



CENTRAL BAGHOUSE DUST COLLECTORS ODP SERIES

ATEX COMPLIANT

MODULAR ODP DUST COLLECTORS

➤ Wide range of applications

- wood processing industry
- furniture production
- paper and cardboard production
- recycling
- milling industry
- plastics

➤ Modular structure, solid and reinforced construction

- single module dimensions 1360x1360 mm - modules can be connected with one another. Max height of ODP dust collector is 11 000 m
- housing made of hot-dip galvanized steel sheets of 2 and 3 mm thick
- for installations working in both overpressure (max 2000 Pa) and negative pressure (max 5000)

➤ Versatility, well-thought solutions and easy operation


- very low energy consumption
- efficient and failure-free system for filter bags regeneration - cleaning during operation of the dust collector
- a wide selection of filter bags types and easy mounting with the use of snap rings
- various ways of emptying the dust collectors and waste transportation
- easy access to dust collector chambers thanks to the platforms and inspection doors


➤ ATEX compliance

- suitable for St1 and St2 dusts
- equipped with ATEX protective systems such as vent panels, isolation flap valves and air lock rotary valves for explosion protection
- connected devices such as extraction fans, conveyors etc. suitable to work in ATEX explosion risk zones and with adequate category

Examples of ODP modules configuration

➤ ODP-W - SINGLE modules (narrow)

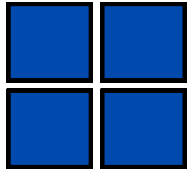
 1 single module (1360 x 1360 mm)

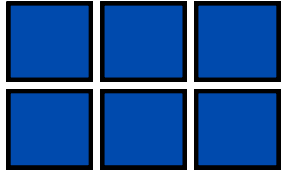
 2 single modules

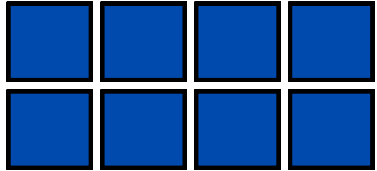
 3 single modules

 4 single modules etc.

➤ ODP-S - DOUBLE modules (wide)

 2 double modules (2720x2720 mm)

 3 double modules

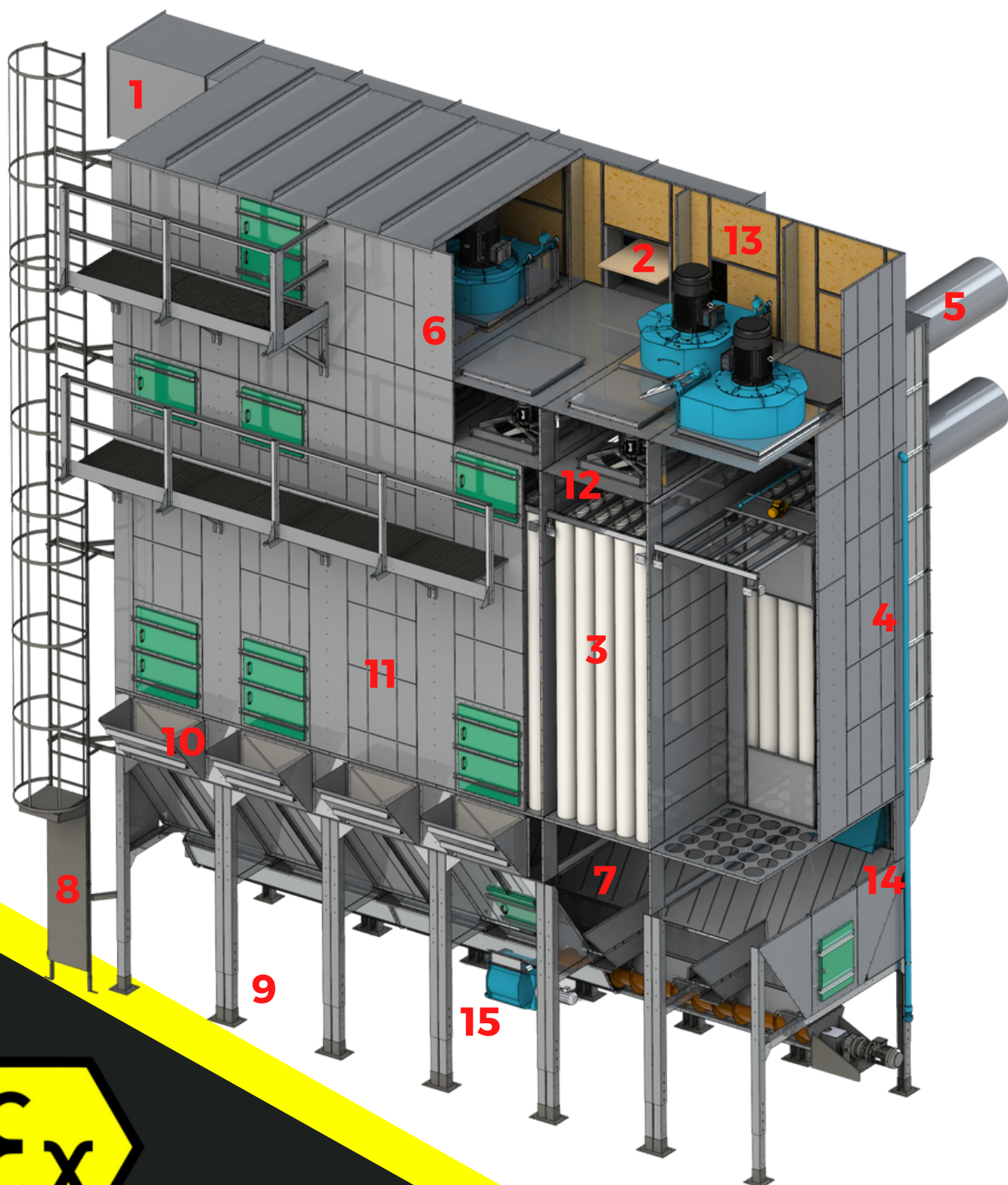
 4 double modules etc.



