

KOOLAIR

series

CEVH-1P

Smoke Evacuation Damper



ISO 9001

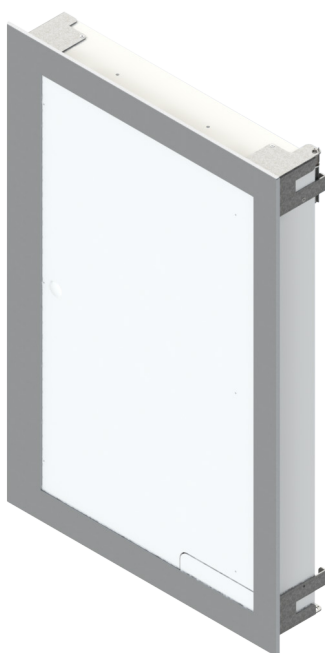
BUREAU VERITAS
Certification

Sistema de Gestión



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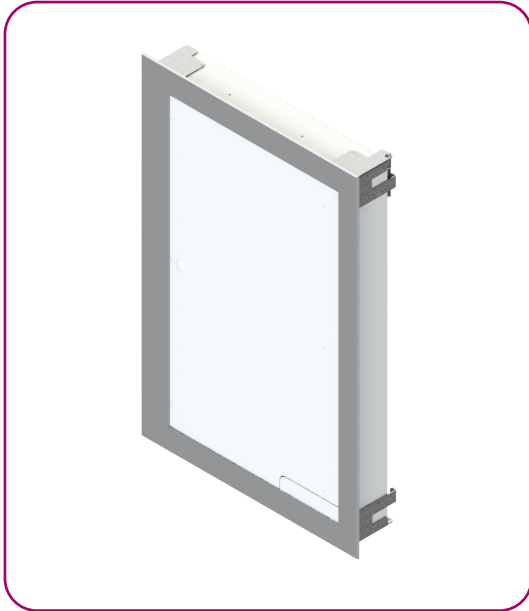
Smoke Evacuation Damper CEVH-1P



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CEVH-1P Smoke Evacuation Damper



Description

Smoke evacuation damper with 1-blade (1P), single door type swiveling closure, designed to be used for the supply of primary air and smoke evacuation in buildings with high levels of public footfall and in high-rise buildings. Approved in accordance with test standard UNE EN 1366-10 and classified according to EN 13501-4: E1120 (ved i↔o) S 1500 AA multi.

Designed according to EN 12101-8 specifications. Composed of a structure with a refractory material externally, sheet steel internally and one hinged door made of a refractory material.

Installed in a vertical smoke evacuation duct, with the optional of a metal mounting frame previously fastened to the duct.

The rearm of the damper can be manual or motorized.

Can include an RPK protective and decorative grille, specific for smoke evacuation and manufactured with anodised aluminium profiles, or a DECO decorative plate, manufactured with refractory material. Both fitted to the front side of the damper, i.e. the side on display in the building.

Can be used for smoke extraction and air intake (air flow in either direction).

CEVH-1P smoke evacuation dampers carry CE marking No. 0370-CPR-3051 in accordance with the Construction Product Directive RPC-305, according to EN12101-8.

Operation

Operation (opening) by means of electric shunt release coil with manual reset (closing) (CE marking). Optional limit switch/es:

Types of coil (electromagnet) available:

- 24V electric shunt release coil DC
- 48V electric shunt release coil DC
- 24V electric shunt release coil AC
- 48V electric shunt release coil AC
- 220V electric shunt release coil AC

The operating and reset mechanism is incorporated in the front part of the damper where it is protected from smoke and high temperatures.

CEVH-1P Smoke Evacuation Damper

CE Marking

The Koolair CEVH-1P smoke evacuation damper, carries CE marking, no. 0370-CPR-3051 in compliance with RPC-305, according to EN12101-8.

Standard



The CEVH-1P damper is approved according to the European Test Standard UNE-EN 1366-10 and European classification standard UNE-EN 13501-4, where EI 120 (ved i↔o) S 1500 AA multi:

- (E) Integrity
- (I) Isolation
- (120) 120 minute resistance
- (ved) Installed vertically in duct
- (i ↔ o) Symmetric. Suitable for fire in both directions (interior-exterior and exterior-interior)
- (S) Airtightness. Leakage through the damper closing blades <math><200 \text{ m}^3/\text{h}\cdot\text{m}^2</math>
- (1500) Suitable for a working pressure range from 1500 Pa negative (extract) to 500 Pa positive (supply).
- (AA) Automatic intervention.
- (multi) Suitable for multi-compartment systems.

To guarantee correct fire damper operation, it is essential to read and follow the recommendations in the installation and operation manual. In addition, the installation must comply with all current national standards.

