

CDH-F

SMOKE AND HEAT EXHAUST VENTILATOR



Intended use:

CDH-F louvres are used for smoke and heat extraction in gravity and mechanical smoke ventilation systems. The louvre lamellas are designed so that it is possible to open/close them by means of an electric actuator.

Design

CDH-F louvres are fitted with movable lamellas positioned by means of an electric actuator. The lamellas are made of anodised aluminium profiles and an insert mounted between profiles and secured with a glazing gasket. In the S version the lamella insert is made of a 20 mm thick multiwall polycarbonate sheets (colour – clear). In the A version the lamella insert is made of 20 mm thick mineral wool with glass fleece inside and aluminium sheet outside. The louvre frame is made of aluminium and powder coated in the RAL9006 matt colour. CDH-F louvres fitted with a channel with measuring device and cover mesh are marked as CDH-F-L. CDH-F-L louvres also contain a differential pressure transducer with $\varnothing 6$ copper tubes coming from the measuring device.

Dimensions

Possible dimension range of CDH-F louvres is as follows:

- width C = 400 ÷ 2100 mm
- height D = 590 ÷ 2900 mm

The dimension ranges of CDH-F-L louvres with metering panels are highlighted in table 1. It is recommended to design mounting holes in an optimal way for the heights D dimensions given in table 1; for the intermediate dimensions, a higher metal sheet cover is being used in the top part of the louvre.

*For the 1,100 x 2,865 dimension in table 1, for the drive with a return spring option, aerodynamic free area $A_a=1,79 \text{ m}^2$.

*For the 1,100 x 2,900 dimension in table 1, for the drive with a return spring option, aerodynamic free area $A_a=1,81 \text{ m}^2$.

Technical Parameters

CDH-F louvre is a bi-functional device for smoke extraction and ventilation. Wind load class: WL 1500, Reliability: Re1000, Low ambient temperature: T(-15) Heat exposure: B300, Thermal conductivity: $2,5 \text{ W}/(\text{m}^2\cdot\text{K})$. Sound absorption value for a fully closed louvre $R'w = 20 \text{ dB}$.

The influence of different configurations of CDH-F-L louvres on the change of A_a values of the effective area given in table 1:

1. Adding a channel increases the A_a effective area of the exhaust louvre by 5%.
2. Adding a channel with measuring device increases the A_a effective area of the smoke exhaust louvre by 4%.
3. Adding a channel with a protection grid decreases the A_a effective area of the smoke exhaust louvre by 4%.

4. Adding a channel with measuring device and a protection grid decreases the A_a effective area of the smoke exhaust louvre by 4%.
5. Adding a channel with the SDS-STW ventilation grille decreases the A_a effective area of the smoke exhaust louvre by 2%.
6. Adding a channel with measuring device with the SDS-STW ventilation grille decreases the A_a effective area of the CDH-F smoke exhaust louvre by 2%.

Lamella Control

CDH-F louvre lamellas may be controlled by means of Belimo electric actuators, open/close, with continuous setpoint adjustment. Power supply: 24 V AC/DC or 230 V AC.

If an actuator with a return spring is in use, in the case of an actuator power supply loss, the louvre lamellas are opened.

The wiring diagram, power supply and control parameters depend on the type of the electric actuator and control system – see the data sheet of the selected actuator.

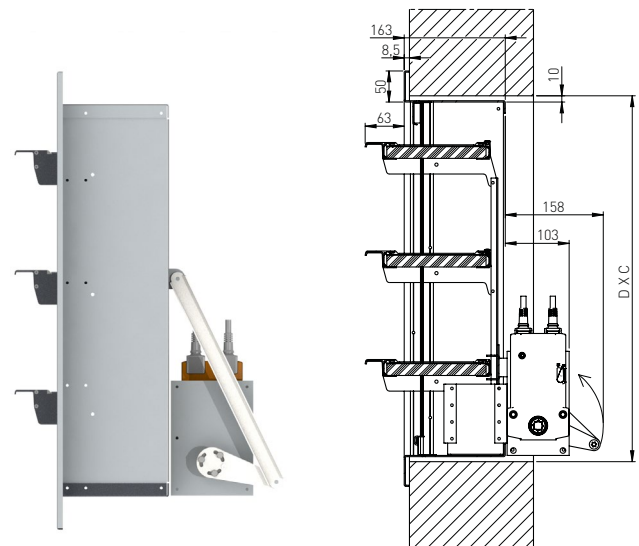


Figure 1. CDH-F louvre and its installation.

