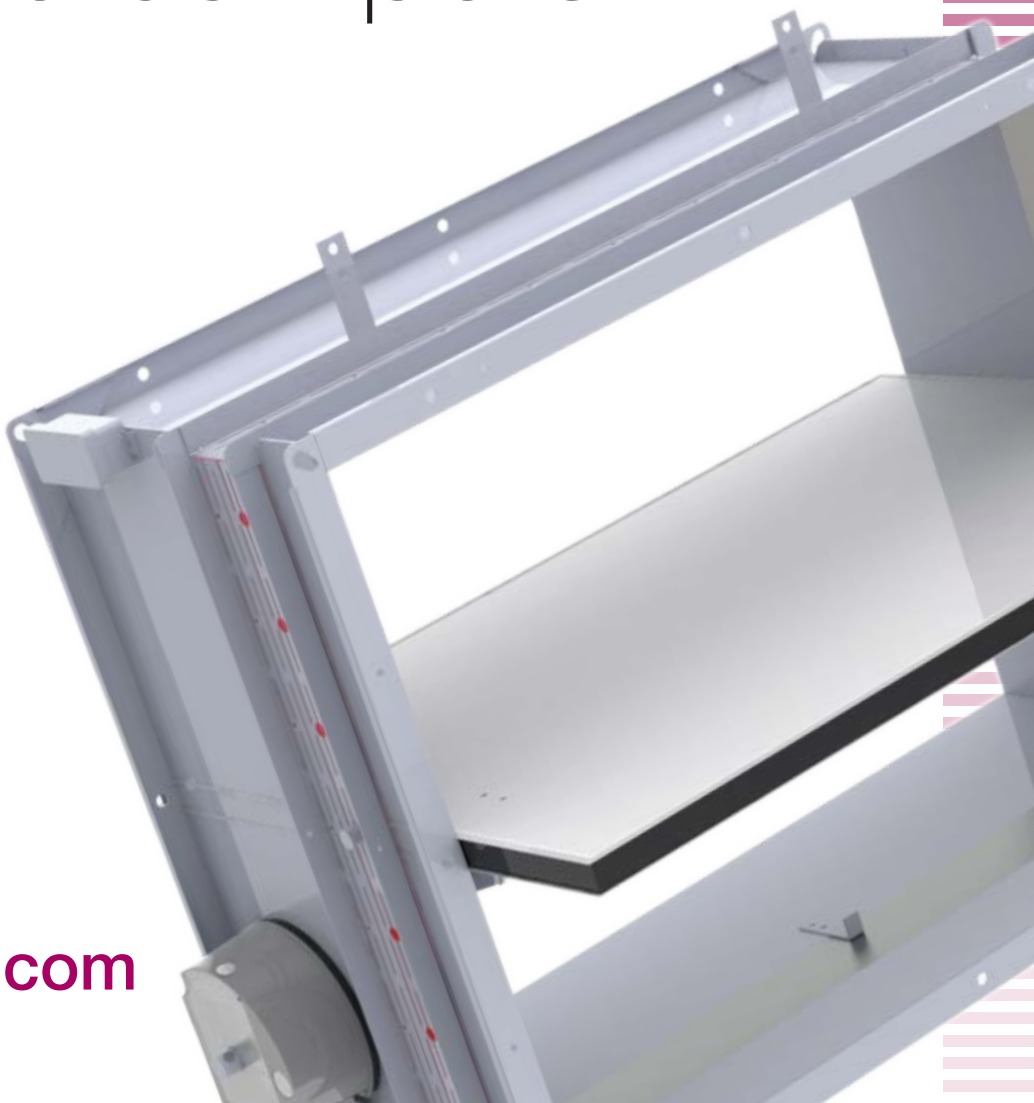
KOOLAIR

series SF

Fire dampers



CE

ISO 9001
BUREAU VERITAS
Certification
Sistema de Gestión

www.koolair.com

Rectangular and circular fire dampers

CONTENTS

Rectangular and circular fire dampers

SCFR-PD with motor

Description

KOOLAIR rectangular fire dampers, models SCFR-PD, SCFR-GD, SCFR-3H and circular fire dampers, models SCFC-PD and SCFC-GD, are approved in accordance with the Technical Building Code according to test standard UNE EN 1366-2 and classified according to EN 13501-3.
Fire dampers close automatically to prevent fire and smoke from spreading through ventilation ductwork to adjacent fire compartments.
The frame consists of a single sheet of sheet metal with an internal recess reinforced by a slot sheet metal support that prevents a thermal bridge.
The blade is made of a heat-resistant material with a thickness that varies depending on the model, intumescent joints and a perimeter seal.
Symmetrical dampers are designed to be installed in vertical or horizontal enclosures irrespective of the direction of the airflow.
Damper closure is operated by the breaking or smelting of a bimetallic fusible link (-TH70) when the temperature exceeds 72 ºC.
It is reset manually in all instances except when incorporating a servomotor with return spring and a thermoelectric fusible link calibrated at 72 ºC.
All dampers comply with requirements of the cold smoke leakage standard (-S).

SCFC-PD with manual operation
with fixing strips (optional)

Operation

The components of the manual operating mechanism are made of zinc plated steel and are housed in a plastic enclosure (manual reset).
The operating mechanism acts on the blade through a reverse pulley and does not act directly on the blade shaft, which serves only as a pivot. The blade operating mechanism therefore has greater solidity and reliability.
The mechanism is offset from the blade shaft, allowing access to the unit for maintenance and testing.
The mechanism housing is evolutive, i.e. all the operating options can be interchanged without having to send it to the factory.
Dampers incorporating a TH-70 fusible link and/or shunt or undervoltage release require a manual “on-site” reset device that allows the damper to be reset (opening) after it has been closed. Dampers with electric motors can be reset remotely by means of an electrical supply (24V or 230V).

Circular fire dampers

CE Marking
Koolair fire dampers carry the CE marking in compliance with RPC-305/2011/EU, according to EN15650:2010.

NF Marking
The SCFR-PD, SCFR-GD, SCFC-PD and SCFC-GD models are certified under NF (NF537 Certification Standard, NF S 61-937-5 fire dampers).

Standards
The dampers are approved in accordance with European Test Standard UNE-EN 1366-2 and European classification standard UNE-EN 13501-3, where:

(E) Integrity
(I) Isolation
(ho) Installed in Horizontal slab. Mounted in horizontal enclosure.
(ve) Installed in wall or stud wall. Mounted in vertical enclosure.
(i ↔ o) Symmetric (independent of airflow direction). Suitable for fire in both directions (interior-exterior and exterior-interior)
(S) Airtightness. Leakage through the damper closing blade <200 $m^3/h*m^2$

Option for fire dampers to be supplied with airtightness C to comply with EN 1751.

Motor-driven fire dampers can be integrated into the building management system (BMS) and/or fire panel with the KOOLCOM system from KOOLAIR.

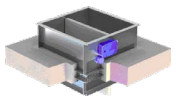
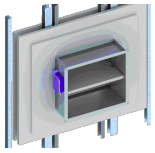
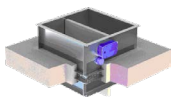
To guarantee the correct fire damper operation, it is essential to read and follow the recommendations in the installation and operation manual. In addition, the installation must comply with all current national standards.

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

Declared performance

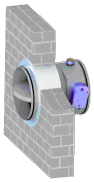
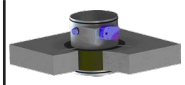
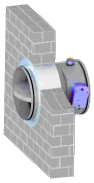
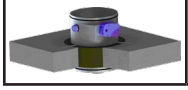
The performance specifications of our range of fire dampers (rectangular and circular) are shown in the table below.

Rectangular fire dampers

SCFR-PD CPR-2245-16		Dimensions (mm)	Construction details	Installation location	Installation	Classification
	CE 0370 NF	L: 200 → 800 H: 100 → 600	d = 150 mm ρ = 1200 kg/m³	Brick Wall	Mortar	EI-120 (ve i↔o) S (500 Pa)
	CE 0370 NF	L: 200 → 800 H: 100 → 600	d = 150 mm ρ = 2100 kg/m³	Floor slab	Mortar	EI-180 (ho i↔o) S (500 Pa)
	CE 0370 NF	L: 200 → 800 H: 100 → 600	d ≥ 100 mm	Stud wall	Plasterboard	EI-120 (ve i↔o) S (500 Pa)
SCFR-GD CPR-2591-16		**Dimensions (mm)**	**Construction details**	**Installation location**	**Installation**	**Classification**
	CE 0370 NF	L: 200 → 1500 H: 200 → 800	d = 150 mm ρ = 1200 kg/m³	Brick Wall	Mortar	EI-120 (ve i↔o) S (500 Pa)
	CE 0370 NF	L: 850 → 1500 H: 200 → 800	d = 150 mm ρ = 2400 kg/m³	Floor slab	Mortar	EI-120 (ho i↔o) S (500 Pa)
SCFR-3H CPR-3851-20		**Dimensions (mm)**	**Construction details**	**Installation location**	**Installation**	**Classification**
	CE 0370	L: 200 → 1500 H: 200 → 800	d = 150 mm ρ = 1300 kg/m³	Brick Wall	Mortar	EI-180 (ve i↔o) S (500 Pa)

Declared performance

Circular fire dampers

SCFC-PD CPR-2244-16		Dimensions (mm)	Construction details	Installation location	Installation	Classification
	CE 0370 NF	Ø: 100 → 355	d = 150 mm ρ = 1200 kg/m³	Brick Wall	Mortar	EI-120 (ve i↔o) S (500 Pa)
	CE 0370 NF	Ø: 100 → 355	d = 150 mm ρ = 2100 kg/m³	Floor slab	Mortar	EI-180 (ho i↔o) S (500 Pa)
	CE 0370 NF	Ø: 100 → 355	d ≥ 100 mm	Stud wall	Plasterboard	EI-120 (ve i↔o) S (500 Pa)
SCFC-GD CPR-2592-16		**Dimensions (mm)**	**Construction details**	**Installation location**	**Installation**	**Classification**
	CE 0370 NF	Ø: 200 → 800	d = 150 mm ρ = 1200 kg/m³	Brick Wall	Mortar	EI-180 (ve i↔o) S (500 Pa)
	CE 0370 NF	Ø: 200 → 630	d = 150 mm ρ = 2100 kg/m³	Floor slab	Mortar	EI-180 (ho i↔o) S (500 Pa)

Key

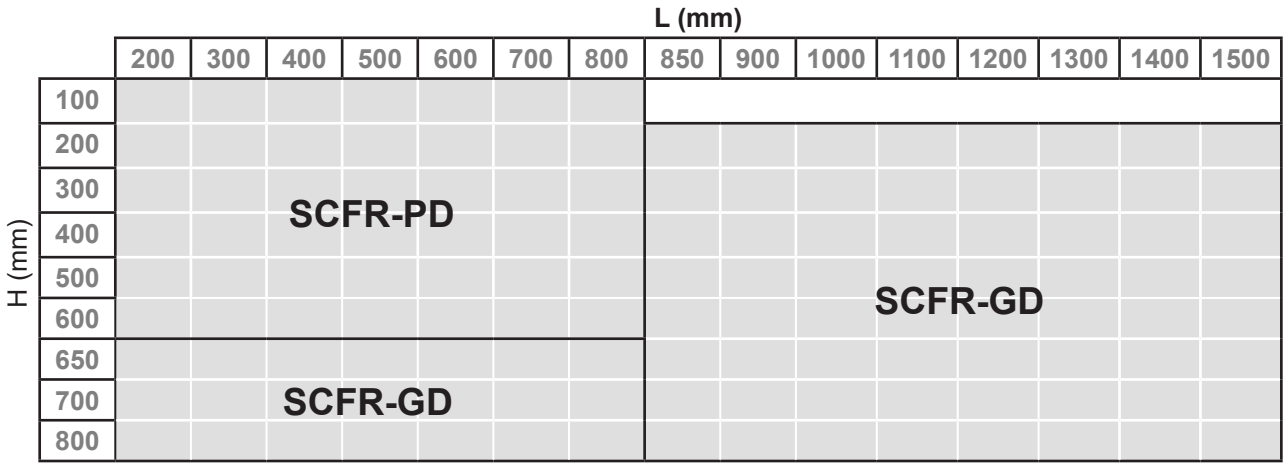
L: Length
H: Height
Ø: Diameter
d: Wall thickness
p: Density

Details of supporting structure, tested on Stud wall (plasterboard):

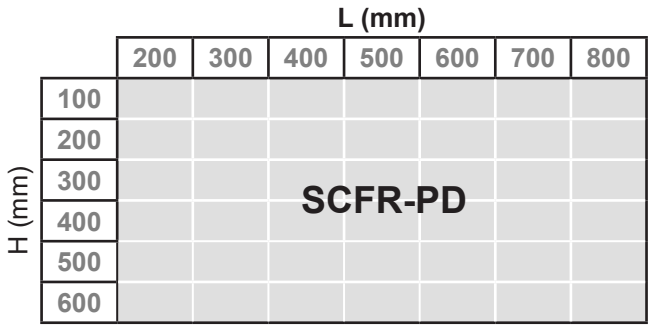
- Fire resistance rating: EI 90.
- 2 sheets of laminated fireproof plasterboard ref. KNAUF cortafuego DF thickness 12.5 mm.
- Rock wool panel ref. ProRox SL960 (ROCKWOOL).
- 2 sheets of laminated fireproof plasterboard ref. KNAUF cortafuego DF thickness 12.5 mm.
- 48 mm U-shaped channels and uprights in 400 mm modules.