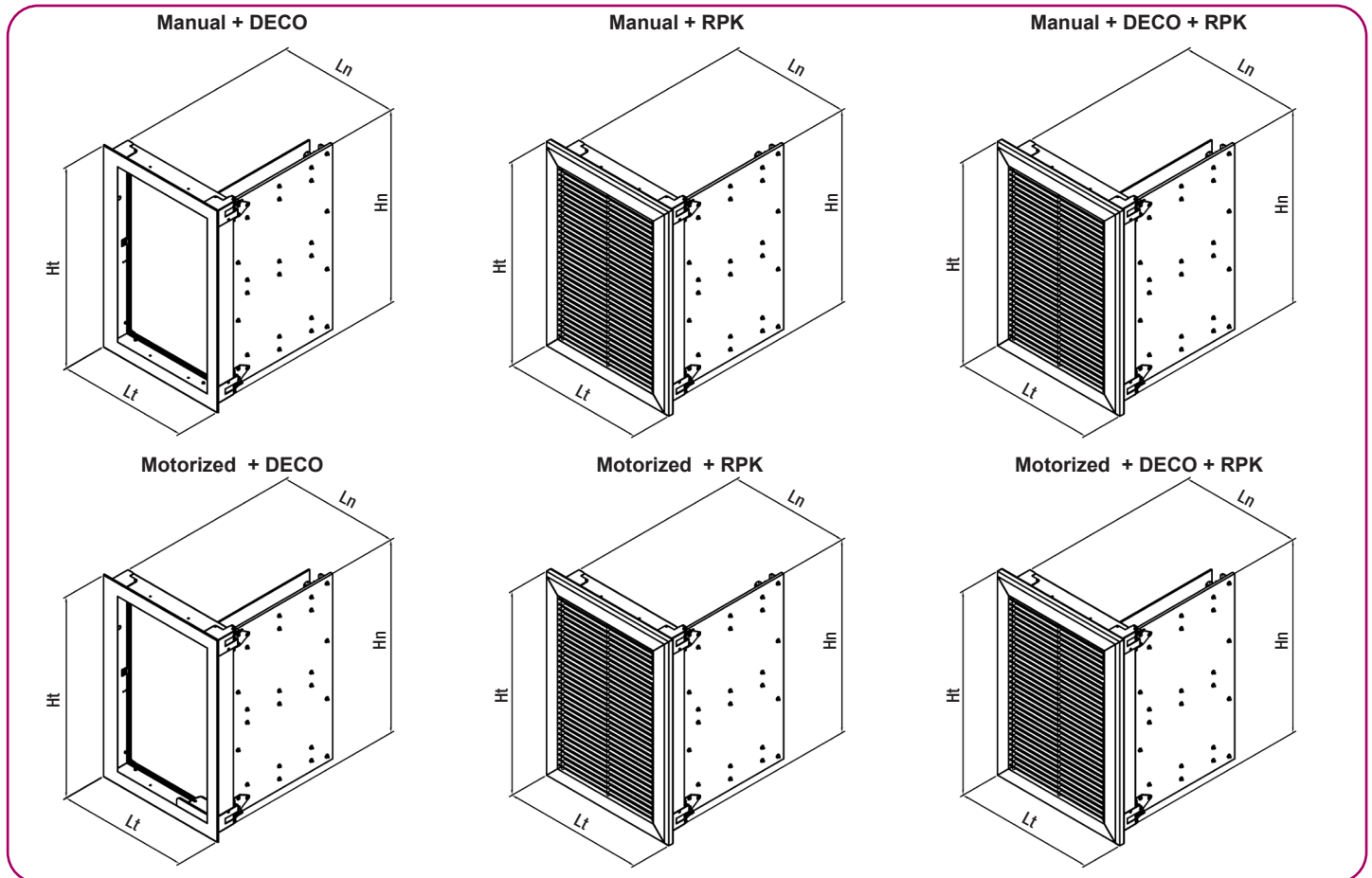
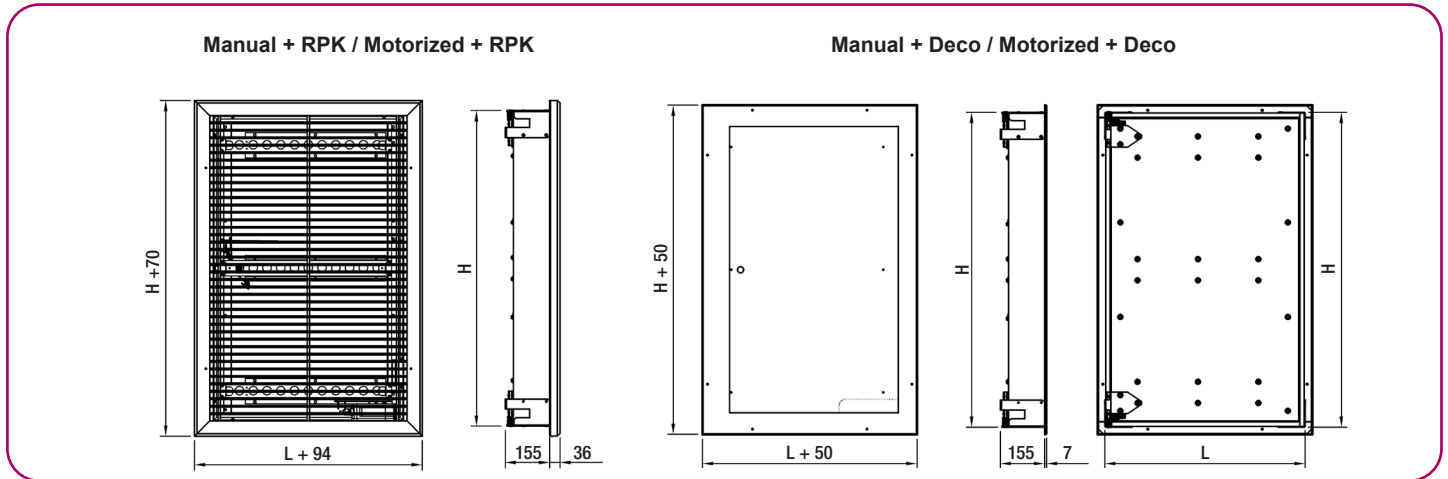
Further information and updates, as well as the installation and operating manual, can be found on our website (www.koolair.com).