MODULAR ODP DUST COLLECTORS

1. clean air return duct
2. fire shutter
3. filter bags chamber
4. dry riser
5. dirty air inlets
6. extraction fans chamber
7. emptying system chamber with horizontal expansion chamber

8. ladder with platforms
9. telescopic legs
10. vent panels
11. inlet module
12. filter bags cleaning system
13. extraction fans chamber insulation
14. explosion isolation flap on the inlet pipe
15. emptying system



STANDARD FILTER BAGS AND FILTRATION SURFACE (per one module type SINGLE ODP-W or DOUBLE ODP-S)

	Filter bag Ø 180			Filter bag Ø 180+			Filter bag Ø 220			Filter bag Ø 220+		
Bag type	Bag length [mm]	Filtration surface (m2) per 1 module of dust collector		Bag length [mm]	Filtration surface (m2) per 1 module of dust collector		Bag length [mm]	Filtration surface (m2) per 1 module of dust collector		Filter bag length [mm]	Filtration surface (m2) per 1 module of dust collector	
		Single 'W'	Double 'S'		Single 'W'	Double 'S'		Single 'W'	Double 'S'		Single 'W'	Double 'S'
S	1972	41	81	2262	47	93	1972	35	69	2262	40	79
M	2335	48	96	2625	54	107	2335	41	81	2625	46	91
L	3060	63	125	3350	69	137	3060	53	106	3350	58	116
X	3423	70	140	3713	76	152	3423	60	119	3713	65	129

RECOMMENDED LOAD OF FILTER FABRICS IN ODP DUST COLLECTORS

Type of dust	Additional description	Load of the filter fabrics [m3/m2xh]
I. Chips and sawdust of soft wood (e.g. pine)	Thick sawdust and chips only	150-160
	Mixed type of sawdust and chips	140-150
	Waste consisting of sawdust and fine dust (max 10%)	130-140
II. Mixed size chips of hard wood origin or chipboard	Waste with max 15% of dust	120-130
	Waste with max 20% of dust	110-120
	Waste with max 15% of fine dust	100-110
III. Grinding and polishing dust	Only thick grained dust	115-125
	Mixture with fine dust	100-110
	Fine dust only	90-100
	MDF dust	95-105
IV. Coating dust	Dry coating dust	90-110
	UV coating dust	80-100

Group I - d220 mm filter bags only



Groups II, III and IV - both d180 and d220 filter bags can be used



PRODUCT CODES - ODP dust collectors PULL version with integrated extraction fans

a)		b)	c)	d)	e)	f)		g)		h)
ODP	-	3	W	S	XL	R	-	EW	-	K
			S	M						S
				L						TSO
				X						Ł