Applications

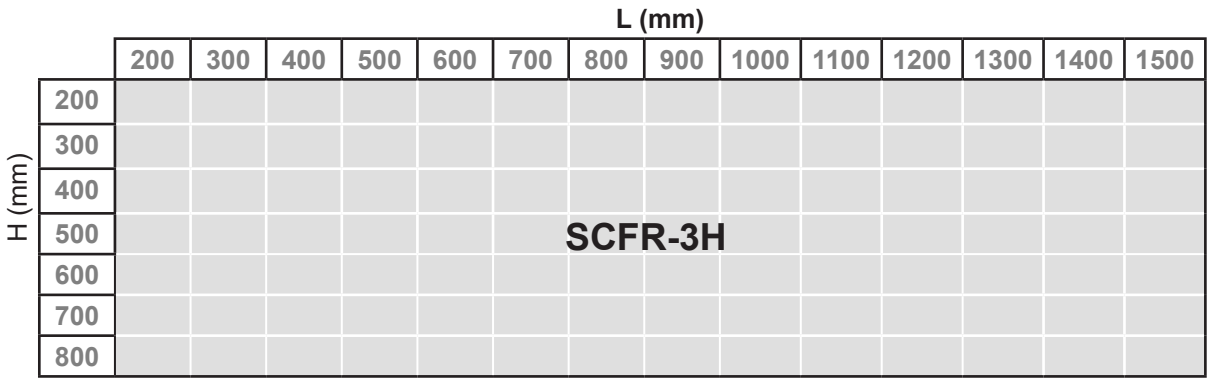
FIXED WALL EI-120 (v_e i↔o) S (RECTANGULAR)



STUD WALL EI-120 (v_e i↔o) S (RECTANGULAR)



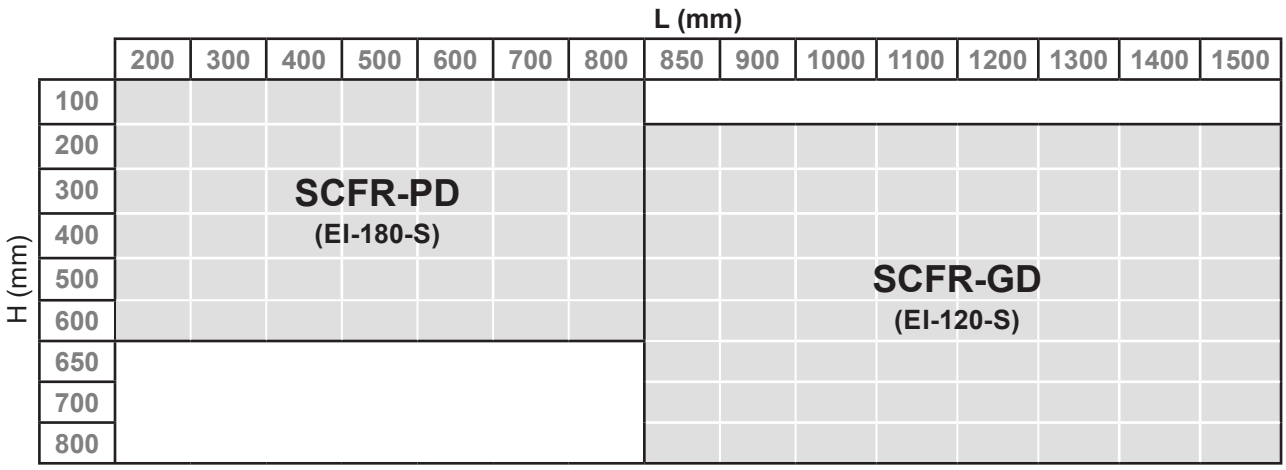
FIXED WALL EI-180 EI-180 (v_e i↔o) S (RECTANGULAR)



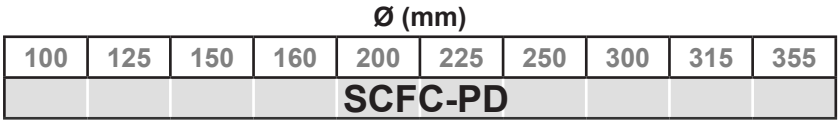
The length and height of all models of rectangular fire dampers increases in 50mm increments.

Applications

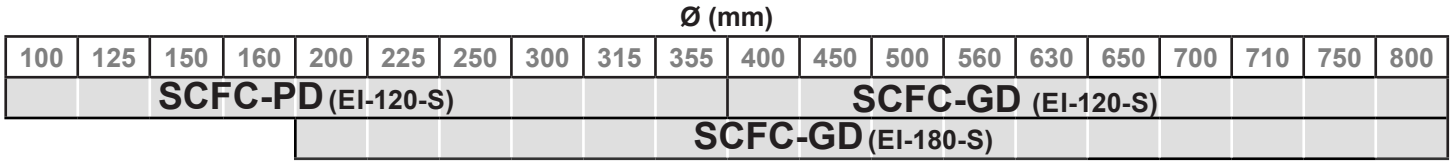
SLAB EI-120 (h_o i↔o) S / EI-180 (h_o i↔o) S (RECTANGULAR)



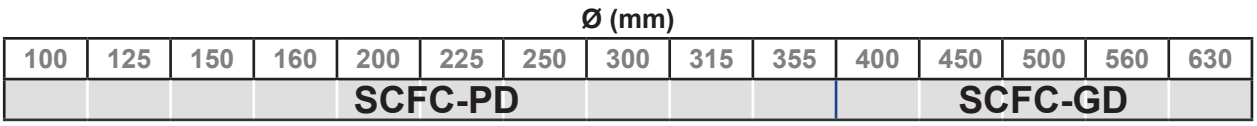
STUD WALL EI-120 (v_e i↔o) S (CIRCULAR)



FIXED WALL EI-120 (v_e i↔o) S / EI-180 (v_e i↔o) S (CIRCULAR)

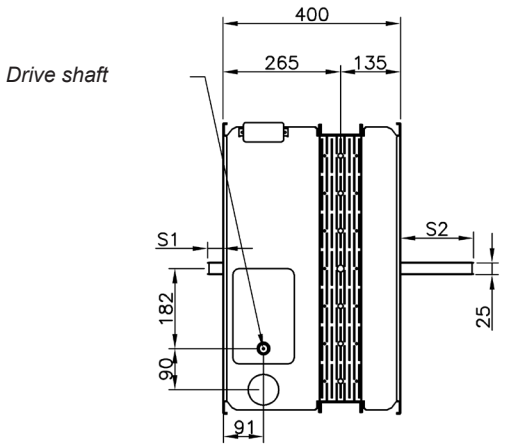


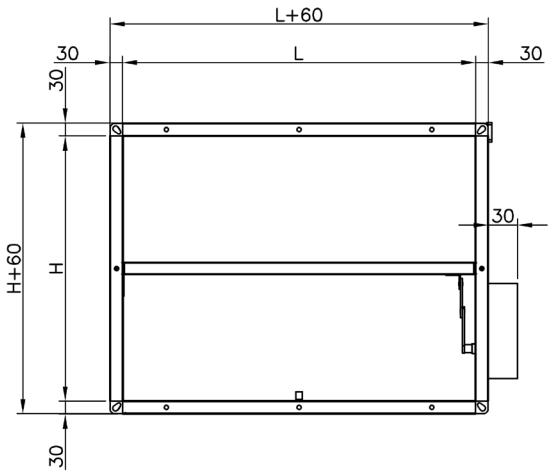
SLAB EI-180 (h_o i↔o) S (CIRCULAR)



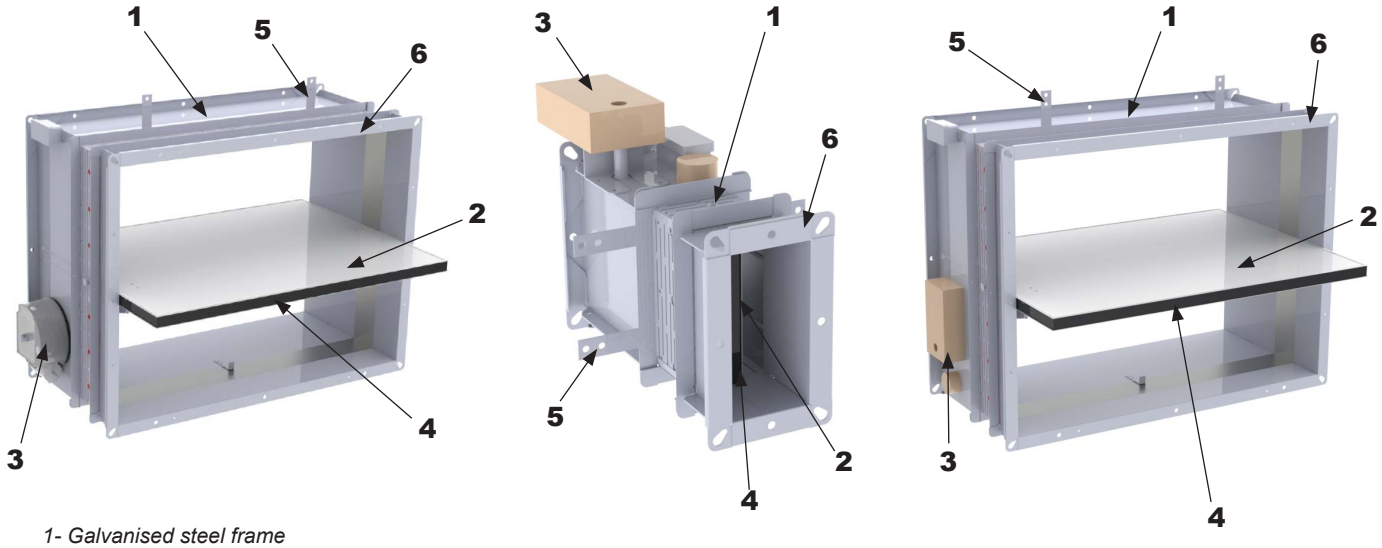
SCFR-PD Model and dimensions

SCFR-PD fire dampers are available in standard sizes (duct size) with a length (L dimension) from 200 to 800 mm increasing in 50mm increments and a height (dimension H) from 100 to 600 mm increasing in 50mm increments.





H	S1	S2
100	-	-
150	-	-
200	-	-
250	-	-
300	-	14
350	-	39
400	-	64
450	-	89
500	-	114
550	10	139
600	35	164

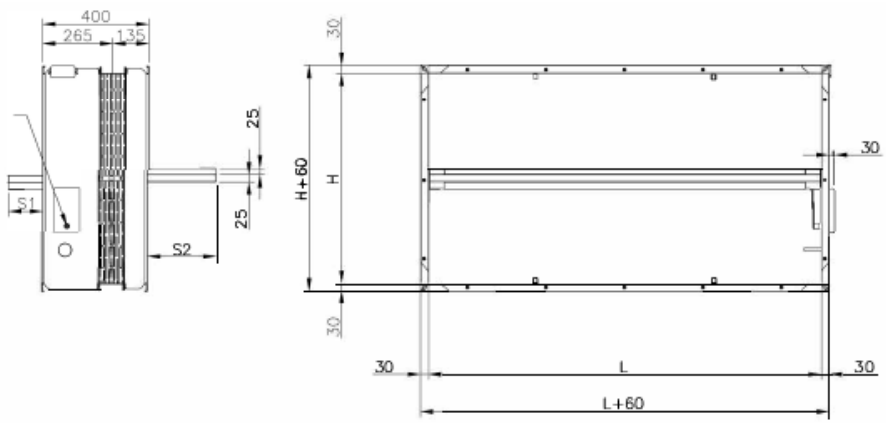


1- Galvanised steel frame
2- Damper blade
3- Mechanism/motor housing
4- Intumescent seal
5- Fixing lug for installing in slab floor (optional)
6- 30 mm flange

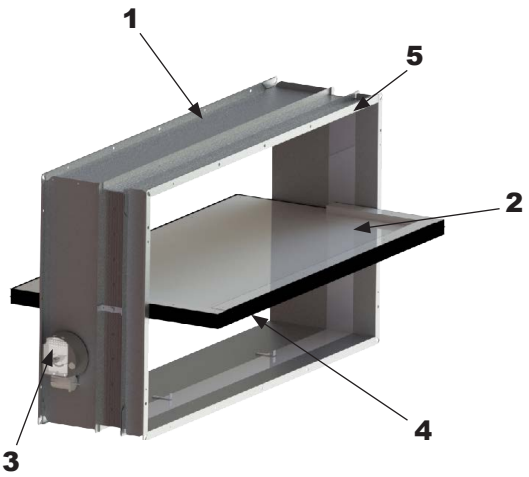
SCFR-GD Model and dimensions

SCFR-GD fire dampers are available in standard sizes (duct size) with a length (L dimension) from 850 to 1500 mm increasing in 50mm increments and a height (dimension H) from 200 to 800 mm increasing in 50mm increments.