Declared smoke extraction performance

CEVH-1P CPR-3051		Dimensions (mm)	Installation location	Installation	Classification
		L: 300 → 700 H: 385 → 1100	Smoke extract duct	1366-8 certified vertical duct	EI-120 (ved i↔o) S 1500 AA multi (500 Pa)

CEVH-1P Smoke Evacuation Damper Dimensions

Damper Drawing



Symbology

- P = Blade depth.
- Lt = Total exterior length.
- Ht = Total exterior height.
- Ln = Nominal damper length.
- Hn = Nominal damper height.

CEVH-1P Smoke Evacuation Damper Dimensions

Dimensions and openings

Nominal length Ln (mm)	Outside length Lt [mm]						
	DECO	RPK	RPK-1A	RPK-2A	RPK-X	RPK-P	RPK-S
[mm]							
300	350	394	394	434	410	434	394
350	400	444	444	484	460	484	444
400	450	494	494	534	510	534	494
450	500	544	544	584	560	584	544
500	550	594	594	634	610	634	594
550	600	644	644	684	660	684	644
600	650	694	694	734	710	734	694
650	700	744	744	784	760	784	744
700	750	794	794	834	810	834	794

Nominal height Hn	Exterior height Ht [mm]						
	DECO	RPK	RPK-1A	RPK-2A	RPK-X	RPK-P	RPK-S
[mm]							
385	435			455			
400	450			470			
450	500			520			
500	550			570			
550	600			620			
600	650			670			
650	700			720			
700	750			770			
750	800			820			
800	850			870			
850	900			920			
900	950			970			
950	1000			1020			
1000	1050			1070			
1050	1100			1120			
1100	1150			1170			

Symbology

DECO. Decorative frame and decorative plate.

RPK. Protection grille with fixed core and visible screws.

RPK-1A. Protection grille with removable core and visible screws.

