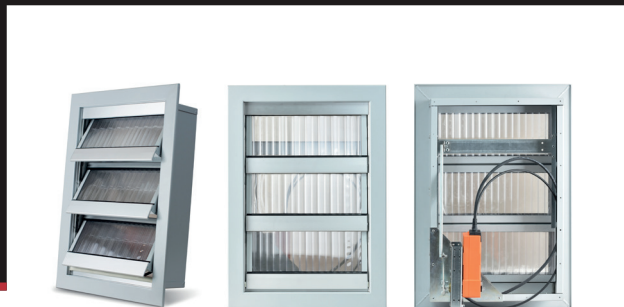


CDH-F

SMOKE AND HEAT WALL EXHAUST VENTILATOR



Product characteristics:

CDH-F ventilators with louvers controlled by means of actuators, for smoke and heat extraction in natural and mechanical systems.

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 multi-chamber polycarbonate sheets (colour=Clear). In the A version the lamella insert is made of 20 mm thick mineral wool, covered with a glass fleece (from the back) and aluminium sheet outside. The louver frame is made of aluminium and powder coated in RAL9006 matt colour. CDH-F louvres if fitted with a duct section with measuring device and cover mesh are marked as CDH-F-L. CDH-F-L louver is also fitted with a differential pressure transducer with $d=6$ mm connecting copper tubes.

Lamella Control

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

If an actuator with a return spring is in use, a power loss will open the louver.

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

Technical Parameters

CDH-F louver 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. Sound attenuation value for a louver fully closed: $R'w = 20$ dB.

The effect on the change of Aa values of the aerodynamic free area of different CDH-F louvres configuration is given in Table 1:

1. Adding of a duct section increases the Aa area of the exhaust louver by 5%.
2. Adding of a duct section with measuring device increases the Aa area of the exhaust louver by 4%.
3. Adding of a duct section with a protection mesh decreases the Aa area of the exhaust louver by 4%.
4. Adding a duct section with a measuring device and protection mesh decreases the Aa area of the exhaust louver by 4%.

5. Adding a duct section with the SDS-STW ventilation grille decreases the Aa area of the exhaust louver by 2%.

6. Adding a duct section with a measuring device with the SDS-STW ventilation grille decreases the Aa area of the exhaust louver by 2%.

Dimensions

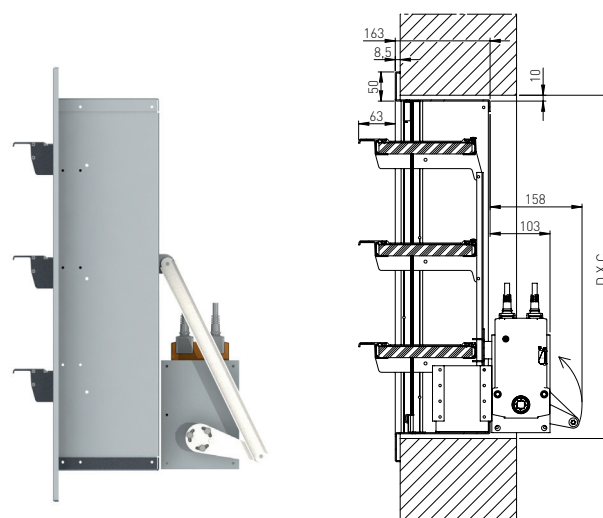


Figure 1. CDH-F louver dimensions.

The available CDH-F louver dimension range:

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

CDH-F-L louver (with a measuring device) is available in a limited dimension range – as shown in Table 1.

For the heights other than the standard ones (given in table 1), a higher cover plate is used in the upper part of the louver. The effective area of such a louver will be equal to that of a smaller standard height.

FIRE VENTILATION ZONE

Meets the requirements of:

EN 12101-2:2005

AL

AA

Aerodynamic free Area

Table 1. Aerodynamic free area of CDH-F louvre, Aa [m²].