AIR FLOW CONTROL AND DISTRIBUTION

Fulfills the requirements of the following standards:

PN-EN 12101-2:2005



Technical reference of the louvre with CDH-F-L measuring device

CDH-F-L louvres can be used in smoke extraction systems as the wall smoke-extracting devices with a possibility of measuring mass air flow extracted through the exhaust louvre. The product is dedicated for stairway, lift shafts and all places, where the measurement of mass air flow extracted through the exhaust louvre is needed.

Table 1. Dimensions.

Number of lamellas in a louvre [pcs.]	Mounting hole height [mm]	Mounting hole width for CDH-F louvres																		
		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	
		Aerodynamic free area A_a [m ²]																		
		Approximate weight without a drive, lamella insert S [kg]																		
3	590	0,10	0,13	0,16	0,20	0,23	0,26	0,29	0,33	0,36	0,39	0,42	0,46	0,50	0,53	0,56	0,59	0,62	0,66	
		6,00	6,70	8,30	9,10	9,90	10,70	11,50	12,30	13,10	13,90	14,70	15,50	16,30	17,10	17,90	18,70	19,50	20,30	
4	765	0,14	0,18	0,22	0,27	0,31	0,35	0,40	0,45	0,49	0,54	0,58	0,63	0,67	0,71	0,76	0,81	0,86	0,90	
		7,20	8,10	9,80	10,70	11,60	12,50	13,40	14,30	15,20	16,10	17,00	17,90	18,80	19,70	20,60	21,50	22,40	23,30	
5	940	0,17	0,23	0,28	0,34	0,40	0,45	0,51	0,56	0,62	0,68	0,74	0,79	0,85	0,90	0,96	1,01	1,08	1,14	
		8,40	9,40	11,00	12,10	13,20	14,30	15,40	16,50	17,60	18,70	19,80	20,90	22,00	23,10	24,20	25,30	26,40	27,50	
6	1115	0,21	0,28	0,34	0,41	0,47	0,55	0,61	0,69	0,75	0,82	0,88	0,97	1,03	1,10	1,17	1,23	1,30	1,37	
		9,50	10,70	12,50	13,70	14,90	16,10	17,30	18,50	19,70	20,90	22,10	23,30	24,50	25,70	26,90	28,10	29,30	30,50	
7	1290	0,25	0,33	0,40	0,48	0,56	0,64	0,72	0,80	0,83	0,91	1,00	1,07	1,14	1,22	1,31	1,39	1,47	1,54	
		10,60	11,90	13,90	15,20	16,50	17,80	19,10	20,40	21,70	23,00	24,30	25,60	26,90	28,20	29,50	30,80	32,10	33,40	
8	1465	0,28	0,38	0,45	0,55	0,64	0,74	0,83	0,91	0,95	1,05	1,14	1,22	1,33	1,41	1,50	1,59	1,70	1,79	
		11,80	13,20	15,30	16,70	18,10	19,50	20,90	22,30	23,70	25,10	26,50	27,90	29,30	30,70	32,10	33,50	34,90	36,30	
9	1640	0,32	0,42	0,52	0,62	0,72	0,83	0,93	1,04	1,09	1,18	1,30	1,40	1,49	1,59	1,71	1,81	1,91	2,01	
		12,90	14,50	16,70	18,30	19,90	21,50	23,10	24,70	26,30	27,90	29,50	31,10	32,70	34,30	35,90	37,50	39,10	40,70	
10	1815	0,35	0,47	0,58	0,69	0,81	0,92	1,05	1,16	1,21	1,34	1,44	1,55	1,69	1,79	1,90	2,01	2,12	2,27	
		14,10	15,80	18,20	19,90	21,60	23,30	25,00	26,70	28,40	30,10	31,80	33,50	35,20	36,90	38,60	40,30	42,00	43,70	
11	1990	0,39	0,52	0,63	0,76	0,89	1,01	1,15	1,27	1,35	1,47	1,59	1,73	1,85	1,97	2,09	2,21	2,37	2,49	
		15,40	17,20	19,60	21,50	23,40	25,30	27,20	29,10	31,00	32,90	34,80	36,70	38,60	40,50	42,40	44,30	46,20	48,10	
12	2165	0,43	0,57	0,69	0,83	0,97	1,12	1,26	1,39	1,47	1,60	1,76	1,89	2,02	2,15	2,32	2,45	2,59	2,72	
		16,60	18,60	21,00	23,00	25,00	27,00	29,00	31,00	33,00	35,00	37,00	39,00	41,00	43,00	45,00	47,00	49,00	51,00	
13	2340	0,46	0,62	0,76	0,90	1,06	1,22	1,36	1,50	1,60	1,74	1,91	2,05	2,19	2,37	2,51	2,66	2,80	2,94	
		17,80	20,00	22,50	24,60	26,70	28,80	30,90	33,00	35,10	37,20	39,30	41,40	43,50	45,60	47,70	49,80	51,90	54,00	
14	2515	0,50	0,67	0,82	0,98	1,14	1,31	1,46	1,62	1,72	1,90	2,05	2,20	2,39	2,55	2,70	2,86	3,01	3,17	
		19,00	21,40	23,90	26,20	28,50	30,80	33,10	35,40	37,70	40,00	42,30	44,60	46,90	49,20	51,50	53,80	56,10	58,40	
15	2690	0,54	0,72	0,88	1,05	1,22	1,40	1,57	1,76	1,84	2,03	2,20	2,36	2,56	2,73	2,90	3,06	3,23	3,45	
		20,20	22,80	25,30	27,70	30,10	32,50	34,90	37,30	39,70	42,10	44,50	46,90	49,30	51,70	54,10	56,50	58,90	61,30	