Drive shaft



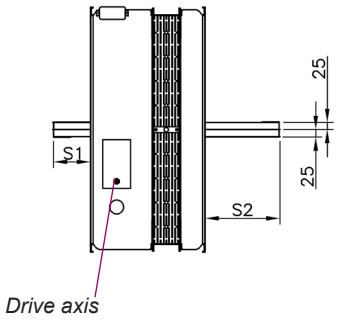
H	S1	S2
200	-	-
250	-	-
300	-	14
350	-	39
400	-	64
450	-	89
500	-	114
550	10	139
600	35	164
650	60	189
700	85	214
750	110	239
800	135	264

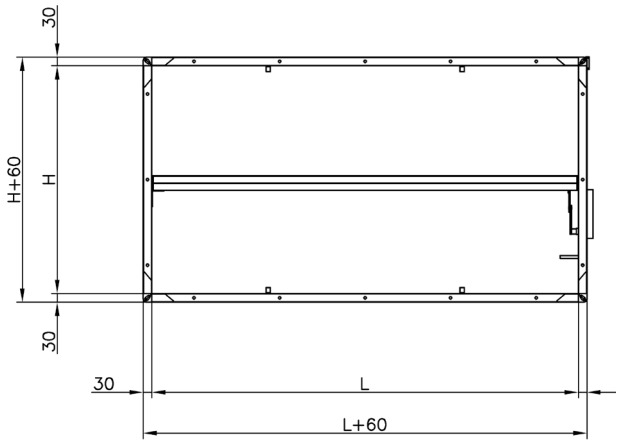


1- Galvanised steel frame 2- Damper blade
3- Mechanism/motor housing
4- Intumescent seal
5- 30 mm flange

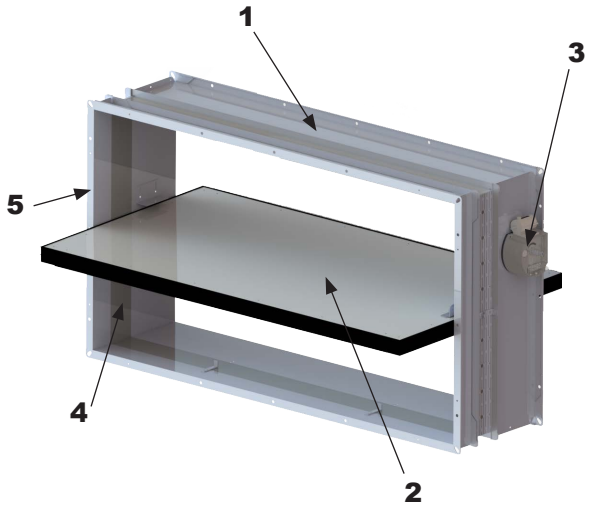
SCFR-3H Model and dimensions

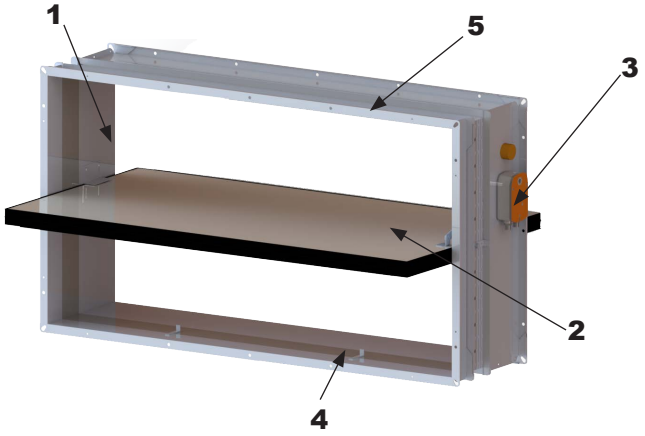
SCFR-3H fire dampers are available in standard sizes (duct size) with a length (L dimension) from 200 to 1500 mm increasing in 50mm increments and a height (dimension H) from 200 to 800 mm increasing in 50mm increments.





H	S1	S2
200	-	-
250	-	-
300	-	9
350	-	34
400	-	59
450	-	84
500	-	109
550	4	134
600	29	159
650	54	184
700	79	209
750	104	234
800	129	259

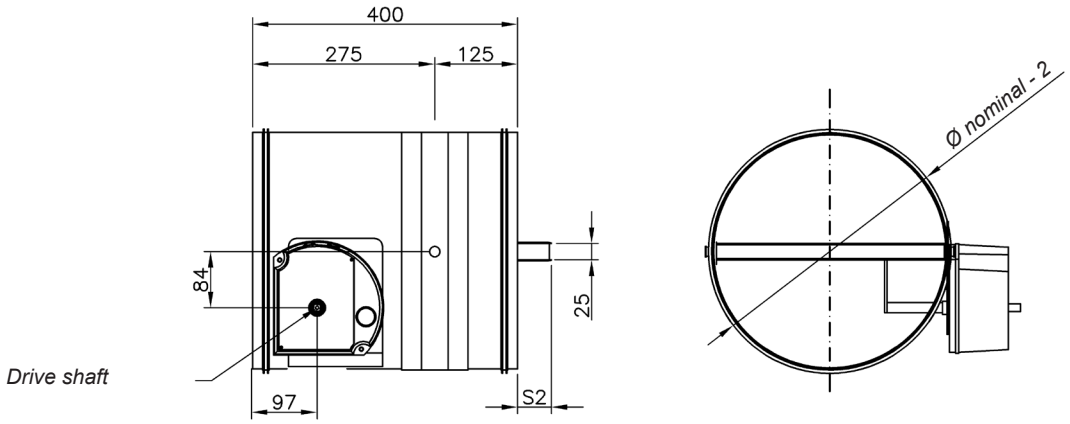




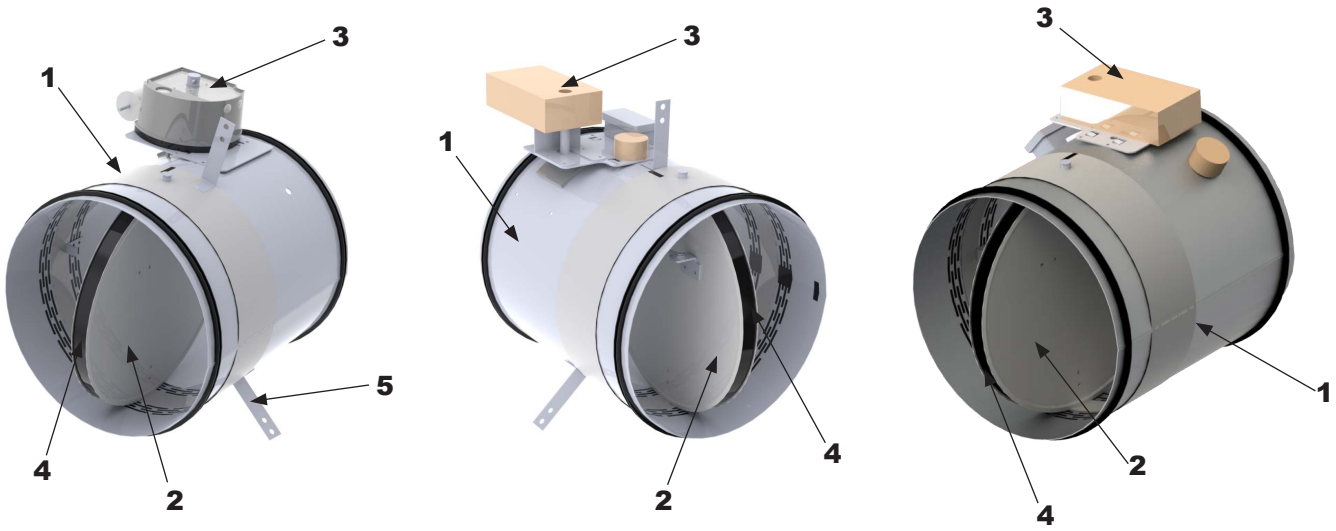
1- Galvanised steel frame
2- Blade
3- Mechanism/motor housing
4- Intumescent seal
5- 30 mm flange

SCFC-PD Model and dimensions

The standard dimensions (duct dimensions) of SCFC-PD fire dampers are: 100, 125, 150, 160, 200, 225, 250, 300, 315 and 355 mm.



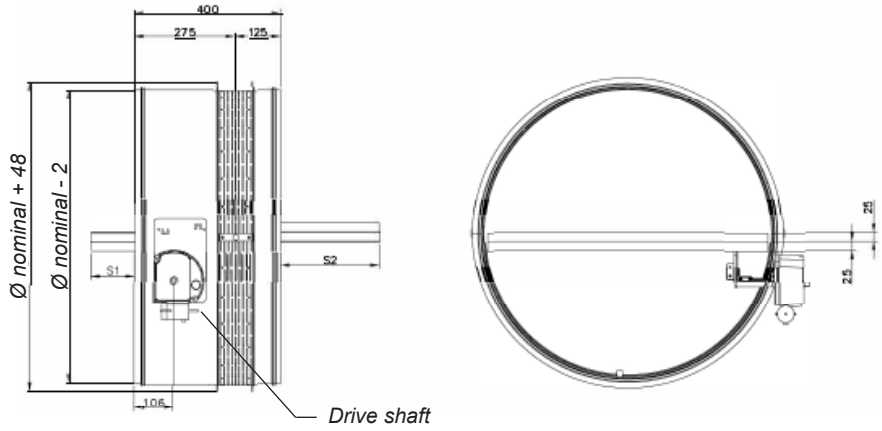
Ø NOMINAL	S2
100	-
125	-
150	-
160	-
200	-
225	-
250	-
300	14
315	25
355	50



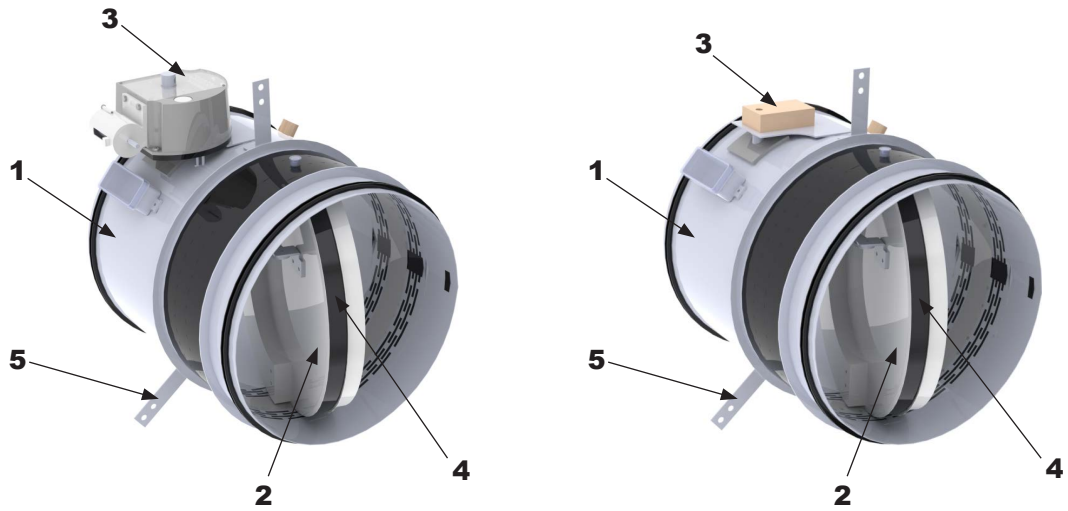
1- Galvanised steel frame
2- Blade
3- Mechanism/motor housing
4- Intumescent seal
5- Fixing lug for installing in slab (optional)

SCFC-GD Model and dimensions

The standard dimensions (duct dimensions) of SCFC-GD fire dampers are: 400, 450, 500, 560, 630, 650, 700, 710, 750 and 800 mm.



Ø NOMINAL	S1	S2
400	-	73
450	-	98
500	-	123
560	3	153
630	38	188
650	48	198
700	73	223
710	78	228
750	98	248
800	123	273



1- Galvanised steel frame
2- Damper blade
3- Mechanism/motor housing
4- Intumescent seal
5- Fixing lug for installing in slab (optional)

Accessories

SAFETY OPERATING DEVICES (DAS) AND ACCESSORIES

[As per ISO 10294-4: 2012, NF S 61937-1: 2003 and NF S 61937-5: 2012]
Fusible link (DAS)

Alloy type (bimetallic) fusible link, which acts when the air flow temperature exceeds 72 ºC (EN 10294) causing the fusible link to smelt. In all the operating mechanism arrangements it is incorporated as standard in the internal assembly of the trigger mechanism except where a servomotor with a reset spring is fitted.

FUSIBLE LINK (DAS)

Electromagnetic coil (shunt or undervoltage release) (DAS)

There are two types: shunt release or undervoltage release.
Shunt releases are normally de-energised and act via an electric signal (electric supply)
Undervoltage releases are normally energised and act by removing or breaking the current supply.
Available in:

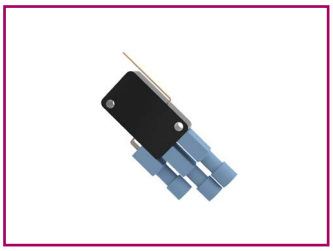
Voltage	Shunt release	Ruptura
220 V.a.c.	CE	CE
24 V.a.c.	CE	CE
24 V.d.c.	CE NF	CE NF
48 V.a.c.	CE	CE
48 V.d.c.	CE NF	CE NF

ELECTRIC COIL (DAS)

Start and end of run position contacts

Electrical devices that indicate the position of the damper, i.e. whether it is open or closed, by connected control systems, detection modules, etc.