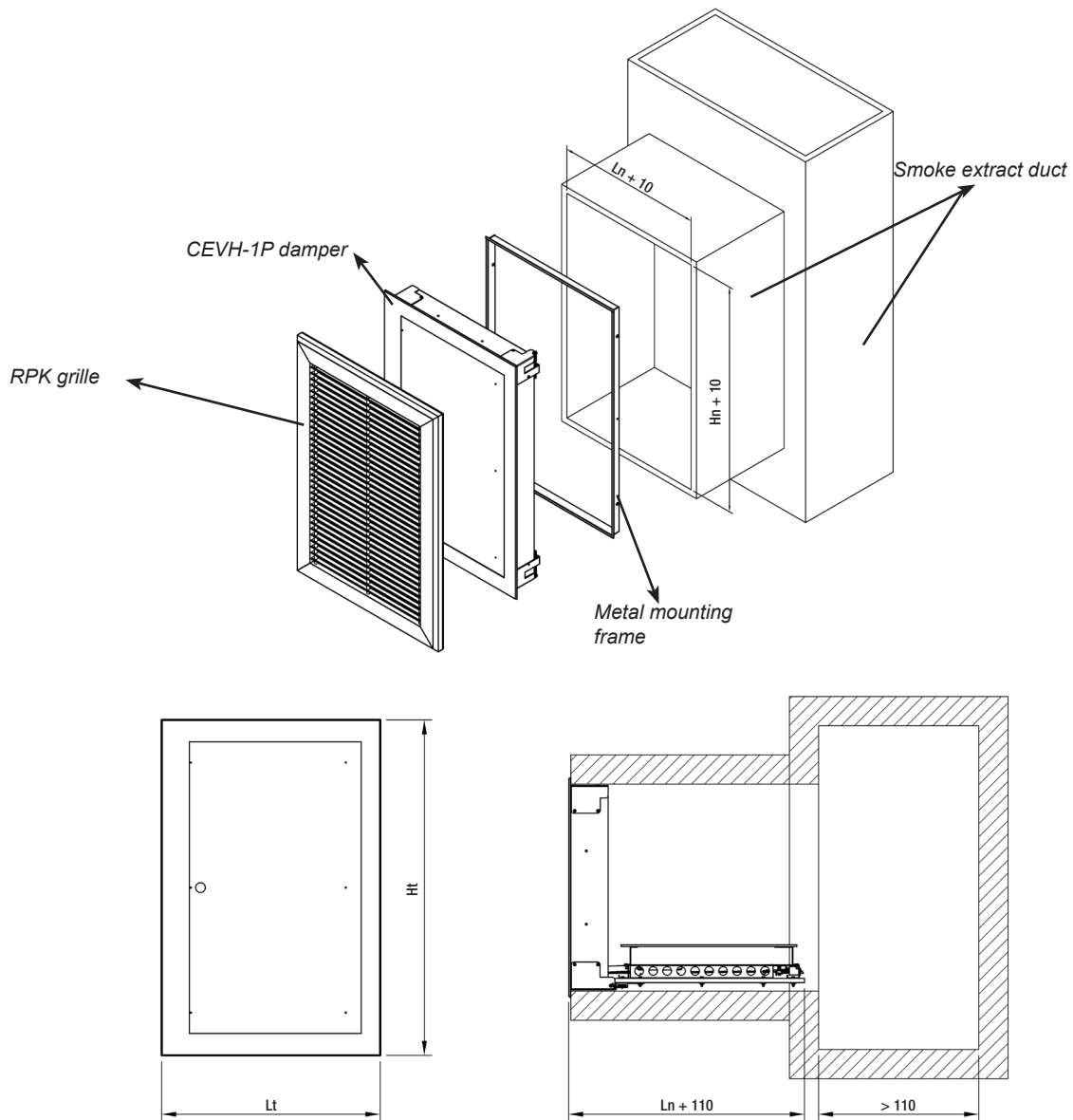
RPK-2A. Protection grille with removable core and hidden screws.

RPK-S. Protection grille S.

RPK-P. Protection grille P.

RPK-X. Protection grille X.

CEVH-1P Smoke Evacuation Damper Installation

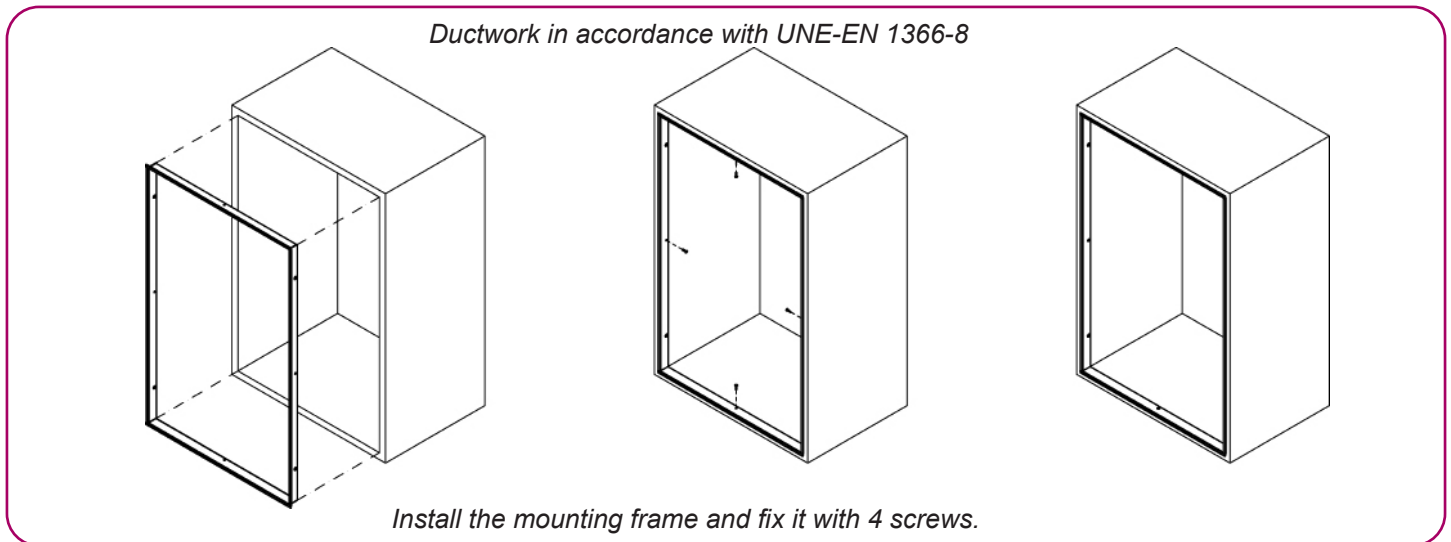


CEVH-1P damper application in installations which employ ductwork different from that which has been submitted for certification testing:

CEVH-1P smoke control dampers, for use in multi-compartment systems (multi), are applicable in ducts that are tested in accordance with EN1366-8 as appropriate for each particular case or manufactured from materials with the same density or greater thickness than those used in the certification test. Ductwork must be installed in accordance with the manufacturer's latest drawings.