Number of lamellas in a louvre [pcs.]	Mounting hole height [mm]	Mounting hole width for CDH-F louvres																	
		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
		Aerodynamic free area A_a [m ²]																	
		Approximate weight without a drive, lamella insert S [kg]																	
16	2865	0,57	0,76	0,93	1,12	1,30	1,50	1,67	1,88*	1,99	2,17	2,34	2,56	2,73	2,91	3,09	3,27	3,50	3,68
		21,60	24,20	26,70	29,30	32,00	34,70	37,40	40,10	42,80	45,50	48,20	50,90	53,60	56,30	59,00	61,70	64,40	67,10
16	2900	0,58	0,77	0,95	1,14	1,31	1,51	1,69	1,90*	2,02	2,20	2,37	2,59	2,77	2,95	3,13	3,36	3,54	3,72
		22,80	25,40	27,90	30,50	33,20	35,90	38,60	41,30	44,00	46,70	49,40	52,10	54,80	57,50	60,20	62,90	65,60	68,30

CDH-F-L Design

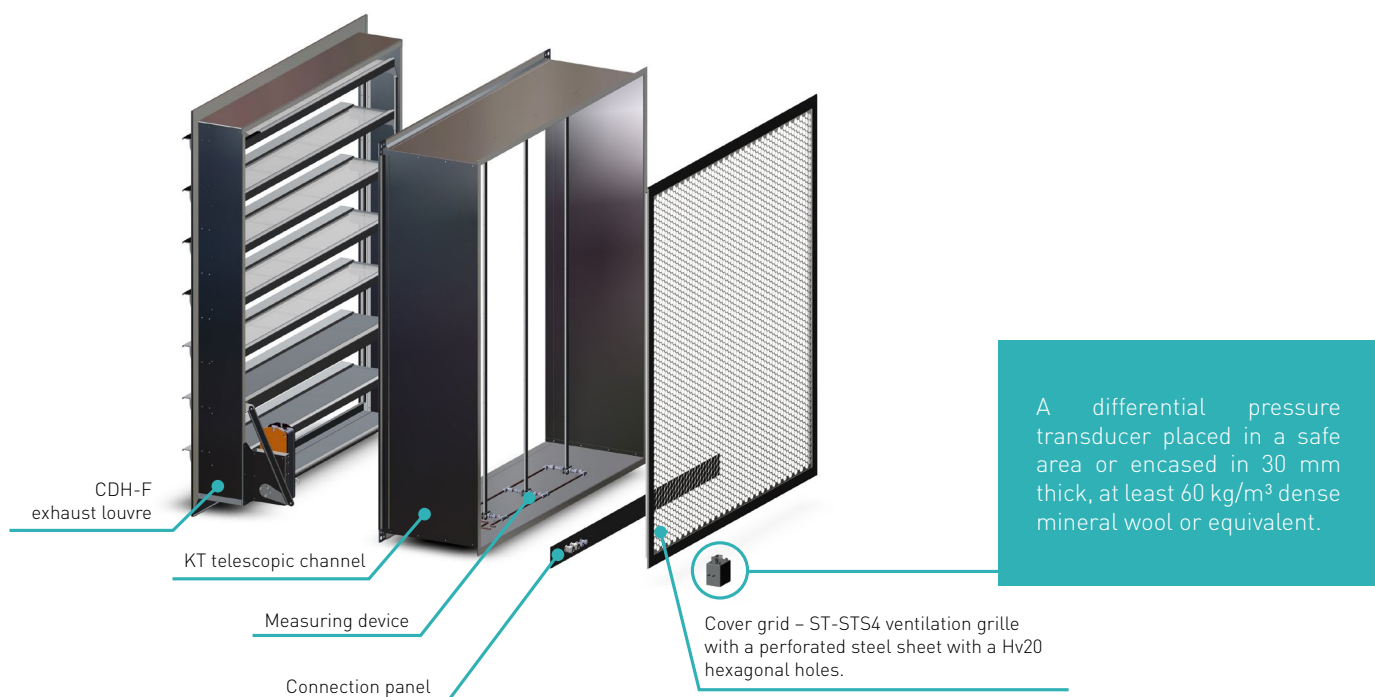


Figure 2. CDH-F-L design.

The mounting hole for CDH-F-L, according to table 1, should be made in accordance with the following formula: $(C + 15) \times (D + 15)$. A telescopic channel can normally be mounted in a wall of thickness $T = 350 - 650$. For the walls outside this range we can make a channel on request.

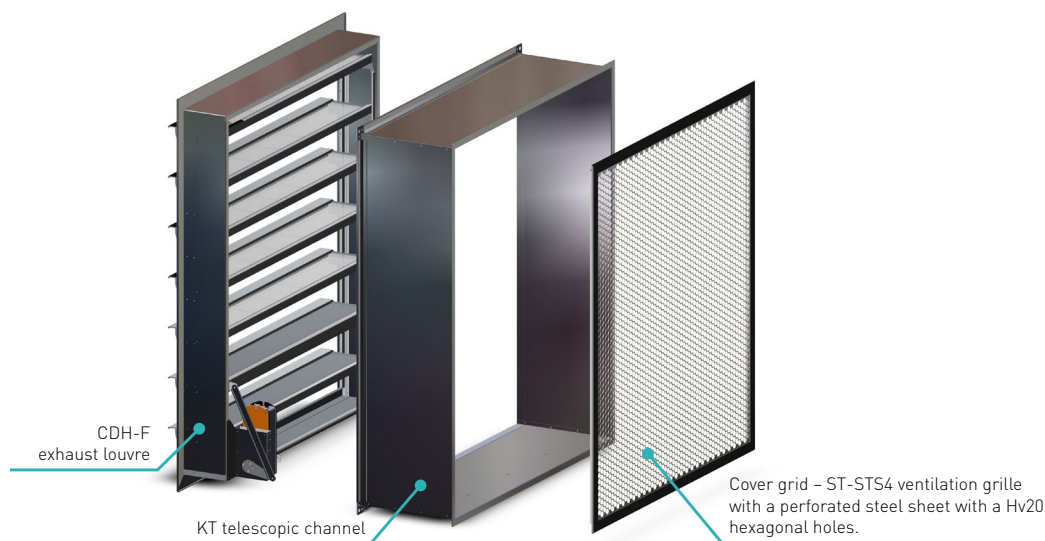
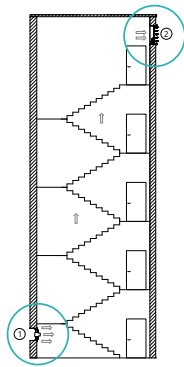