PC = Start of run
FC = End of run



CONTACT POSITION

Servomotor with reset spring and thermoelectric fusible link (DAS)

Allows the damper to be both reset (opened) and activated (closed) remotely. Fitted with a thermoelectric fusible link set at 72 ºC (EN 10294) and its own signalling contacts (start and end of run).

The servomotors are supplied for 24 V operation CE NF 230 V operation CE available on request. KOOLAIR incorporates motors from different manufacturers (Belimo, Siemens, etc.).

SIEMENS SERVOMOTOR (DAS)

BELIMO SERVOMOTOR (DAS)

BELIMO SERVOMOTOR + BSIA (DAS)

Installation

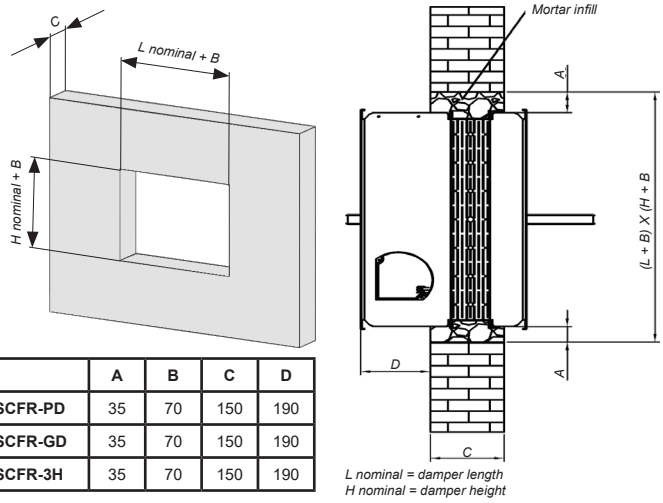
Fire dampers are part of a building's fire safety system and therefore special care must be taken with their installation.

To install the dampers a perforation in the wall that is 100 mm greater than the nominal dimensions of the damper is required. No additional space is required for the mechanism box as it sits outside the wall or partition. As such, when the fire damper blade is in the closed position, it will be exactly vertical in the firewall, as if it were an extension of this wall, as required by UNE-EN 1366-2.

Likewise, the dimensions indicated on the drawings must be respected in order to allow fitting of the operating mechanism box. It is important not to force the damper blade open or closed by hand; activation must be via the mechanism, whether mechanical or electric.

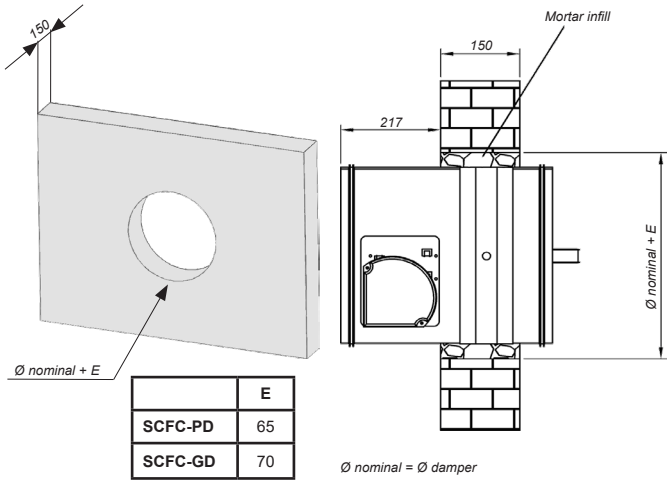
Positioning in wall

SCFR-PD, SCFR-GD, SCFR-3H



	A	B	C	D
SCFR-PD	35	70	150	190
SCFR-GD	35	70	150	190
SCFR-3H	35	70	150	190

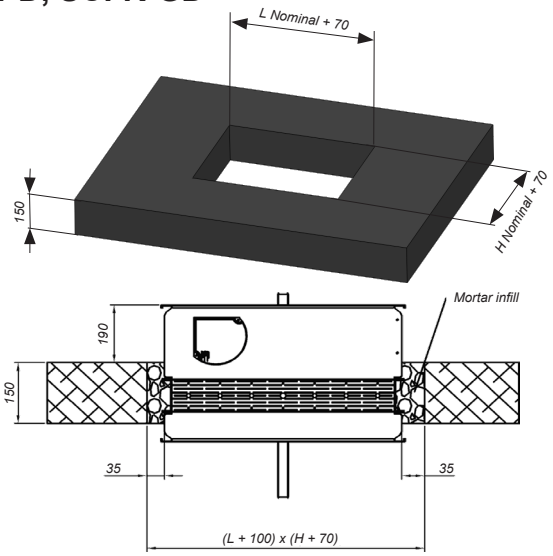
SCFC-PD, SCFC-GD



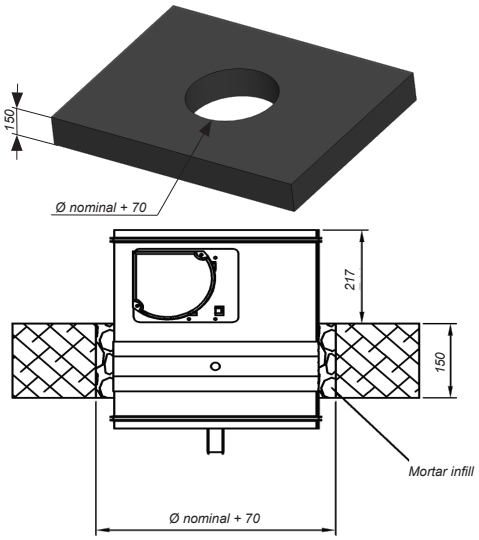
	E
SCFC-PD	65
SCFC-GD	70

Positioning in slab

SCFR-PD, SCFR-GD



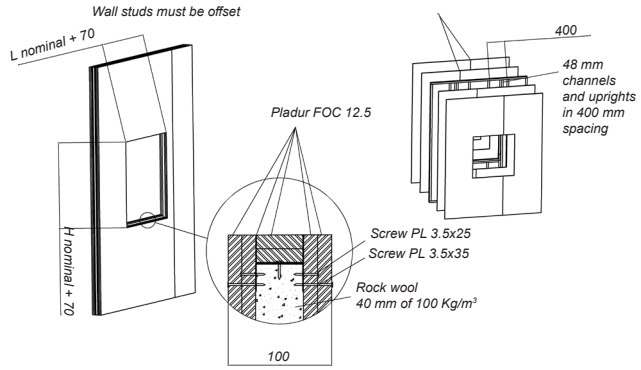
SCFC-PD, SCFC-GD

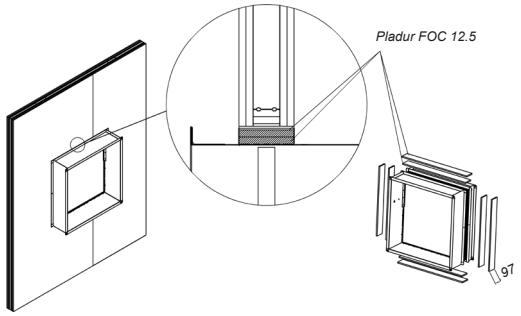


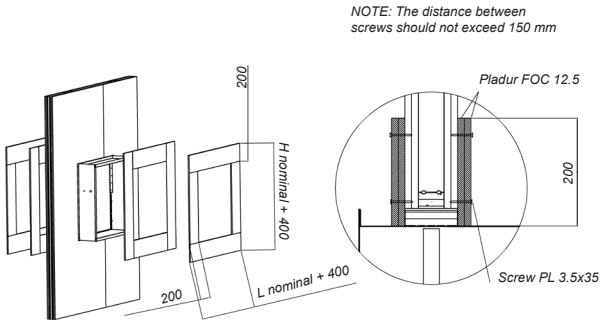
Installation

Mounting in stud wall

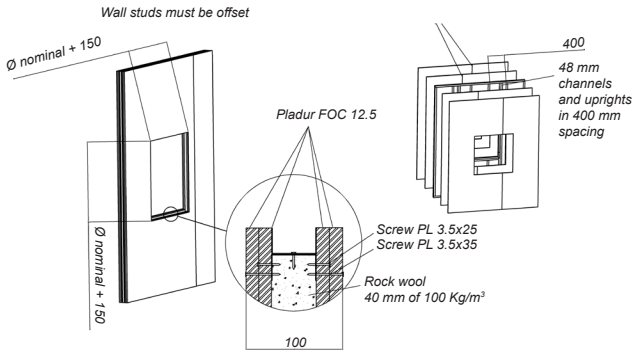
SCFR-PD

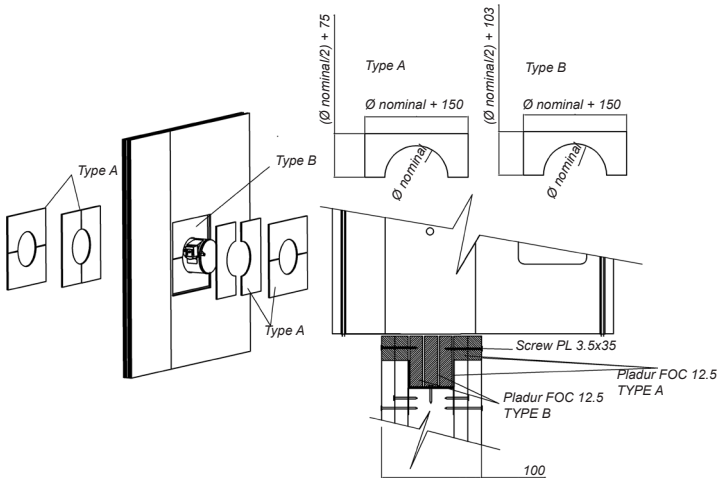


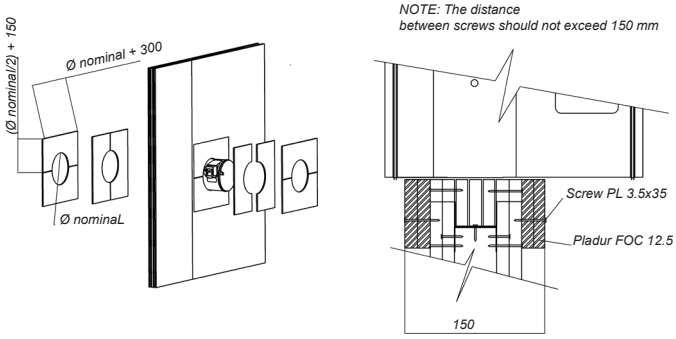




SCFC-PD







Test conditions:

- *15-8577-939 (SCFC-PD): KNAUF "cortafuego DF" fireboard.*
- *15-8577-1076 (SCFR-PD): KNAUF "cortafuego DF" fireboard.*

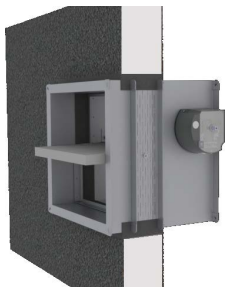
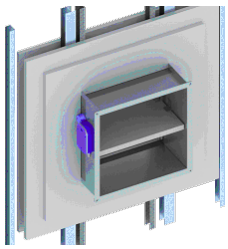
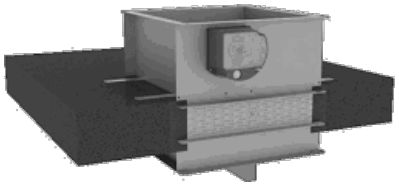
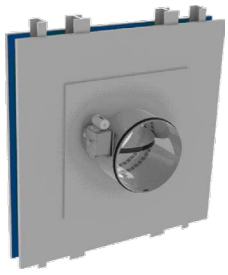
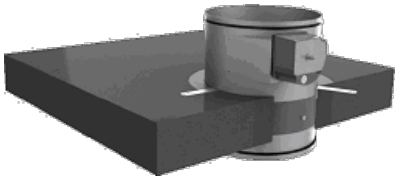
To guarantee the correct fire damper operation, it is essential to read and follow the recommendations in the installation and operation manual. In addition, the installation must comply with all current national standards.

Installation

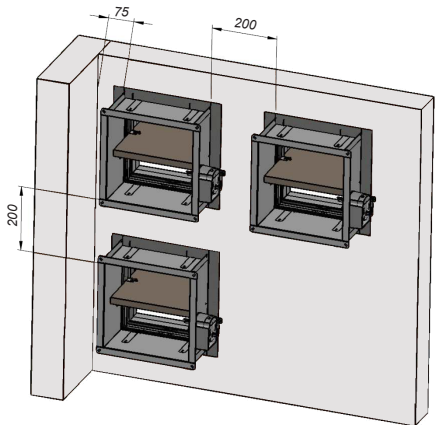
Precautions during assembly

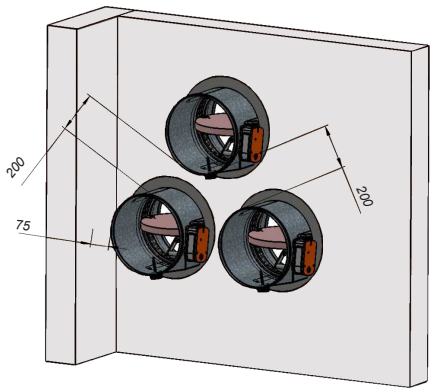
The slot section of the damper frame must be sealed in when fitted both horizontally or vertically.

There is an option to use fixing lugs fitted on the damper frame for installation in slab.

In wall	In stud wall	In floor
		
		

Arrangement of damper and building elements according to DB-SI (CTE).