Number of the lamellas	Opening height [mm]	Mounting opening width for a CDH-F louvre																		
		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
14	2515	0,50	0,67	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	
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	
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	
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	

*For the size 1100x2865 (Table 1), louvre with a return spring, aerodynamic free area Aa=1,79 m².

*For the size 1100x2900 (Table 1), louvre with a return spring, aerodynamic free area Aa=1,81 m².

Table 2. Effective area of CDH-F louvre, Aef [m²].

Number of the lamellas	Opening height [mm]	Mounting opening width for a CDH-F louvre																		
		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	
3	590	0,16	0,20	0,24	0,28	0,32	0,37	0,41	0,45	0,49	0,53	0,57	0,62	0,66	0,70	0,74	0,78	0,83	0,87	
4	765	0,21	0,27	0,32	0,38	0,44	0,49	0,55	0,61	0,66	0,72	0,78	0,83	0,89	0,95	1,00	1,06	1,12	1,17	
5	940	0,27	0,34	0,41	0,48	0,55	0,62	0,70	0,77	0,84	0,91	0,98	1,05	1,12	1,20	1,27	1,34	1,41	1,48	
6	1115	0,32	0,41	0,49	0,58	0,67	0,75	0,84	0,93	1,01	1,10	1,18	1,27	1,36	1,44	1,53	1,62	1,70	1,79	
7	1290	0,38	0,48	0,58	0,68	0,78	0,88	0,98	1,08	1,19	1,29	1,39	1,49	1,59	1,69	1,79	1,89	1,99	2,09	
8	1465	0,43	0,55	0,66	0,78	0,90	1,01	1,13	1,24	1,36	1,47	1,59	1,71	1,82	1,94	2,05	2,17	2,29	2,40	
9	1640	0,49	0,62	0,75	0,88	1,01	1,14	1,27	1,40	1,53	1,66	1,79	1,92	2,05	2,19	2,32	2,45	2,58	2,71	
10	1815	0,54	0,69	0,83	0,98	1,12	1,27	1,41	1,56	1,71	1,85	2,00	2,14	2,29	2,43	2,58	2,72	2,87	3,01	
11	1990	0,60	0,76	0,92	1,08	1,24	1,40	1,56	1,72	1,88	2,04	2,20	2,36	2,52	2,68	2,84	3,00	3,16	3,32	
12	2165	0,65	0,83	1,00	1,18	1,35	1,53	1,70	1,88	2,05	2,23	2,40	2,58	2,75	2,93	3,10	3,28	3,45	3,63	
13	2340	0,71	0,90	1,09	1,28	1,47	1,66	1,85	2,04	2,23	2,42	2,61	2,80	2,99	3,17	3,36	3,55	3,74	3,93	
14	2515	0,76	0,97	1,17	1,38	1,58	1,79	1,99	2,19	2,40	2,60	2,81	3,01	3,22	3,42	3,63	3,83	4,04	4,24	
15	2690	0,82	1,04	1,26	1,48	1,70	1,91	2,13	2,35	2,57	2,79	3,01	3,23	3,45	3,67	3,89	4,11	4,33	4,55	
16	2865	0,87	1,11	1,34	1,58	1,81	2,04	2,28	2,51	2,75	2,98	3,21	3,45	3,68	3,92	4,15	4,39	4,62	4,85	
16	2900	0,87	1,11	1,34	1,58	1,81	2,04	2,28	2,51	2,75	2,98	3,21	3,45	3,68	3,92	4,15	4,39	4,62	4,85	

- BFN, BLE (C-20) x (D-20) ≤1,4 m²
- BF, BLE 1,4 m²<(C-20) x (D-20)≤2,5 m²
- BF, BE24-12 2,5 m²<(C-20) x (D-20)≤3,0 m²

- 2x BF, 1 x BE24-12 (C-20) x (D-20) >3,0 m²
- Marked area - available dimensions for a CDH-F-L louvre with a measuring device

Weight

Table 3. CDH-F weight [kg].