- a) ODP - type of a dust collector (filter bags attacked with dust from their inside)
- b) 3 - number of modules
- c) W or S - module type (W - single 1360 mm; S - double 2720 mm)
- d) S, M, L, X - filter bag size
- e) XL - extraction fan chamber (additional height)
- f) R - cleaning system- regenerative fans:
 - SINGLE module - 1,1 kW/module
 - DOUBLE module - 1,1 kW or 2,2 kW, 2 pcs/module
- g) EW - cleaning system - shaking/vibration (1 pc/module)
- h) K , S, TSO or Ł - emptying method
 - K - into bins
 - S - through a rotary valve
 - TSO - with a screw conveyor
 - Ł - with a chain conveyor

PRODUCT CODES - ODP dust collectors

PULL or PUSH version with extraction fans located next to a dust collector

a)		b)	c)	d)		e)		f)	g)
ODP	-	3	W	S	-	EW	-	EW	K
			S	M		WR			S
				L		EW+WR			TSO
				X		XWR			Ł

a) ODP - type of a dust collector (filter bags attacked with dust from their inside)

b) 3 - number of modules

c) W or S - module type (W - narrow/single 1360 mm; S - wide/double 2720 mm)

d) S, M, L, X - filter bag size

e) EW, WR, EW+WR or XWR - cleaning method

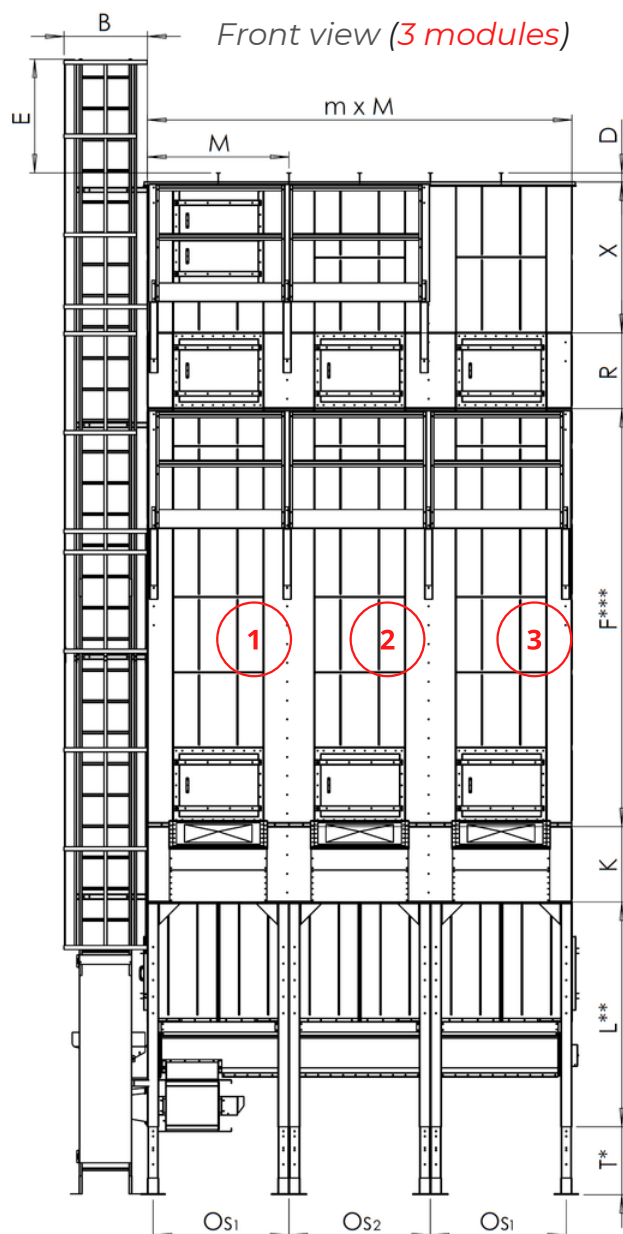
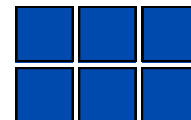
- EW - shaking mechanism
- WR - regenerative fans located in dust collector wall
- EW+WR - mixed methods: shaking mechanism with regenerative fans
- XWR - regenerative fans located in the roof