CEVH-1P Smoke Evacuation Damper Assembly

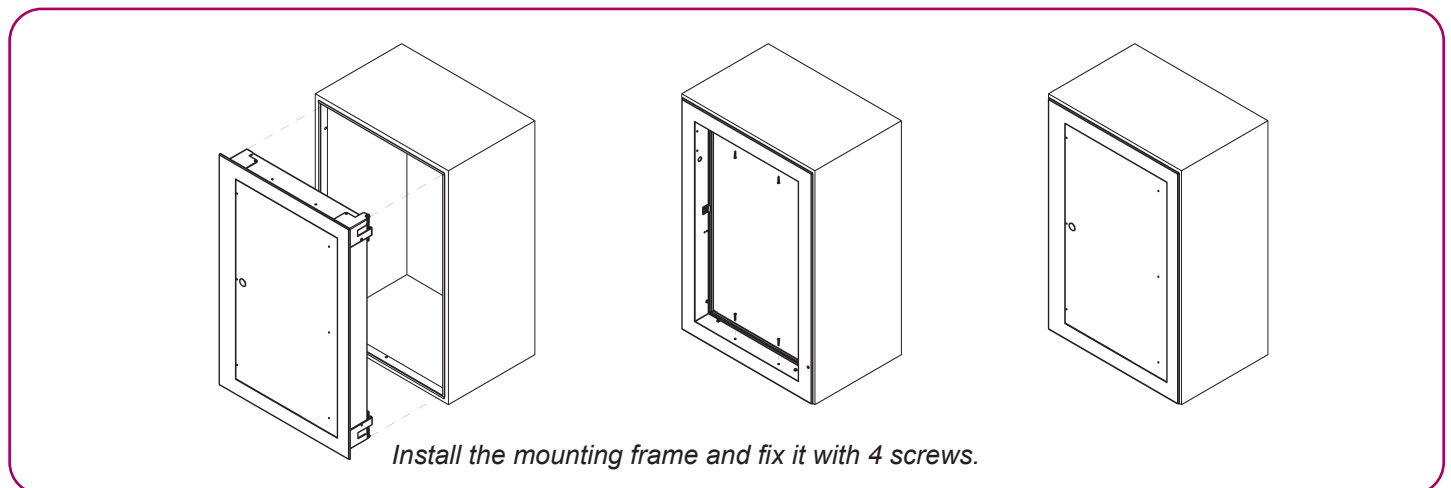
Use of mounting frame



Precautions:

- Make sure the mounting frame is perpendicular before installation.
- Fix the frame to the duct using the 4 screws provided with the frame.
- Drill a hole to allow ductwork connections to pass.

CEVH-1P damper installation



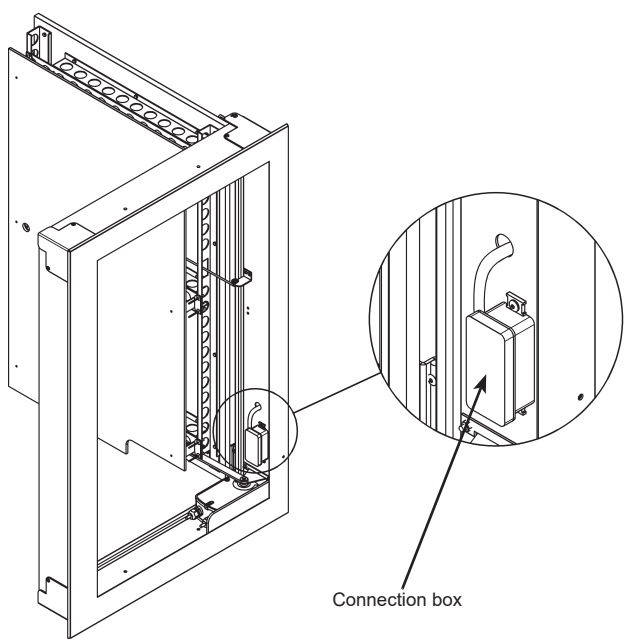
- Install the damper in the mounting frame or duct. Use the collapsible pins included in the damper frame as a stop.
- Fasten the damper to the frame using the 4 screws provided with the damper.
- Complete the assembly by filling all the screw holes with intumescent putty.

As it is a critical safety item, the damper must be stored and handled with care. Precautions:

- Store in a place protected from moisture.
- Avoid contact with water.
- Avoid deformation of the damper body during installation and sealing.
- Prevent the damper from being knocked or swung during transport.
- Use of the metal mounting frame is recommended to make damper installation easy.