The following conditions apply to horizontal and vertical dampers:
- There must be a minimum separation of 75 mm between fire dampers and building elements.
- There must be a minimum separation of 200 mm between fire dampers.

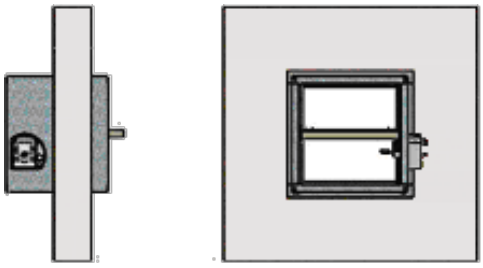
Installation

CORRECTINSTALLATION

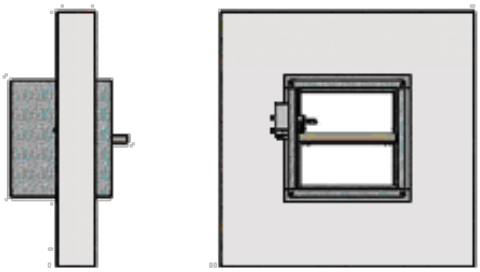
Airflow direction is not critical
(v_e i↔o) o (h_o i↔o)

Manual

Manual device at 0º

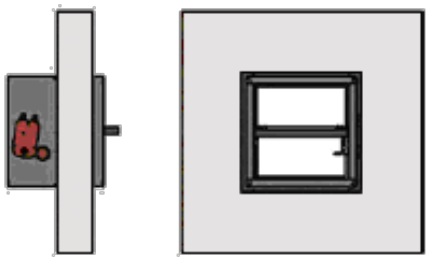


Manual device at 180º

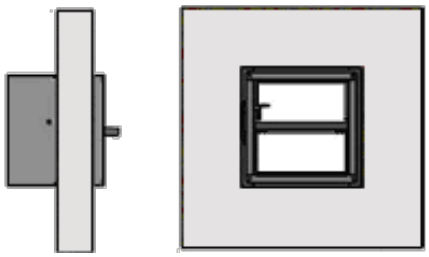


Motor-driven

Motor-driven device at 0º



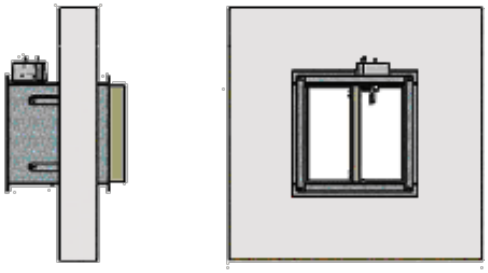
Motor-driven device at 180º



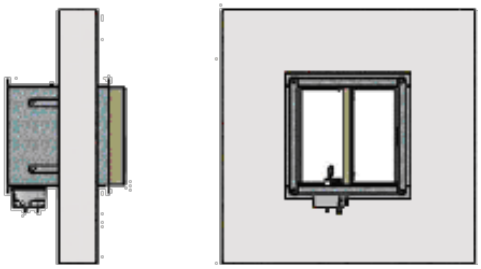
INCORRECTINSTALLATION

Manual

Manual device at top

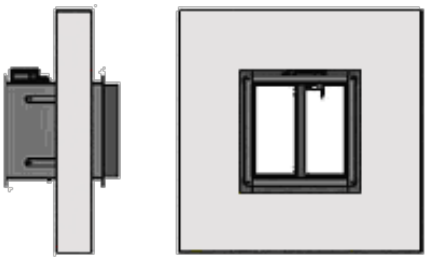


Manual device at bottom

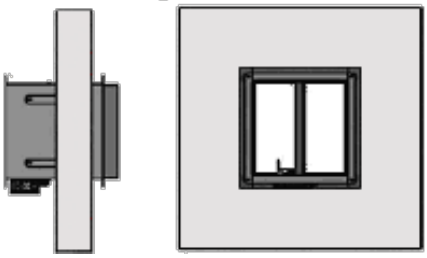


Motor-driven

Motor-driven device at top



Motor-driven device at bottom



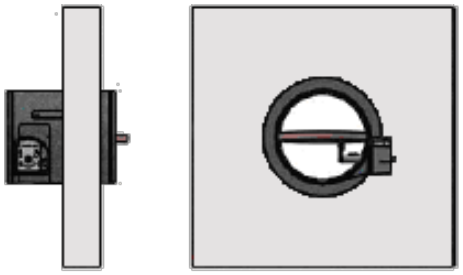
Installation

CORRECTINSTALLATION

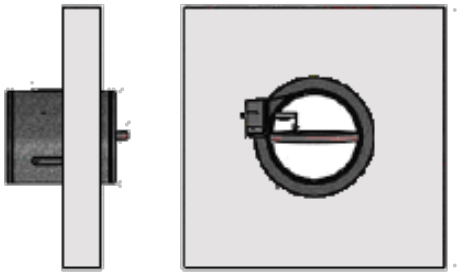
Airflow direction is not critical
(v_e i↔o) o (h_o i↔o)

Manual

Manual device at 0º

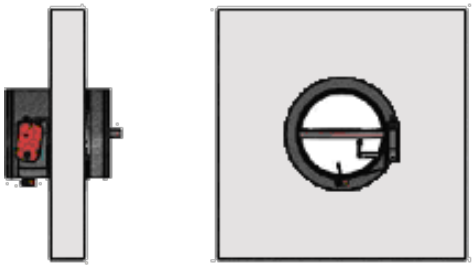


Manual device at 180º

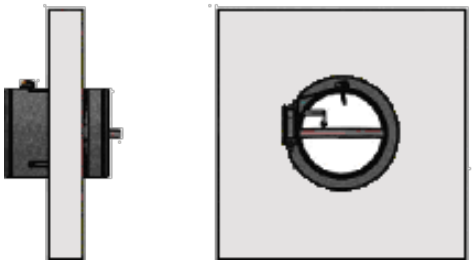


Motor-driven

Moto-driven device at 0º



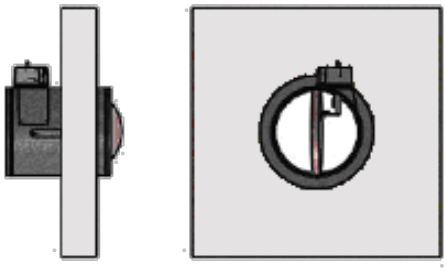
Motor-driven device at 180º



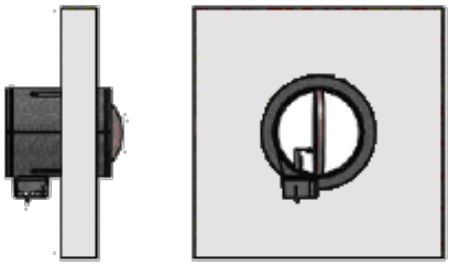
INCORRECTINSTALLATION

Manual

Manual device at top

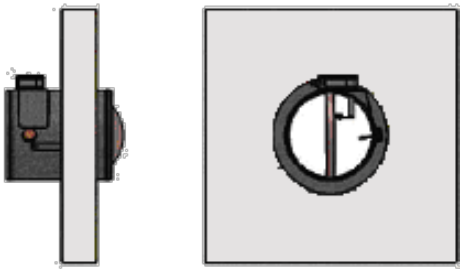


Manual device at bottom

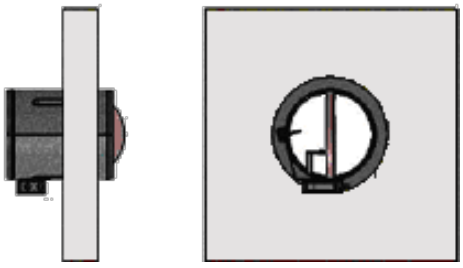


Motor-driven

Motor-driven device at top



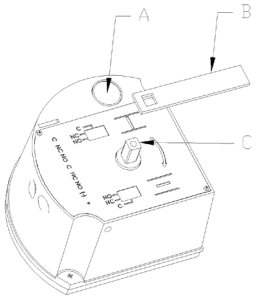
Motor-driven device at bottom

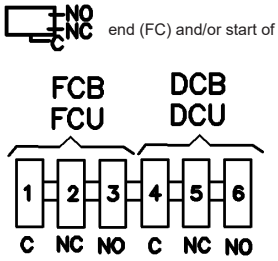


Operating mechanisms

Operating mechanisms and electrical connections

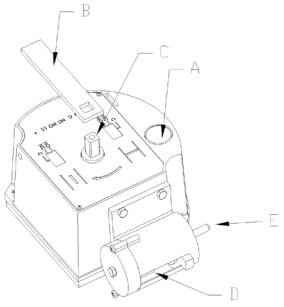
OPERATION BY MEANS OF TH-70 BIMETALIC FUSE (MANUAL RESET)

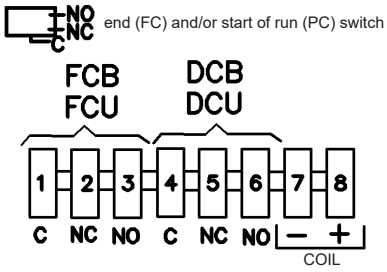




- Closing (operating) of the damper when button “A” is`pressed or alloy fuse is triggered by a temperature over 72 °C.
- The damper is reset (opened) manually by inserting key “B” in housing “C” and turning clockwise.

OPERATION BY MEANS OF TH-70 BIMETALIC FUSE + COIL (MANUAL RESET)



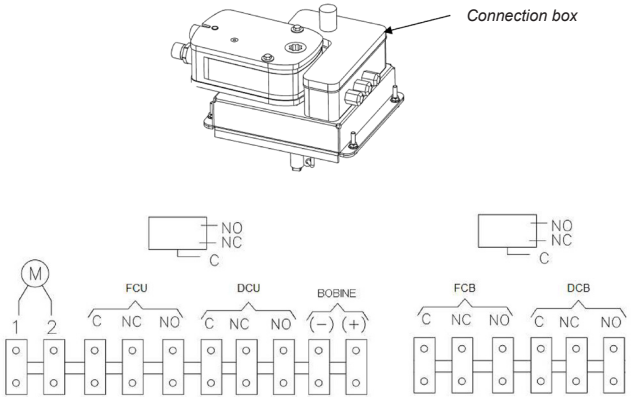


- Damper is closed (operated) by providing electric supply if coil “D” is an shunt release or by switching off supply if coil “D” is an undervoltage release, or when alloy fuse is triggered by temperatures over 72 °C
-The damper is reset (opened) by pressing the “E” shaft until the electromagnet is energised (undervoltage release) or de-energised (shunt release) and inserting key “B” in housing “C” and turning clockwise.

Operating mechanism

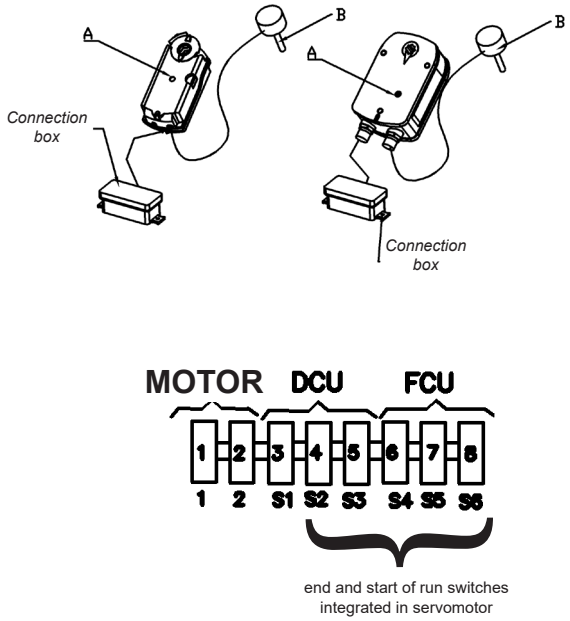
Operating mechanisms and electrical connections

OPERATION BY BIMETALLIC FUSE TH-70 + COIL + RESET MOTOR (AUTOMATIC RESET)



- Damper is closed (operated) by providing electric supply to shunt release of 24V or 48V DC or when alloy fuse is triggered by temperatures over 72 °C.
See p. 11 types of electrical power available in coils.
- Damper is reset (opened) by providing electric supply to servomotor BL24-48 (24…48 V AC/DC) or BL110-230 (110 …230 V AC) until fully opened.

SERVOMOTOR WITH RETURN SPRING (AUTOMATIC RESET)

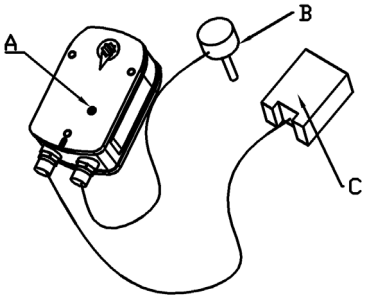


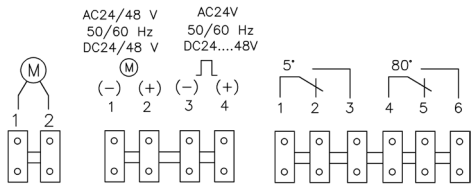
- Damper is closed (activated) by removing the power supply (24 V or 230 V) to the servomotor with return spring (“A” or “D”) or by switching off power by means of a thermoelectric fusible link “B” when the temperature exceeds 72° C inside or outside the damper.
-Damper is reset (opened) by providing electric supply (24 V or 230 V) to servomotor with return spring (“A” or “D”).
Manually inserting the lever in hole “A” and turning clockwise.