f) K, S, TSO or Ł - emptying method

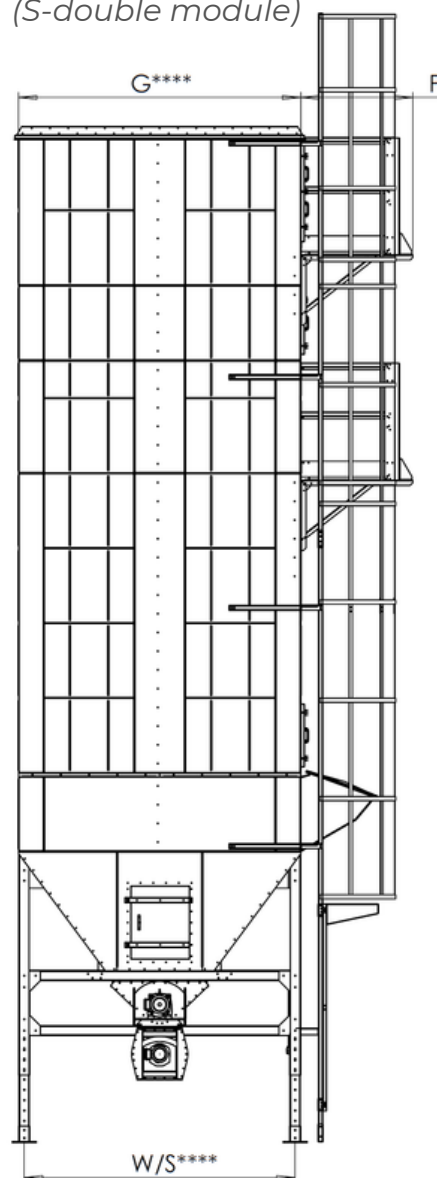
- K - into bins
- S - through a rotary valve
- TSO - with a screw conveyor
- Ł - with a chain conveyor

BASIC DIMENSIONS

Example: ODP-3SLXLR-EW-TSO for St1 dusts



Side view
(S-double module)



TYPE	B	D	E	F	G	K	L	M	Os1	Os2	P	R	W/S	T	X
W single	804	86	1094	***	1360	724,5	1663	1360	1306,5	1360	1079	727,5	1249	*	1452
S double	804	86	1094	***	2720	724,5	2162	1360	1306,5	1360	1079	727,5	2609	*	1452

All dimensions are given in mm

*T - telescopic legs min: 162 mm; max: 652 mm

**L - narrow ODP (W-single module); L - wide ODP (S-double module)

***W/S - narrow ODP (W-single module); S - wide ODP (S-double module)

***F - depends on filter bags length/size

S = 2570 mm

M = 2933 mm

L = 3657 mm

X = 4019 mm

EXPLOSION PROTECTION OF ODP DUST COLLECTOR

The ODP central dust collectors are protected against explosion both by design solutions that prevent explosion and by the use of ATEX protection systems (explosion venting). Preventive solutions ensure that dust collector is not the source of ignition for a potentially explosive mixture of dust and air, and the configuration of connected devices prevents the spread of explosion through these devices.



Standard explosion prevention solutions in ODP dust collectors for work with potentially explosive dusts

structural reinforcements of a dust collector and **vent panels (ATEX certified protection system)** - their task is to relieve the explosion energy and this way lower it to a safe level which the structure of the dust collector can resist. The quantity and size of vent panels can be adapted - the calculation of the required venting surface is calculated **in accordance with the EN 14491:2012** standard.



Standard explosion venting in ODP dust collector

The ODP dust collectors with standard explosion venting - including one panel per each module (up to 15 modules) with exception of particular configurations (information available upon request) - **are designed to work with St1 dusts**, with the maximum values, that is:

$P_{max} = 10 \text{ bar}$

$K_{st} \leq 200 \text{ bar} \cdot \text{m/s}$



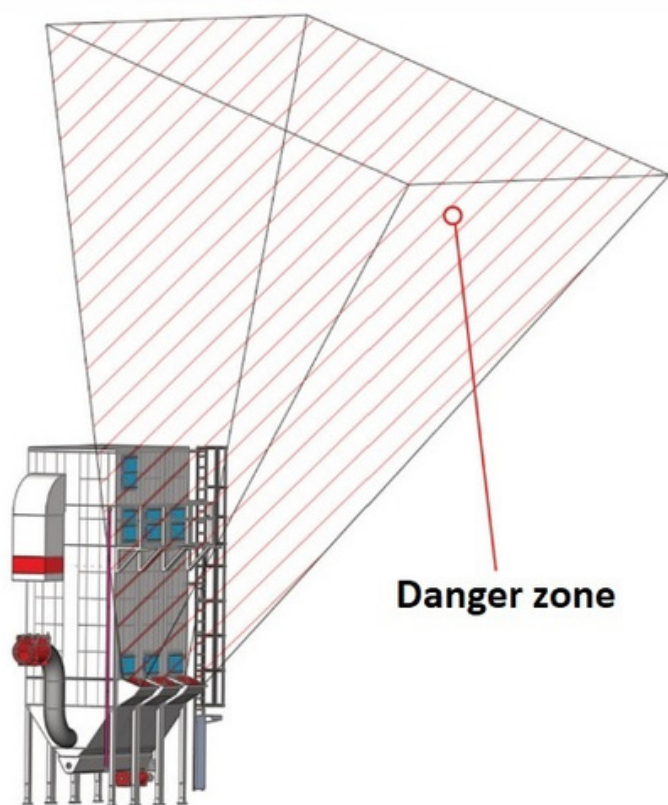
Additional explosion protection

Additional protection against explosion of dedusting installation includes:

- **ATEX certified isolation flap valves**
- **ATEX certified rotary valves (air locks)**



EXPLOSION (FLAME AND PRESSURE) EFFECT IN EXPLOSION VENTING



Standard location height of the vent panels on ODP dust collectors:

- ODP-*W (single) - ca. 2,5 – 2,9 m
- ODP-*S (double) - ca. 2,9 – 3,3 m

Vented explosion releases flame and pressure into the environment – into the danger zone. Because of this, certain safety measures must be employed to protect people as well as the neighbouring installations or buildings.

The area into which the explosion is released should be with restricted access for people and at appropriate distance from other buildings and installations in order to avoid additional fires or explosions.

The tables below present the estimated flame length (meters) of vented explosion.

The calculations are based on the EN 14491:2012 standard, which specifies the basic requirements of design for the selection of a dust explosion venting protective system.

The values present configurations of ODP dust collector under the following conditions:

- the L/D ration of the vessel:
 $L/D < 2$
- housing volume:
 $0,1 \text{ m}^3 \leq V \leq 10.000 \text{ m}^3$
- static activation overpressure:
 $0,1 \text{ bar} < P_{\text{stat}} \leq 0,2 \text{ bar}$
- maximum reduced explosion pressure:
 $0,1 \text{ bar} < P_{\text{red,max}} \leq 2 \text{ bar}$
- max explosion overpressure:
 $5 \text{ bar} \leq P_{\text{max}} \leq 10 \text{ bar}$
- Kst values are between:
 $10 \text{ bar} \cdot \text{m} \cdot \text{s}^{-1} \leq K_{\text{st}} \leq 300 \text{ bar} \cdot \text{m} \cdot \text{s}^{-1}$

EXPLOSION EFFECTS (FLAME AND PRESSURE) OUTSIDE ENCLOSURE SINGLE ODP, FILTER BAGS D180 & D220 MM

ODP-W (single) - filter bags d 180



Estimated flame length: ODP-W (SINGLE) with filter bags d180								
Filter bag length d 180	S	M	L	X	S+	M+	L+	X+
Venting direction								
LF - horizontal →	16	17	18	18	17	17	18	18
LF - vertical ↑	13	14	14	14	14	14	14	15
WF - width	5	5	5	5	5	5	5	5

Filter bag length d 180	Number of modules – ODP-S (SINGLE) - L/D ratio														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok
L	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
S+	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok
M+	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L+	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X+	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok

ODP-W (single) - filter bags d 220

Estimated flame length: ODP-W (SINGLE) with filter bags d 220								
Filter bag length d 220	S	M	L	X	S+	M+	L+	X+
Venting direction								
LF - horizontal →	17	17	18	18	17	18	18	19
LF - vertical ↑	14	14	15	15	14	14	15	15
WF - width	5	5	5	6	5	5	5	6

Filter bag length d 220	Number of modules – ODP-S (SINGLE) - L/D ratio														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
S+	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M+	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L+	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X+	nw L/D	nw L/D	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

L/D - the ratio of length to diameter/characteristic size of a dust collector

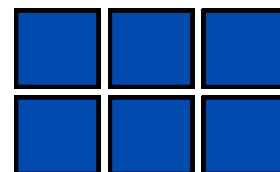
Note 1:

nw L/D - means that the lengths provided in the table on estimated flame length above does not apply. See note 2.