CEVH-1P Smoke Evacuation Damper Connections

Electrical connections



Access to coil's inside the connection box:

- Shunt
- Start and end switches.
- Motor (Depending on model).

B-IMP (Shunt rel).

FDCU (beginning and end of run): security position contact and waiting.

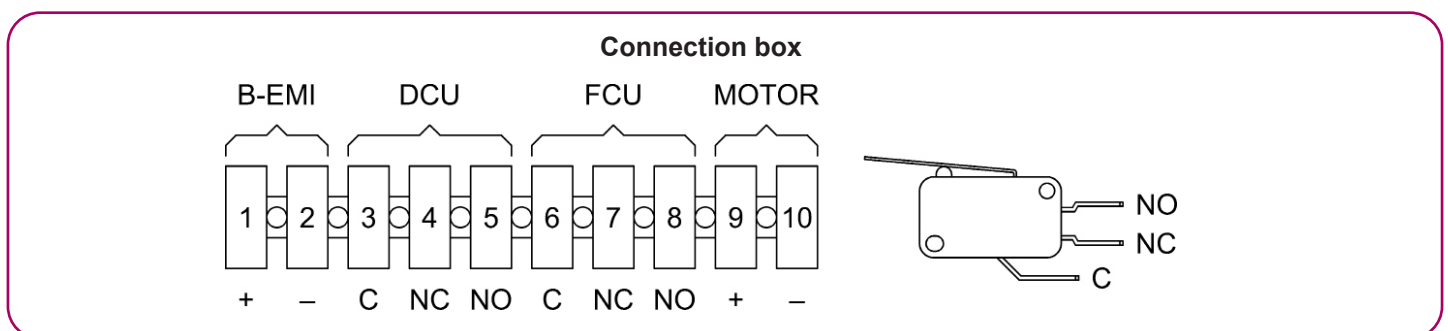
FCU: safety position (end of run) one-pole contact.

DCU: waiting position (start of run) one-pole contact.

Connection box

Operated by electric shunt release (current driven) coil and manual rearm or motorized:

- Power supply options for manual and motorized reset:
 - o 24V electric shunt release coil DC
 - o 48V electric shunt release coil DC
 - o 24V electric shunt release coil AC
 - o 48V electric shunt release coil AC
 - o 220V electric shunt release coil AC
- Motor for motorized rearming:
 - o Servomotor BL-24/48 V – DC / AC



* CE Marking does not require duplication of the start (DCU, DCB) and end of run limit switch (FCU, FCB).

Smoke Evacuation Damper Technical Data

Free area table (m²) Manual CEVH-1P / CEVH-1P+RPK

Height Hn (mm)	Length Ln (mm)								
	300	350	400	450	500	550	600	650	700
385	0,078	0,094	0,111	0,127	0,143	0,159	0,176	0,192	0,208
400	0,082	0,099	0,116	0,133	0,150	0,167	0,184	0,201	0,218
450	0,094	0,113	0,133	0,152	0,172	0,191	0,211	0,230	0,250
500	0,106	0,128	0,150	0,172	0,194	0,216	0,238	0,260	0,282
550	0,118	0,142	0,167	0,191	0,216	0,240	0,265	0,289	0,314
600	0,130	0,157	0,184	0,211	0,238	0,265	0,292	0,319	0,346
650	0,142	0,171	0,201	0,230	0,260	0,289	0,319	0,348	0,378
700	0,154	0,186	0,218	0,250	0,282	0,314	0,346	0,378	0,410
750	0,166	0,200	0,235	0,269	0,304	0,338	0,373	0,407	0,442
800	0,178	0,215	0,252	0,289	0,326	0,363	0,400	0,437	0,474
850	0,190	0,229	0,269	0,308	0,348	0,387	0,427	0,466	0,506
900	0,202	0,244	0,286	0,328	0,370	0,412	0,454	0,496	0,538
950	0,214	0,258	0,303	0,347	0,392	0,436	0,481	0,525	0,570
1000	0,226	0,273	0,320	0,367	0,414	0,461	0,508	0,555	0,602
1050	0,238	0,287	0,337	0,386	0,436	0,485	0,535	0,584	0,634
1100	0,250	0,302	0,354	0,406	0,458	0,510	0,562	0,614	0,666

Free area table (m²) Motorized CEVH-1P / CEVH-1P+RPK

Height Hn (in mm)	Length Ln (in mm)						
	400	450	500	550	600	650	700
400	0,109	0,126	0,143	0,160	0,177	0,194	0,211
450	0,126	0,145	0,165	0,184	0,204	0,223	0,243
500	0,143	0,165	0,187	0,209	0,231	0,253	0,275
550	0,160	0,184	0,209	0,233	0,258	0,282	0,307
600	0,177	0,204	0,231	0,258	0,285	0,312	0,339
650	0,194	0,223	0,253	0,282	0,312	0,341	0,371
700	0,211	0,243	0,275	0,307	0,339	0,371	0,403
750	0,228	0,262	0,297	0,331	0,366	0,400	0,435
800	0,245	0,282	0,319	0,356	0,393	0,430	0,467
850	0,262	0,301	0,341	0,380	0,420	0,459	0,499
900	0,279	0,321	0,363	0,405	0,447	0,489	0,531
950	0,296	0,340	0,385	0,429	0,474	0,518	0,563
1000	0,313	0,360	0,407	0,454	0,501	0,548	0,595
1050	0,330	0,379	0,429	0,478	0,528	0,577	0,627
1100	0,347	0,399	0,451	0,503	0,555	0,607	0,659