Activation

Activation mechanisms and electrical connections

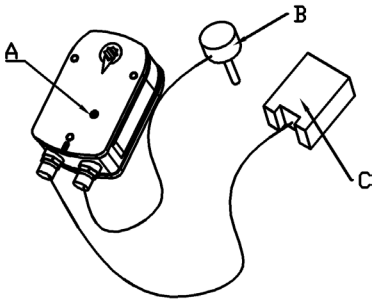
SERVOMOTOR WITH RETURN SPRING + BSIA24-48 (SHUNT RELEASE) (AUTOMATIC RESET) NF MARKING

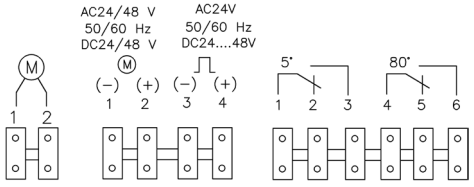




- Damper is closed (operated) by providing an electrical supply (24 V AC or 24…48 V DC) to terminals
3-4 of the BSIA “C” interface as shown in the diagram or by switching off power by means of thermoelectric fusible link “B” when the temperature exceeds 72 °C inside or outside the damper.
- Damper is automatically reset by switching off supply to terminals 1 and 2 for more than 5 seconds and then supplying power (24...48 V AC/DC) to the same terminals, as shown in the electrical wiring diagram. Manually inserting the lever in hole “A” and turning clockwise.

SERVOMOTOR WITH RETURN SPRING + BSIA24-48 (UNDERVOLTAGE RELEASE) (AUTOMATIC RESET) NF MARKING





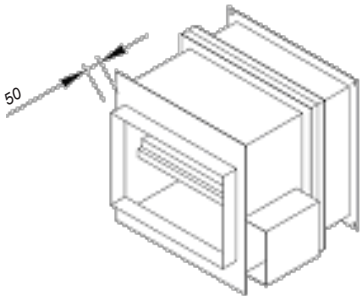
- Damper is closed (activated) by switching off the supply (24 V AC or 24…48 V DC) to terminals 3-4 of the BSIA24-48-R “C” interface as shown in the electrical wiring diagram or by switching off power by means of thermoelectric fusible link “B” when the temperature exceeds 72 ° C inside or outside the damper.
- Damper is automatically reset by switching off supply to terminals 1 and 2 for more than 5 seconds and then supplying power (24...48 V AC/DC) to the same terminals, as shown in the electrical wiring diagram. Manually inserting the lever in hole “A” and turning clockwise.

Servomotors and thermoelectric fusible links compatible for this solution:
BF24-T-ST (24 V AC/DC)
BF48-T-ST (48 V AC/DC)
BAE72-F-ST (thermoelectric fusible link)

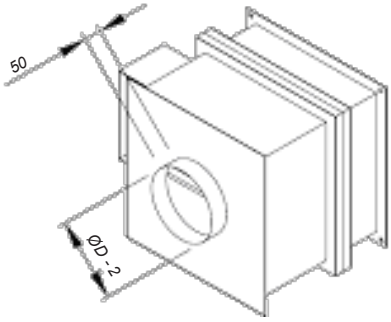
Special finishes with duct connection spigots and truncated conical transformations

Subject to checking with the Commercial Department, it is possible to supply rectangular and circular dampers with transformation spigots on request as a non-standard finish.

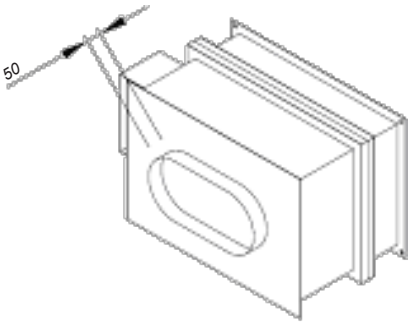
These couplings may require a longer frame length than the defined standard in order to avoid the opening/closing of the blade from interfering with the spigot connections.



Rectangular



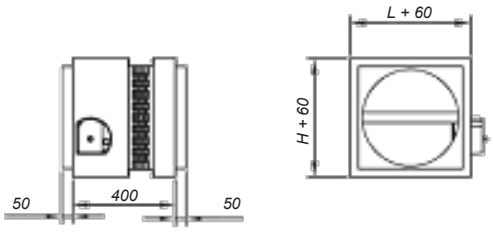
Circular



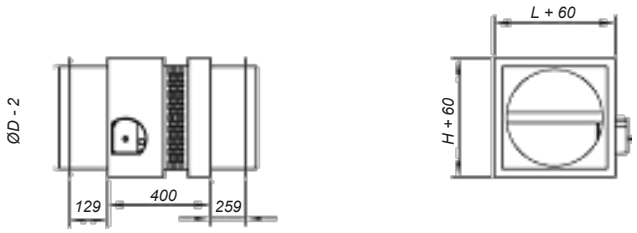
Oval

Length of the frame assembly in relation to the height of the damper.

Reducers



If H < 250



If H ≥ 300

Technical data

SCFR-PD Table

H \ L	200	250	300	350	400	450	500	550	600	650	700	750	800	
100	0,015	0,019	0,023	0,026	0,030	0,034	0,038	0,041	0,045	0,049	0,053	0,056	0,060	A_L (m^2)
	0,53	0,50	0,47	0,45	0,42	0,39	0,37	0,35	0,32	0,30	0,28	0,26	0,25	k_p
	-8	-7	-7	-7	-6	-6	-6	-6	-5	-5	-5	-5	-5	$k_{dB(A)}$
150	0,025	0,031	0,038	0,044	0,050	0,056	0,063	0,069	0,075	0,081	0,088	0,094	0,100	A_L (m^2)
	0,45	0,41	0,37	0,33	0,30	0,26	0,23	0,21	0,19	0,17	0,15	0,14	0,13	k_p
	-7	-6	-6	-6	-5	-5	-5	-5	-4	-4	-4	-4	-4	$k_{dB(A)}$
200	0,035	0,044	0,053	0,061	0,070	0,079	0,088	0,096	0,105	0,114	0,123	0,131	0,140	A_L (m^2)
	0,39	0,33	0,28	0,24	0,20	0,17	0,15	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-6	-6	-5	-5	-4	-4	-4	-4	-4	-3	-3	-3	-3	$k_{dB(A)}$
250	0,045	0,056	0,068	0,079	0,090	0,101	0,113	0,124	0,135	0,146	0,158	0,169	0,180	A_L (m^2)
	0,32	0,26	0,21	0,17	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-5	-5	-5	-4	-4	-4	-3	-3	-3	-3	-3	-3	-2	$k_{dB(A)}$
300	0,055	0,069	0,083	0,096	0,110	0,124	0,138	0,151	0,165	0,179	0,193	0,206	0,220	A_L (m^2)
	0,27	0,21	0,16	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-5	-5	-4	-4	-4	-3	-3	-3	-3	-2	-2	-2	-2	$k_{dB(A)}$
350	0,065	0,081	0,098	0,114	0,130	0,146	0,163	0,179	0,195	0,211	0,228	0,244	0,260	A_L (m^2)
	0,22	0,17	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-5	-4	-4	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	$k_{dB(A)}$
400	0,075	0,094	0,113	0,131	0,150	0,169	0,188	0,206	0,225	0,244	0,263	0,281	0,300	A_L (m^2)
	0,19	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-4	-4	-3	-3	-3	-3	-2	-2	-2	-2	-2	-1	-1	$k_{dB(A)}$
450	0,085	0,106	0,128	0,149	0,170	0,191	0,213	0,234	0,255	0,276	0,298	0,319	0,340	A_L (m^2)
	0,16	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-4	-4	-3	-3	-3	-2	-2	-2	-2	-1	-1	-1	-1	$k_{dB(A)}$
500	0,095	0,119	0,143	0,166	0,190	0,214	0,238	0,261	0,285	0,309	0,333	0,356	0,380	A_L (m^2)
	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-4	-3	-3	-3	-2	-2	-2	-2	-1	-1	-1	-1	-1	$k_{dB(A)}$
550	0,105	0,131	0,158	0,184	0,210	0,236	0,263	0,289	0,315	0,341	0,368	0,394	0,420	A_L (m^2)
	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-4	-3	-3	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	$k_{dB(A)}$
600	0,115	0,144	0,173	0,201	0,230	0,259	0,288	0,316	0,345	0,374	0,403	0,431	0,460	A_L (m^2)
	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	k_p
	-3	-3	-3	-2	-2	-2	-1	-1	-1	-1	-1	-1	0	$k_{dB(A)}$

Key:

L	width in mm
H	height in mm
A_L	free area in m^2
v_{eff}	effective velocity in relation to the free surface in m/s
ΔP	pressure loss in Pa
L_{wA}	sound level in dB(A)
k_p	pressure loss correction factor
$k_{dB(A)}$	sound-level correction factor

Correction factors:

k_p	pressure loss factor
$k_{dB(A)}$	sound correction factor

L_{wA} - $dB(A)_{damper}$ = $dB(A)_{diagram}$ + $k_{dB(A)}$

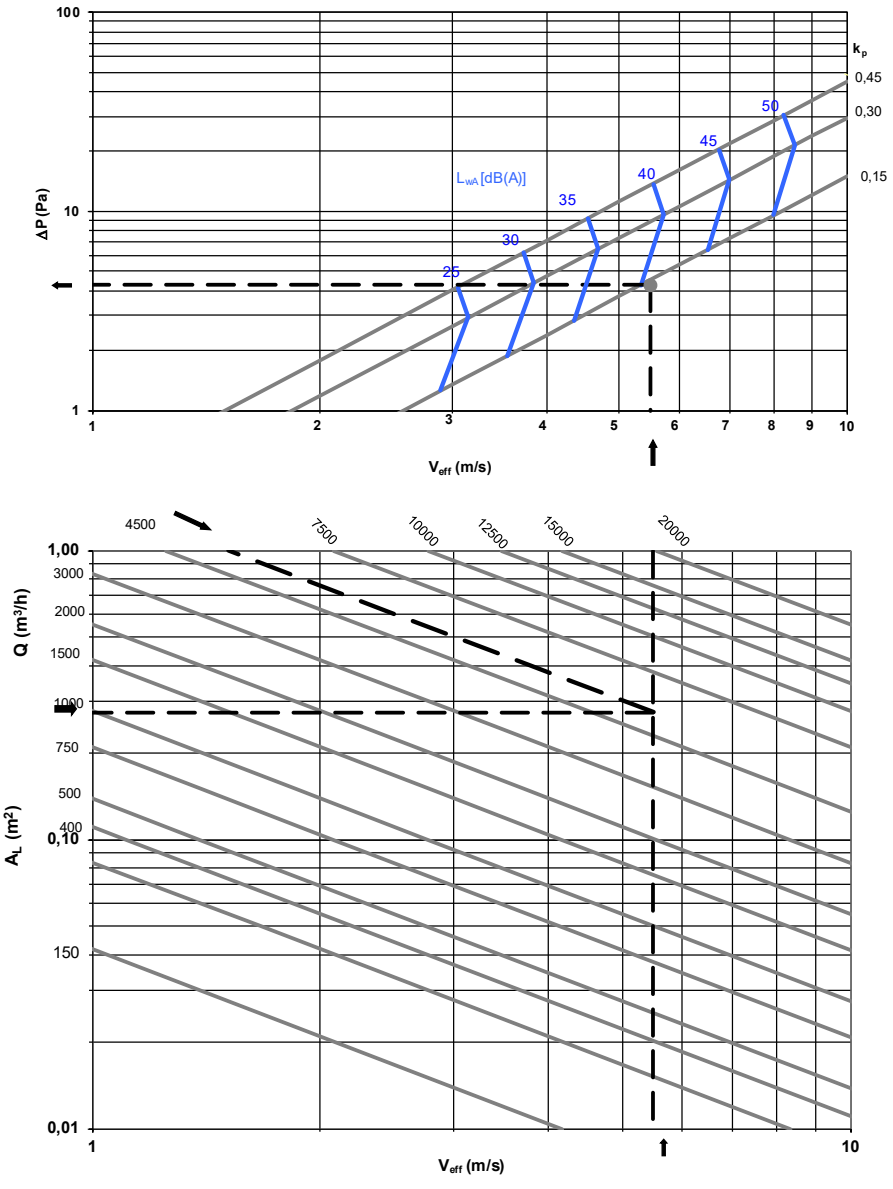
To determine the technical parameters of the dampers we must apply the following expressions (see example):

$\Delta P = \Delta P_{diagram}$ depending on the k_p indicated in the above table

$L_{wA} = L_{wA\ diagram} + k_{dB(A)}$ indicated in the above table

Technical data

SCFR-PD Diagram



Selection example:
For the given duct dimensions, we select a 600 x 500 mm SCFR-PD damper.
We use the table on the previous page to find the following data:

$A_L = 0{,}285\ m^2$ $k_p = 0{,}14$ $k_{dB(A)} = -1$

The technical data to achieve a flow rate of 5450 m^3/h is required. Referring to the diagram above using the this flow rate and an area of 0,285 m^2, we find a V_{eff} of 5,5 m/s. With this speed and taking into account the value of k_p we are given:
Differential pressure: 4 Pa
Noise level: 41 dB(A)
Applying L_{wA}- dB(A) = 41 + (-1) = 40 dB(A)