Note 2:

In practise even for large volumes it is not expected that the flame length exceeds 60 m, and this should be treated as the top limit for all the estimations of flame length.

EXPLOSION EFFECTS (FLAME AND PRESSURE) OUTSIDE ENCLOSURE DOUBLE ODP, FILTER BAGS D180 & D220 MM



ODP-S (double) - filter bags d 180

Estimated flame length: ODP-S (DOUBLE) with filter bags d180								
Filter bag length d 180	S	M	L	X	S+	M+	L+	X+
Venting direction								
LF - horizontal →	22	22	23	23	22	22	23	24
LF - vertical ↑	17	18	19	19	18	18	19	19
WF - width	6	7	7	7	7	7	7	7

Filter bag length d 180	Number of modules – ODP-S (DOUBLE) - L/D ratio														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
S+	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M+	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L+	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X+	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

ODP-S (double) - filter bags d 220

Estimated flame length: ODP-S (DOUBLE) with filter bags d 220								
Filter bag length d 220	S	M	L	X	S+	M+	L+	X+
Venting direction								
LF - horizontal →	22	22	23	24	22	23	24	24
LF - vertical ↑	17	18	19	19	18	18	19	19
WF - width	6	7	7	7	7	7	7	7

Filter bag length d 220	Number of modules – ODP-S (DOUBLE) - L/D ratio														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
S+	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
M+	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
L+	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
X+	nw L/D	nw L/D	nw L/D	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

L/D - the ratio of length to diameter/characteristic size of a dust collector

Note 1:

nw L/D - means that the lengths provided in the table on estimated flame length above does not apply. See note 2.

Note 2:

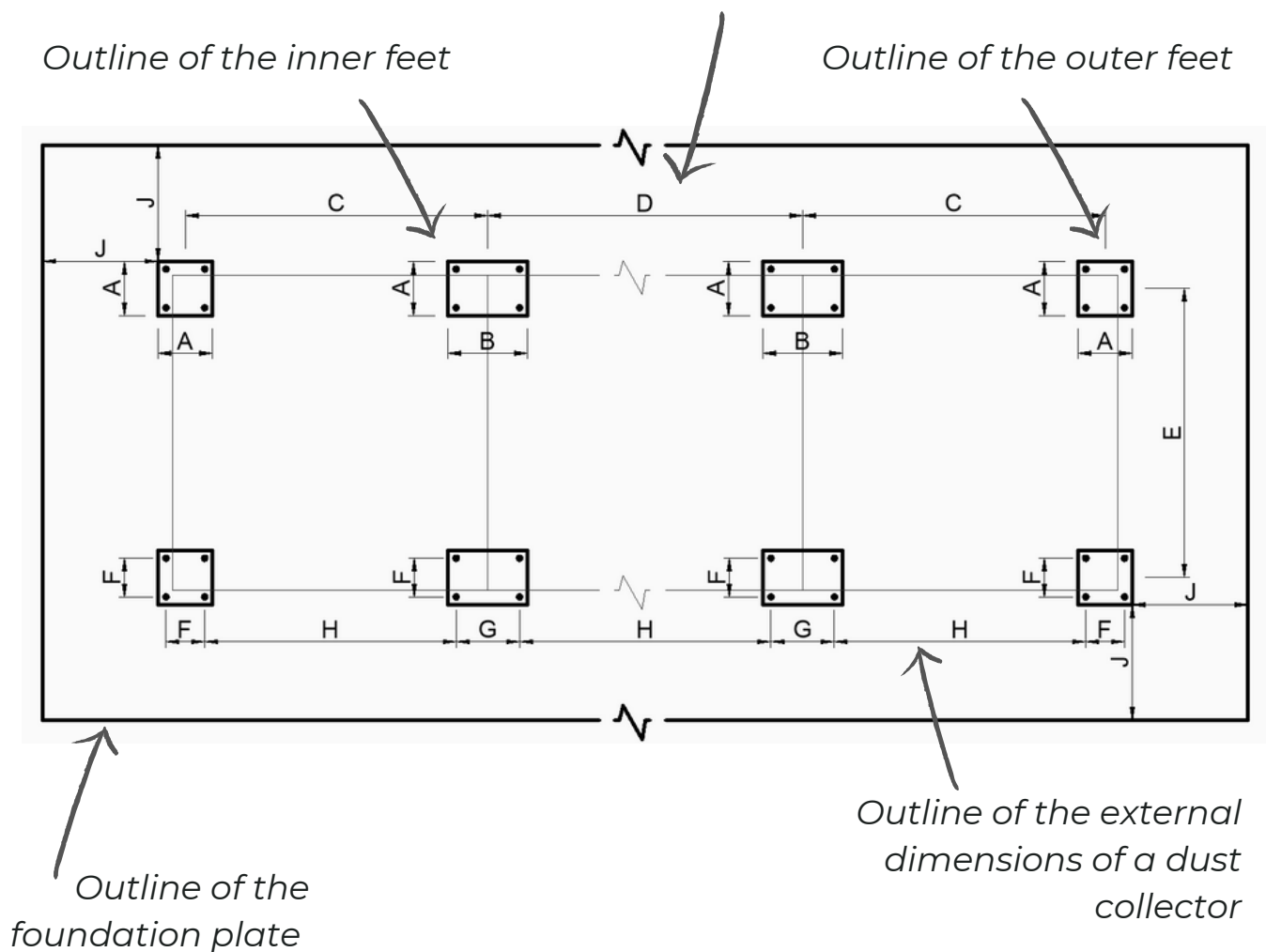
In practise even for large volumes it is not expected that the flame length exceeds 60 m, and this should be treated as the top limit for all the estimations of flame length.