Smoke Evacuation Damper Technical Data

Free area table (m²) Manual CEVH-1P+DECO / CEVH-1P+DECO+RPK

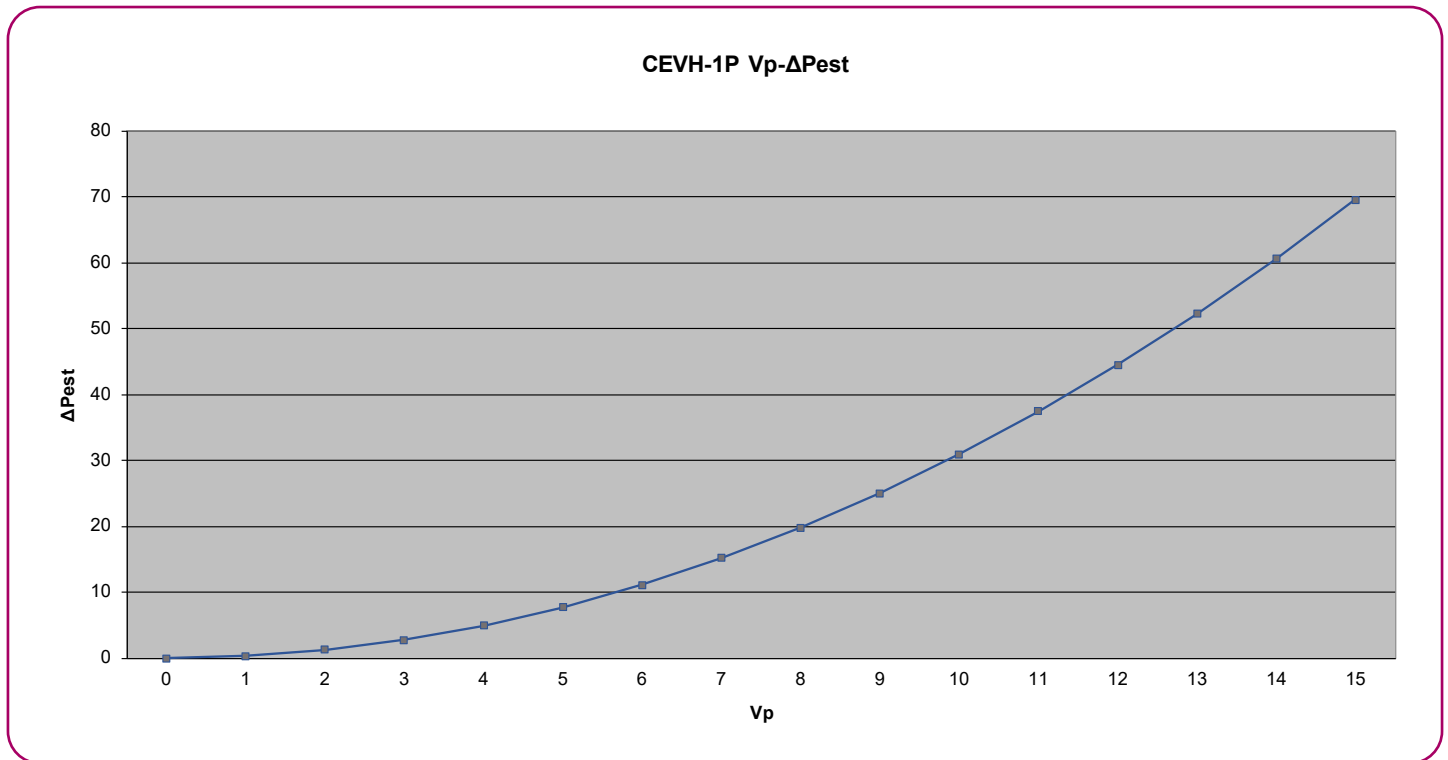
Height Hn (mm)	Length Ln (mm)								
	300	350	400	450	500	550	600	650	700
385	0,078	0,094	0,111	0,127	0,143	0,159	0,176	0,192	0,208
400	0,082	0,099	0,116	0,133	0,150	0,167	0,184	0,201	0,218
450	0,094	0,113	0,133	0,152	0,172	0,191	0,211	0,230	0,250
500	0,106	0,128	0,150	0,172	0,194	0,216	0,238	0,260	0,282
550	0,118	0,142	0,167	0,191	0,216	0,240	0,265	0,289	0,314
600	0,130	0,157	0,184	0,211	0,238	0,265	0,292	0,319	0,346
650	0,142	0,171	0,201	0,230	0,260	0,289	0,319	0,348	0,378
700	0,154	0,186	0,218	0,250	0,282	0,314	0,346	0,378	0,410
750	0,166	0,200	0,235	0,269	0,304	0,338	0,373	0,407	0,442
800	0,178	0,215	0,252	0,289	0,326	0,363	0,400	0,437	0,474
850	0,190	0,229	0,269	0,308	0,348	0,387	0,427	0,466	0,506
900	0,202	0,244	0,286	0,328	0,370	0,412	0,454	0,496	0,538
950	0,214	0,258	0,303	0,347	0,392	0,436	0,481	0,525	0,570
1000	0,226	0,273	0,320	0,367	0,414	0,461	0,508	0,555	0,602
1050	0,238	0,287	0,337	0,386	0,436	0,485	0,535	0,584	0,634
1100	0,250	0,302	0,354	0,406	0,458	0,510	0,562	0,614	0,666