Number of the lamellas	Opening height [mm]	Mounting opening width for a CDH-F louvre																		
		400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	
		Approximate weight (without a drive and with S type insert) [kg]																		
3	590	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	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	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	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	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	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	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	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	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	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	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	19,00	21,40	23,90	26,20	28,50	30,80	33,10	36,40	37,70	40,00	42,30	44,60	46,90	49,20	51,50	53,80	56,10	58,40	
15	2690	20,20	22,80	25,30	27,70	30,10	32,50	34,90	37,30	39,70	42,10	45,50	46,90	49,30	51,70	54,10	56,50	58,90	61,30	
16	2865	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	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 design

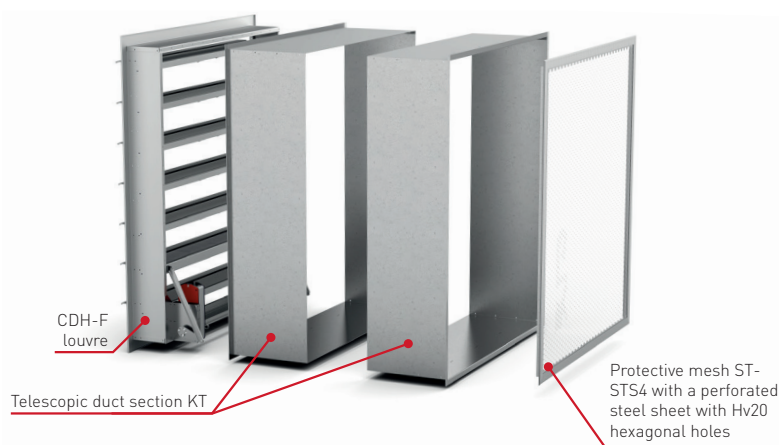


Figure 2. CDH-F/ KT, ST-STS4.

CDH-F-L design (for Zodiac-M System only)

CDH-F-L louvre can be used in smoke extraction systems as a wall smoke exhaust device with the possibility of measuring the mass flow of air removed by the extraction louvre. This product is dedicated to staircases, elevator shafts, wherever we want to know the mass flow of air being removed.

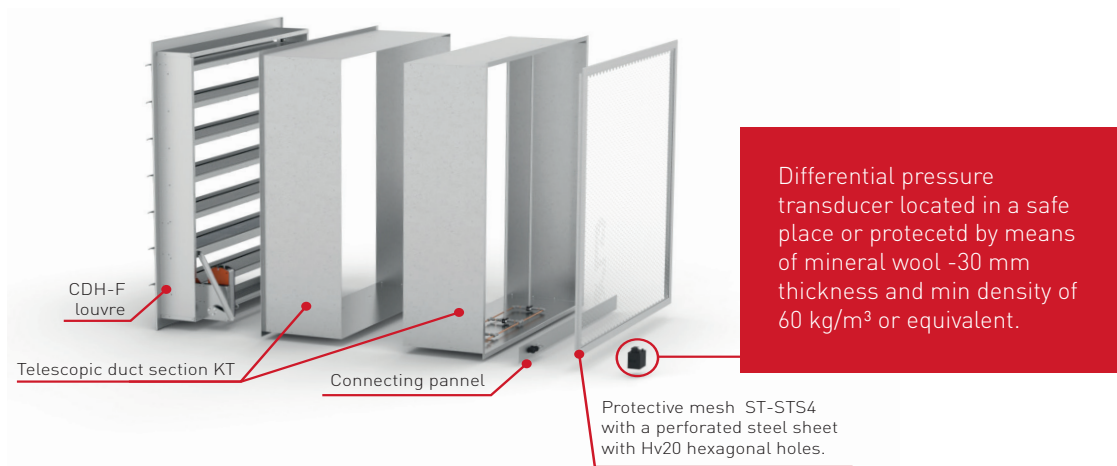


Figure 3. CDH-F-Lz.

The mounting opening for CDH-F-L and CDH-F-Lz, according to Table 1., should be made in accordance to the formula: $(C+15) \times (D+15)$. The standard telescopic duct section can be installed in a wall of thickness $T=350-650$ mm. For the walls of other thickness the duct can be prepared on request.