Technical data

SCFR-GD Table

H \ L	200	250	300	350	400	450	500	550	600	650	700	750	800	
650	0,120	0,150	0,180	0,210	0,240	0,270	0,300	0,330	0,360	0,390	0,420	0,450	0,480	A_L (m^2)
	0,84	0,75	0,69	0,63	0,58	0,53	0,49	0,45	0,42	0,39	0,36	0,34	0,31	k_p
	-3	-3	-2	-2	-2	-2	-1	-1	-1	-1	-1	0	0	$k_{dB(A)}$
700	0,130	0,163	0,195	0,228	0,260	0,293	0,325	0,358	0,390	0,423	0,455	0,488	0,520	A_L (m^2)
	0,81	0,67	0,60	0,54	0,49	0,44	0,40	0,37	0,34	0,30	0,28	0,25	0,23	k_p
	-3	-3	-2	-2	-2	-1	-1	-1	-1	-1	0	0	0	$k_{dB(A)}$
750	0,140	0,175	0,210	0,245	0,280	0,315	0,350	0,385	0,420	0,455	0,490	0,525	0,560	A_L (m^2)
	0,78	0,70	0,63	0,57	0,52	0,47	0,43	0,39	0,36	0,33	0,30	0,28	0,25	k_p
	-3	-2	-2	-2	-1	-1	-1	-1	-1	0	0	0	0	$k_{dB(A)}$
800	0,150	0,188	0,225	0,263	0,300	0,338	0,375	0,413	0,450	0,488	0,525	0,563	0,600	A_L (m^2)
	0,75	0,67	0,60	0,54	0,49	0,44	0,40	0,37	0,34	0,30	0,28	0,25	0,23	k_p
	-3	-2	-2	-2	-1	-1	-1	-1	0	0	0	0	0	$k_{dB(A)}$

Key:

L	width in mm
H	height in mm
A_L	free area in m^2
v_{eff}	effective velocity in relation to the free surface in m/s
ΔP	pressure loss in Pa
L_{wA}	sound level in dB(A)
k_p	pressure loss correction factor
$k_{dB(A)}$	sound-level correction factor

Correction factors:

k_p	pressure loss factor
$k_{dB(A)}$	sound correction factor

L_{wA} - $dB(A)_{damper}$ = $dB(A)_{diagram}$ + $k_{dB(A)}$

To determine the technical parameters of the dampers we must apply the following expressions (see example):

$\Delta P = \Delta P_{diagram}$ depending on the k_p indicated in the above table

$L_{wA} = L_{wA\ diagram} + k_{dB(A)}$ indicated in the above table

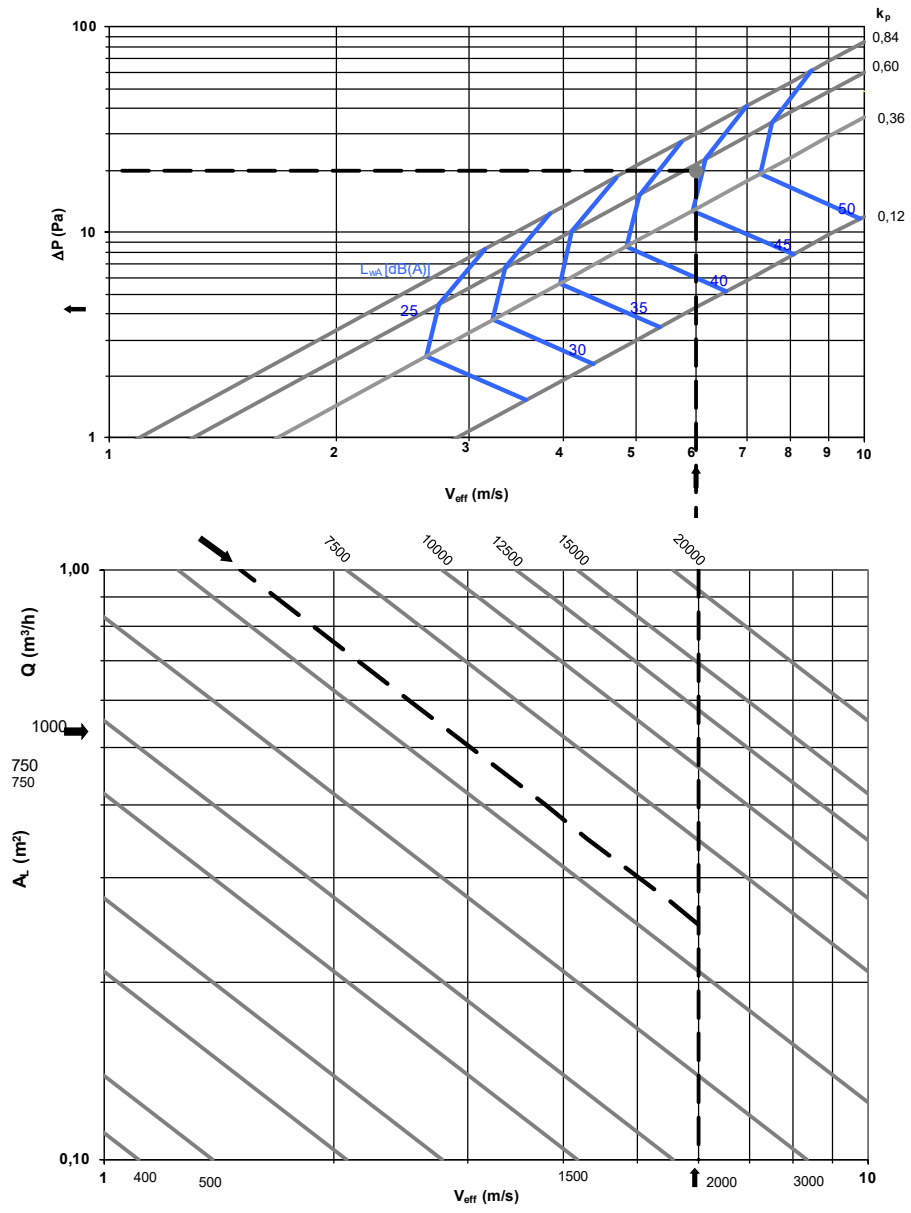
Technical data

SCFR-GD Table

H \ L	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	
200	0,128	0,135	0,143	0,150	0,158	0,165	0,173	0,180	0,188	0,195	0,203	0,210	0,218	0,225	A_L (m^2)
	0,82	0,79	0,77	0,75	0,74	0,72	0,70	0,69	0,67	0,65	0,64	0,63	0,61	0,60	k_p
	-3	-3	-3	-3	-3	-3	-3	-2	-2	-2	-2	-2	-2	-2	$k_{dB(A)}$
250	0,170	0,180	0,190	0,200	0,210	0,220	0,230	0,240	0,250	0,260	0,270	0,280	0,290	0,300	A_L (m^2)
	0,71	0,69	0,66	0,64	0,63	0,61	0,59	0,58	0,56	0,54	0,53	0,52	0,50	0,49	k_p
	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	$k_{dB(A)}$
300	0,213	0,225	0,238	0,250	0,263	0,275	0,288	0,300	0,313	0,325	0,338	0,350	0,363	0,375	A_L (m^2)
	0,62	0,60	0,58	0,56	0,54	0,52	0,51	0,49	0,47	0,46	0,44	0,43	0,42	0,40	k_p
	-2	-2	-2	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	$k_{dB(A)}$
350	0,255	0,270	0,285	0,300	0,315	0,330	0,345	0,360	0,375	0,390	0,405	0,420	0,435	0,450	A_L (m^2)
	0,55	0,53	0,51	0,49	0,47	0,45	0,44	0,42	0,40	0,39	0,38	0,36	0,35	0,34	k_p
	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	$k_{dB(A)}$
400	0,298	0,315	0,333	0,350	0,368	0,385	0,403	0,420	0,438	0,455	0,473	0,490	0,508	0,525	A_L (m^2)
	0,49	0,47	0,45	0,43	0,41	0,39	0,38	0,36	0,35	0,33	0,32	0,30	0,29	0,28	k_p
	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	$k_{dB(A)}$
450	0,340	0,360	0,380	0,400	0,420	0,440	0,460	0,480	0,500	0,520	0,540	0,560	0,580	0,600	A_L (m^2)
	0,44	0,42	0,40	0,38	0,36	0,34	0,33	0,31	0,29	0,28	0,27	0,25	0,24	0,23	k_p
	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	$k_{dB(A)}$
500	0,383	0,405	0,428	0,450	0,473	0,495	0,518	0,540	0,563	0,585	0,608	0,630	0,653	0,675	A_L (m^2)
	0,40	0,38	0,35	0,34	0,32	0,30	0,28	0,27	0,25	0,23	0,22	0,21	0,19	0,18	k_p
	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	0	$k_{dB(A)}$
550	0,425	0,450	0,475	0,500	0,525	0,550	0,575	0,600	0,625	0,650	0,675	0,700	0,725	0,750	A_L (m^2)
	0,36	0,34	0,31	0,29	0,28	0,26	0,24	0,23	0,21	0,19	0,18	0,17	0,15	0,14	k_p
	-1	0	0	0	0	0	0	0	0	0	0	1	1	1	$k_{dB(A)}$
600	0,468	0,495	0,523	0,550	0,578	0,605	0,633	0,660	0,688	0,715	0,743	0,770	0,798	0,825	A_L (m^2)
	0,32	0,30	0,28	0,26	0,24	0,22	0,20	0,19	0,17	0,16	0,14	0,13	0,12	0,12	k_p
	0	0	0	0	0	0	0	0	0	1	1	1	1	1	$k_{dB(A)}$
650	0,510	0,540	0,570	0,600	0,630	0,660	0,690	0,720	0,750	0,780	0,810	0,840	0,870	0,900	A_L (m^2)
	0,29	0,27	0,24	0,23	0,21	0,19	0,17	0,16	0,14	0,12	0,11	0,12	0,12	0,12	k_p
	0	0	0	0	0	0	0	1	1	1	1	1	1	1	$k_{dB(A)}$
700	0,553	0,585	0,618	0,650	0,683	0,715	0,748	0,780	0,813	0,845	0,878	0,910	0,943	0,975	A_L (m^2)
	0,20	0,18	0,16	0,14	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	k_p
	0	0	0	0	0	1	1	1	1	1	1	1	1	1	$k_{dB(A)}$
750	0,595	0,630	0,665	0,700	0,735	0,770	0,805	0,840	0,875	0,910	0,945	0,980	1,015	1,050	A_L (m^2)
	0,23	0,21	0,19	0,17	0,15	0,13	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	k_p
	0	0	0	1	1	1	1	1	1	1	1	1	1	1	$k_{dB(A)}$
800	0,638	0,675	0,713	0,750	0,788	0,825	0,863	0,900	0,938	0,975	1,013	1,050	1,088	1,125	A_L (m^2)
	0,20	0,18	0,16	0,14	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	k_p
	0	0	1	1	1	1	1	1	1	1	1	1	1	2	$k_{dB(A)}$

Technical data

SCFR-GD Diagram



Selection example:
For the given duct dimensions, we select a 1000 x 300 mm SCFR-GD damper.
We use the table on the previous page to find the following data:

$A_L = 0{,}25\ m^2$ $k_p = 0{,}56$ $k_{dB(A)} = -2$

The technical data to achieve a flow rate of 5500 m^3/h is required. Referring to the diagram above using the this flow rate and an area of 0,25 m^2, we find a V_{eff} of 6 m/s. With this speed and taking into account the value of k_p we are given:
Differential pressure: 20 Pa
Noise level: 44 dB(A)
Applying L_{wA}- dB(A) = 44 - 2 = 42 dB(A)