Free area table (m²) Motorized CEVH-1P+DECO / CEVH-1P+DECO+RPK

Height Hn (mm)	Length Ln (mm)						
	400	450	500	550	600	650	700
400	0,105	0,122	0,139	0,156	0,173	0,190	0,207
450	0,122	0,141	0,161	0,180	0,200	0,219	0,239
500	0,139	0,161	0,183	0,205	0,227	0,249	0,271
550	0,156	0,180	0,205	0,229	0,254	0,278	0,303
600	0,173	0,200	0,227	0,254	0,281	0,308	0,335
650	0,190	0,219	0,249	0,278	0,308	0,337	0,367
700	0,207	0,239	0,271	0,303	0,335	0,367	0,399
750	0,224	0,258	0,293	0,327	0,362	0,396	0,431
800	0,241	0,278	0,315	0,352	0,389	0,426	0,463
850	0,258	0,297	0,337	0,376	0,416	0,455	0,495
900	0,275	0,317	0,359	0,401	0,443	0,485	0,527
950	0,292	0,336	0,381	0,425	0,470	0,514	0,559
1000	0,309	0,356	0,403	0,450	0,497	0,544	0,591
1050	0,326	0,375	0,425	0,474	0,524	0,573	0,623
1100	0,343	0,395	0,447	0,499	0,551	0,603	0,655

CEVH-1P Smoke Evacuation Damper Technical Data

CEVH-1P Graph



Symbology:

V_p Damper air velocity in m/s.
 ΔP_{est} Damper static pressure loss in Pa.

Selection example:

To calculate the static pressure loss across a CEVH-1P damper for a given flow rate Q [m³/h] the air velocity V_p [m/s] is calculated in relation to the damper air passage [m²] as free area table. Using this area and a given flow rate, the air velocity is obtained, which, when introduced in the previous graph gives the pressure loss.

Example:

A damper with nominal dimensions of 700x1000 mm we will have a free area of 0,602 m². or a design flow rate of 10000 m³/h the flow velocity is calculated using the formula:

$$V_p = \frac{Q}{A} = \frac{\left(\frac{10000 \frac{m^3}{h}}{3600 \frac{s}{h}} \right)}{0,602 \text{ m}^2} = 4,61 \text{ m/s}$$

In this case the V_p = 4,61 m/s that introduced in the previous table would give us a static load los ΔP_{est} = 8 Pa.

CEVH-1P Smoke Evacuation Damper Coding

Model

CEVH - 1P L x H [mm]

Type

Manual (L: 300 to 700 mm, H: 385 to 1100 mm)	MANUAL
Motorized (L: 400 to 700 mm, H: 400 to 1100 mm)	MOTOR

Accessories

24V electric shunt release coil DC	T24E CC
48V electric shunt release coil DC	T48E CC
24V electric shunt release coil AC	T24E CA
48V electric shunt release coil AC	T48E CA
220V electric shunt release coil AC	T230E CA

Components

Without component	
Beginning and end of stroke switch	FDCU
Contact start of career	DCU
End of career contact	FCU

Accessories 1

Without accessorie	
With metal mounting frame	MM

Accessories 2

Without accessorie	
With decorative plate and decorative frame	DECO

Grille

Without grille	
RPK	
RPK-1A	
RPK-2A	
RPK-X	
RPK-P	
RPK-S	

Note: Accessories combinable with each other.

CEVH-1P Smoke Evacuation Damper Coding

Finishes

Without treatment
Anodised natural matt
Painted RAL-9016 matt
Painted RAL-9016 shine
Painted RAL-9005 matt
Painted RAL-9005 shine
Prepared for painting
Painted RAL-9010 matt
Painted RAL-9010 shine
Painted RAL-7042
Anodised s/note
Painted s/note

Length

300
350
400
450
500
550
600
650
700

Height

385
400
450
500
550
600
650
700
750
800
850
900
950
1000
1020
1100

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