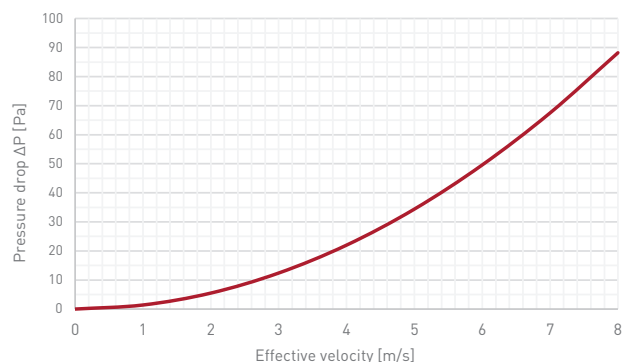


Chart 3. Pressure drop for a CDH-F louvre fully open.

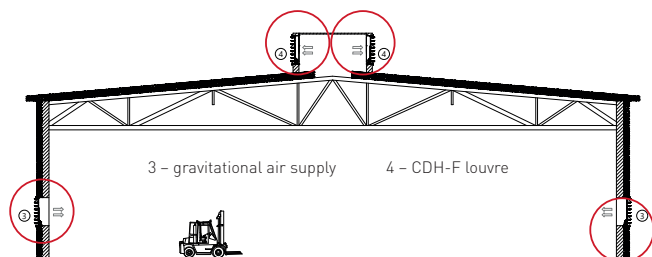
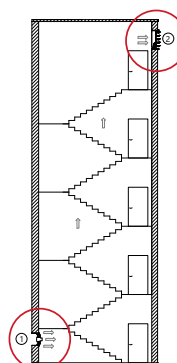


Chart 1. CDH-F installation places in a hall.

The louvre must be installed in the exterior wall of the building. It should be placed as high as possible in the space from which it will remove smoke and heat.

An example of the location of the CDH-F louvre.



1 - machanical air supply
2 - CDH-F-L

Chart 2. LCDH-F installation places in a staircase.

CDH-F – Smoke and heat wall exhaust ventilator

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

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

Where:

M	measuring device (for Zodiac-M System only)*
	brak - without measuring device
	L - with measuring device (the transducer inside the louvre)
	Lz - with measuring device (the transducer outside the louvre)
C	opening width [mm]
D	opening height [mm]
W	lamella insert*
	S - polycarbonate insert of 20 mm thickness
	A - mineral wool insert of 20 mm thickness with glass fleece inside/aluminium outside
K	atmosphere corrosivity category acc. to PN-EN ISO 12944-2*
	brak - C3 category
	C4 - C4 category (for AL. finishing)
	C5 - C5 category (for AL. finishing)
P	finishing*
	AA - lamella profiles made of anodized aluminium, framemade of powder coated aluminium RAL 9006 matt
	AL - frame and lamella profiles made of powder coated

RAL	RAL colour (for AL finishing)
N	drive type
	BFN24 - with a return spring, 24V
	BFN230 - with a return spring, 230V
	BF24 - with a return spring, 24V
	BF230 - with a return spring, 230V
	BLE24 - without a return spring, 24V
	BLE230 - without a return spring, 230V
	BE24-12 - without a return spring, 24V
	BE230-12 - without a return spring, 230V
ADD	accessories (only without a measuring device):
	ST-ST54- <RAL> - ventilation mesh with a perforated steel sheet with Hv20 hexagonal holes, powder coated in RAL colour**
	KT - telescopic duct section KT**

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

** optional accessories KT, ST-ST54 can be made in max. dimensions 1500x2000 or 2000x1500; mounting opening for CDH-F.../KT, ST-ST54 acc. to table 1. has to be made according to formula: $(C+15) \times (D+15)$; standard KT telescopic duct section KT can be installed in a wall of the thickness of $T=350-650$ mm, for other thicknesses – on request; for CDH-F-L version the ST-ST54 accessory is made smaller of 50mm for a connection panel installation.

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