DIMENSIONS OF THE DUST COLLECTOR MOUNTING FEET AND MINIMAL FOUNDATION PLATE

SINGLE ODP dust collector



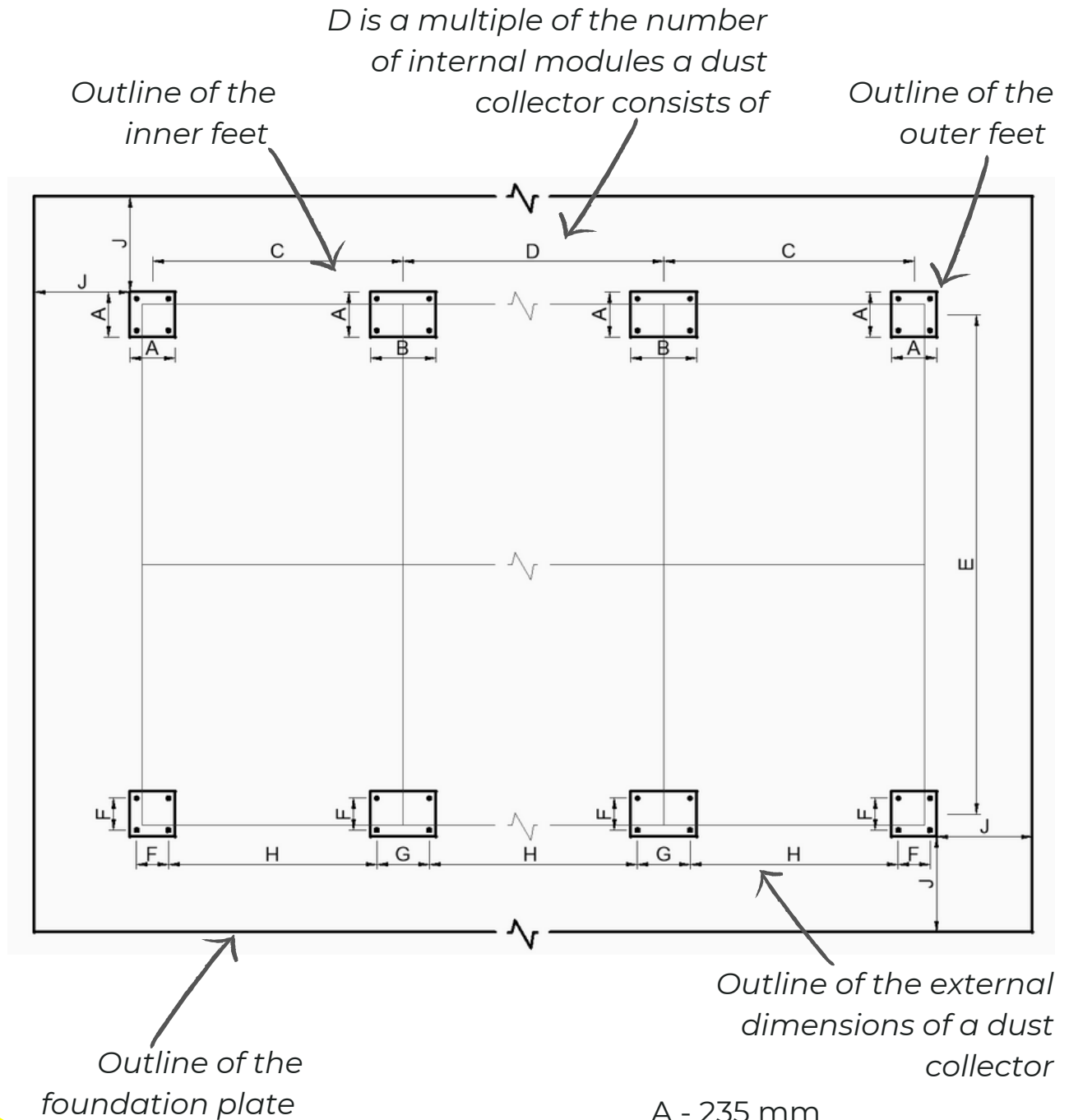
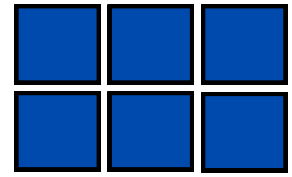
*D is a multiple of the number
of internal modules a dust
collector consists of*