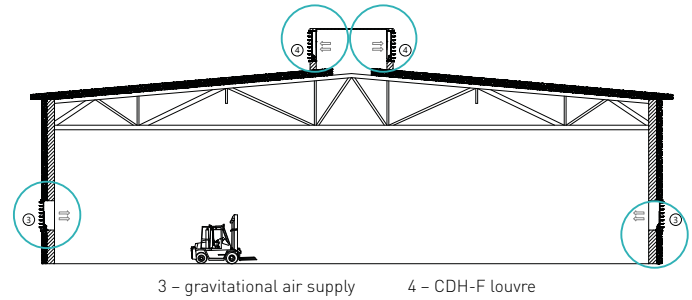
Figure 3. Design of CDH-F/KT, ST-STS4.

The louvre must be mounted in the exterior wall of a building. It should be placed as high as possible, in the area it will be extracting smoke and heat from. Example location of CDH-F louvre.



1 – mechanical air supply
2 – CDH-F-L louvre

Figure 4. Location in a stairwell.



3 – gravitational air supply 4 – CDH-F louvre

Figure 5. Location in a hall.

CDH-F – Smoke and heat exhaust ventilator

When ordering, please provide information in accordance with the following pattern:

CDH-F - <M> - <CxD> - <W> - <K> - <P> <RAL> - <N>/ADD

Where:

M	metering panels*
	none - without measuring device
	L - with measuring device, differential pressure transducer inside
	Lz - with measuring device, differential pressure transducer outside
C	mounting hole width in mm
D	mounting hole height in mm
W	lamella insert*
	S - lamella insert made of 20 mm thick multiwall polycarbonate sheets
	A - lamella insert made of 20 mm thick mineral wool with glass fleece inside and aluminium sheet outside
K	atmosphere corrosivity category according to PN-EN ISO 12944-2*
	none - C3 corrosivity category
	C4 - C4 corrosivity category (for AL finishing)
	C5 - C5 corrosivity category (for AL finishing)
P	finish*
	AA - lamella profiles made of anodized aluminium, frame made of aluminium powder coated in RAL9006 matt
	none - frame and lamella profiles made of powder coated aluminium

RAL	colour as per RAL (for no finishing)
N	drive type
	BFN24 - with a return spring
	BFN230 - with a return spring
	BF24 - with a return spring
	BF230 - with a return spring
	BLE24
	BLE230
	BE24-12
	BE230-12
ADD	accessories:
	ST-STS4- <RAL> - grille with a perforated steel sheet with a Hv20 hexagonal holes, powder coated in RAL colour**
	KT - KT telescopic channel **

* optional values – if not specified, the default values will be used

** KT and ST-STS4 accessories maximum dimensions may be 1,500 x 1,990; mounting hole for CDH-F../KT, ST-STS4 according to the data from table 1 should be enlarged in accordance with the following formula: $(C + 15) \times (D + 15)$; KT telescopic channel can normally be mounted in a wall of thickness $T = 350 - 650$; for the walls outside this range we can make a channel on request; in CDH-F-L version the ST-STS4 accessory is 50 mm lower for possible installation of a connection panel.

Order example: **CDH-F-1000x940-A-9006-BF24**