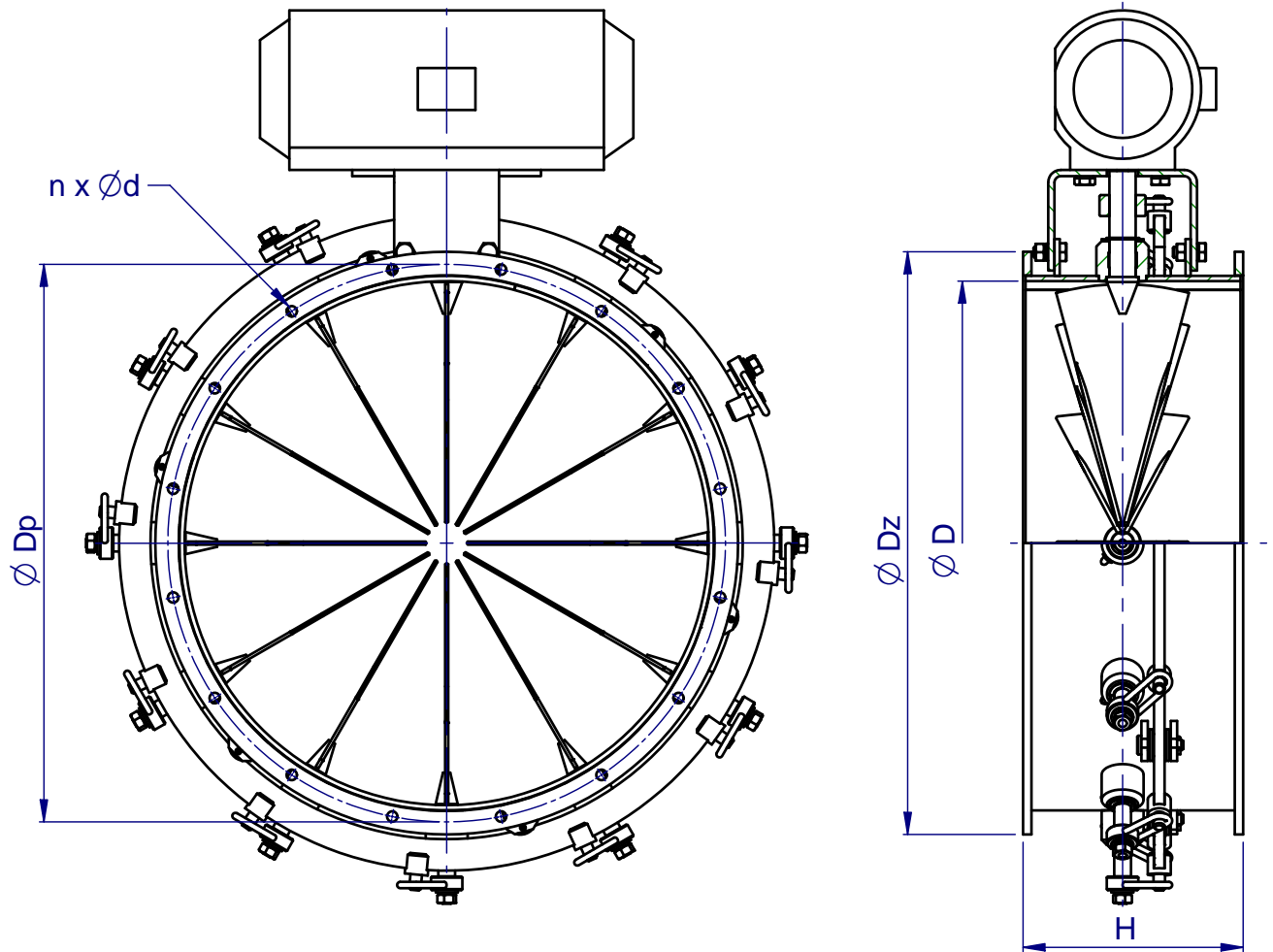
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RD-R 31,5 ÷ 125



# REGULATING DAMPER Servomotor Control

RD-R 31,5 ÷ 125



Type	D	Dp	Dz	H	d	n	Weight
							[mm]
RD-315	315	360	395	160	10	8	-
RD-400	400	459	500	180	12	12	-
RD-500	500	559	600	200	12	12	-
RD-560	560	619	660	210	12	16	-
RD-630	630	689	730	220	12	16	-
RD-710	710	769	810	207	12	16	-
RD-800	800	859	900	224	12	24	-
RD-1000	1000	1059	1100	280	12	24	-
RD-1250	1250	1339	1410	330	14	32	-

Regulating dampers are normally installed at fan inlet for regulating of air flow. The damper will give symmetrical inflow to the fan. Application for Vertical or Horizontal installation.

### EXECUTION:

- Stainless steel AISI 304 or AISI 316L, or optional painted carbon steel (not recommended for marine application)
- Flange: hole pattern acc. to ISO 15138
- Standard execution (45 °C) or Heat resistant (up to 350 °C)
- Option: heavy flange (in case of heavy vertical load)

When ordering, please state the following data:  
impeller rotation direction: Right (RD) or Left (LG)

Draw. no.: 4-50013

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

Date: 2017-02-06  
Drawn: R. Hensler

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

RD-R 31,5 ÷ 125