- A - 235 mm
- B - 342 mm
- C - 1306,5 mm
- D - 1360 mm
- E - 1249 mm
- F - 167 mm
- G - 274 mm
- H - 1086 mm
- J - min 500 mm

MOUNTING FEET AND MINIMAL FOUNDATION PLATE

DOUBLE ODP dust collector

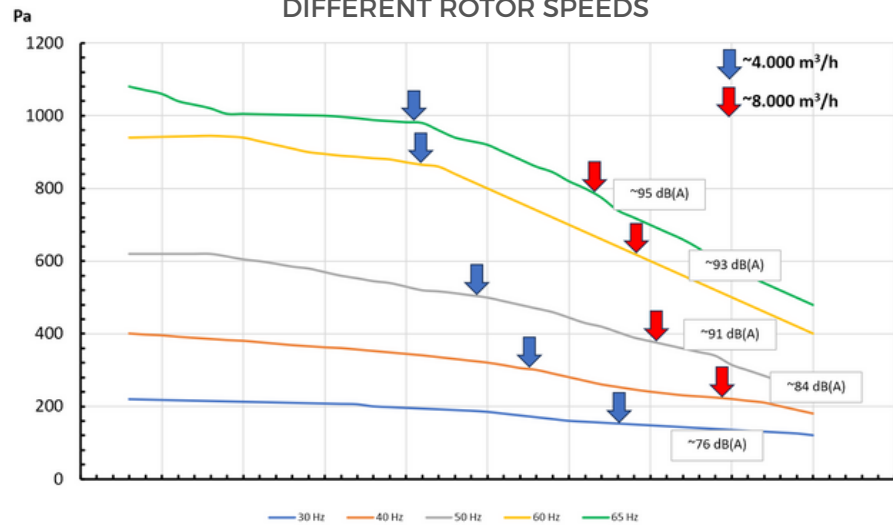


- A - 235 mm
- B - 342 mm
- C - 1306,5 mm
- D - 1360 mm
- E - 2609 mm
- F - 167 mm
- G - 274 mm
- H - 1086 mm
- J - minimum 500 mm

REGENERATIVE FANS - ENERGY SAVING FILTER BAGS CLEANING SYSTEM

- each module is equipped with independent **reverse cleaning system** (1 or 2 regenerative fans)
- cleaning of **one module at a time**
- **motors** of the regenerative fans are made in **explosion proof category**
- **motors** of the regenerative fans are **equipped with direction blockade** - rotation in one direction only - stopped during offline mode
- regenerative fans are **controlled automatically** and their initiation can be regulated depending on needs
- regenerative fans cleaning system is **equally efficient to the cleaning with compressed air**

FAN PERFORMANCE CHARACTERISTICS FOR DIFFERENT ROTOR SPEEDS



**EVEN
50 TIMES
LESS EXPENSIVE
SOLUTION
THAN
THE TRADITIONAL
COMPRESSED AIR
CLEANING**



- » cyclones
- » pneumatic sliding dampers
- » pneumatic diverters
- » screw conveyors
- » rotary valves
- » ATEX protective systems
- » grinding tables and extraction walls
- » extraction fans