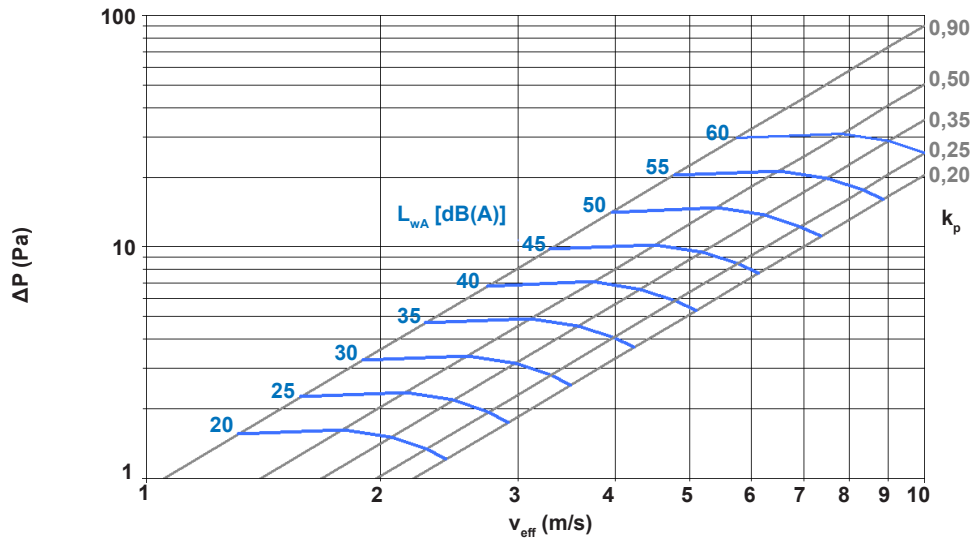
Technical data

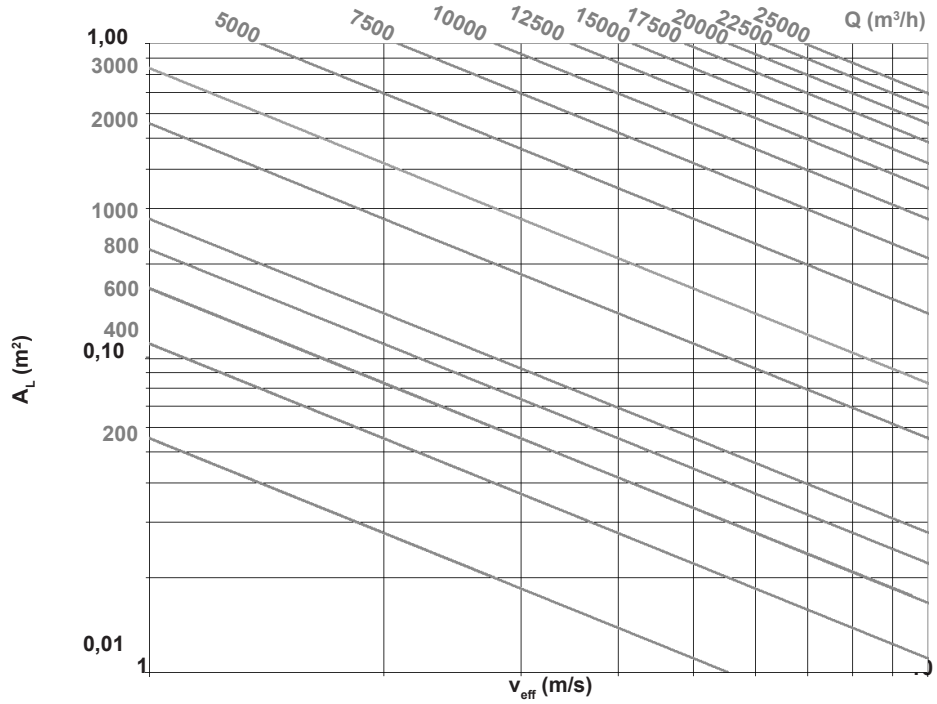
SCFR-3H Table

L \ H	200	250	300	350	400	450	500	550	600	650	700	750	800	
200	0,024	0,033	0,042	0,051	0,060	0,068	0,077	0,086	0,095	0,104	0,112	0,121	0,130	A_L (m^2)
	0,84	0,75	0,68	0,64	0,60	0,57	0,54	0,52	0,50	0,49	0,47	0,46	0,45	k_p
	-27	-24	-21	-19	-17	-16	-14	-13	-12	-11	-10	-9	-9	$k_{dB(A)}$
300	0,038	0,052	0,066	0,079	0,093	0,107	0,121	0,135	0,148	0,162	0,176	0,190	0,204	A_L (m^2)
	0,71	0,63	0,58	0,54	0,51	0,48	0,46	0,44	0,43	0,41	0,40	0,39	0,38	k_p
	-22	-19	-16	-14	-12	-11	-9	-8	-7	-6	-5	-5	-4	$k_{dB(A)}$
400	0,052	0,070	0,089	0,108	0,127	0,146	0,164	0,183	0,202	0,221	0,240	0,258	0,277	A_L (m^2)
	0,63	0,56	0,52	0,48	0,45	0,43	0,41	0,39	0,38	0,37	0,36	0,35	0,34	k_p
	-19	-15	-13	-11	-9	-7	-6	-5	-4	-3	-2	-1	0	$k_{dB(A)}$
500	0,065	0,089	0,113	0,137	0,160	0,184	0,208	0,232	0,256	0,279	0,303	0,327	0,351	A_L (m^2)
	0,58	0,52	0,47	0,44	0,41	0,39	0,38	0,36	0,35	0,34	0,33	0,32	0,31	k_p
	-16	-13	-10	-8	-6	-5	-4	-2	-1	0	1	1	2	$k_{dB(A)}$
600	0,079	0,108	0,136	0,165	0,194	0,223	0,252	0,280	0,309	0,338	0,367	0,396	0,424	A_L (m^2)
	0,54	0,48	0,44	0,41	0,39	0,37	0,35	0,34	0,32	0,31	0,30	0,30	0,29	k_p
	-14	-11	-8	-6	-4	-3	-1	0	1	2	3	4	4	$k_{dB(A)}$
700	0,092	0,126	0,160	0,194	0,228	0,261	0,295	0,329	0,363	0,397	0,430	0,464	0,498	A_L (m^2)
	0,51	0,45	0,41	0,39	0,36	0,34	0,33	0,32	0,30	0,29	0,29	0,28	0,27	k_p
	-12	-9	-6	-4	-3	-2	-1	1	2	3	3	4	5	$k_{dB(A)}$
800	0,106	0,145	0,184	0,222	0,261	0,300	0,339	0,378	0,416	0,455	0,494	0,533	0,572	A_L (m^2)
	0,48	0,43	0,39	0,37	0,34	0,33	0,31	0,30	0,29	0,28	0,27	0,26	0,26	k_p
	-11	-7	-5	-3	-1	0	0	1	2	3	4	5	6	$k_{dB(A)}$
900	0,120	0,163	0,207	0,251	0,295	0,339	0,382	0,426	0,470	0,514	0,558	0,601	0,645	A_L (m^2)
	0,46	0,41	0,38	0,35	0,33	0,31	0,30	0,29	0,28	0,27	0,26	0,25	0,25	k_p
	-10	-6	-4	-1	0	1	1	1	2	3	4	5	6	$k_{dB(A)}$
1000	0,133	0,182	0,231	0,280	0,328	0,377	0,426	0,475	0,524	0,572	0,621	0,670	0,719	A_L (m^2)
	0,44	0,39	0,36	0,34	0,32	0,30	0,29	0,28	0,27	0,26	0,25	0,24	0,24	k_p
	-8	-5	-2	0	2	2	2	3	4	5	6	6	7	$k_{dB(A)}$
1100	0,147	0,201	0,254	0,308	0,362	0,416	0,470	0,523	0,577	0,631	0,685	0,739	0,792	A_L (m^2)
	0,43	0,38	0,35	0,32	0,31	0,29	0,28	0,27	0,26	0,25	0,24	0,23	0,23	k_p
	-7	-4	-1	1	3	3	3	2	3	4	5	5	6	$k_{dB(A)}$
1200	0,160	0,219	0,278	0,337	0,396	0,454	0,513	0,572	0,631	0,690	0,748	0,807	0,866	A_L (m^2)
	0,41	0,37	0,34	0,31	0,30	0,28	0,27	0,26	0,25	0,24	0,23	0,23	0,22	k_p
	-6	-3	0	2	4	4	4	3	4	3	4	4	5	$k_{dB(A)}$
1300	0,174	0,238	0,302	0,365	0,429	0,493	0,557	0,621	0,684	0,748	0,812	0,876	0,940	A_L (m^2)
	0,40	0,36	0,33	0,30	0,29	0,27	0,26	0,25	0,24	0,23	0,23	0,22	0,21	k_p
	-5	-2	1	3	4	5	5	4	5	4	0	1	2	$k_{dB(A)}$
1400	0,188	0,256	0,325	0,394	0,463	0,532	0,600	0,669	0,738	0,807	0,876	0,944	1,013	A_L (m^2)
	0,39	0,35	0,32	0,30	0,28	0,26	0,25	0,24	0,23	0,23	0,22	0,21	0,21	k_p
	-5	-1	1	4	5	6	6	4	5	4	1	1	2	$k_{dB(A)}$
1500	0,201	0,275	0,349	0,423	0,496	0,570	0,644	0,718	0,792	0,865	0,939	1,013	1,087	A_L (m^2)
	0,38	0,34	0,31	0,29	0,27	0,26	0,25	0,24	0,23	0,22	0,21	0,21	0,20	k_p
	-4	0	2	4	6	7	7	5	6	5	2	2	3	$k_{dB(A)}$

Technical data

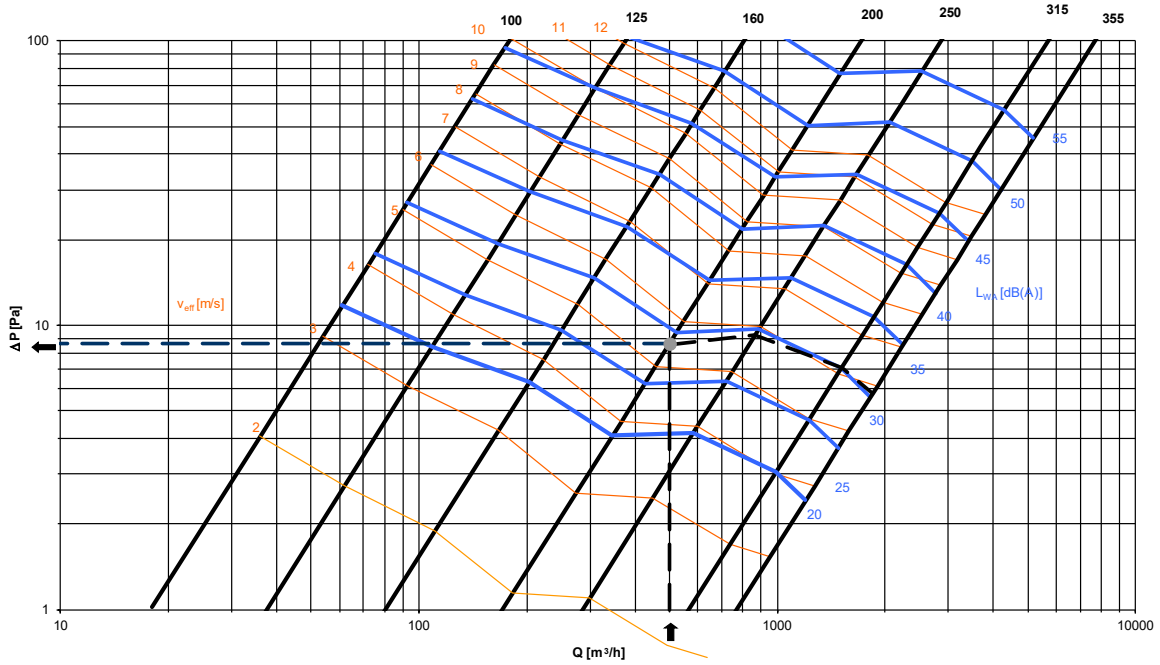
SCFR-3H Diagram





Technical data

SCFC-PD Diagram



Note: Sizes Ø150, Ø225 and Ø300 mm are also available. The technical data can be obtaining by interpolating sizes in the graph.

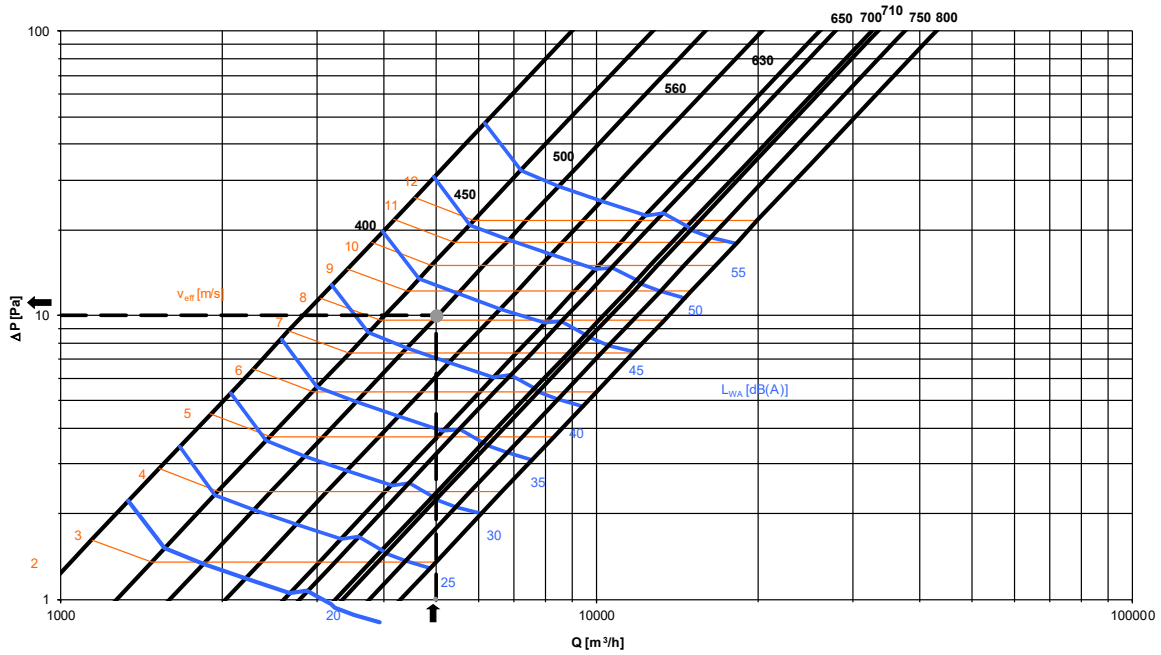
Selection example:

For the given duct dimensions, we select a SCFC-PD damper with a diameter of 200 mm for a flow rate of 500 m^3/h.

Referring to the diagram above using this flow rate we find the following data:
V_{eff}: 5,3 m/s.
Differential pressure: 9 Pa
Noise level: 28 dB(A)

Technical data

SCFC-GD Diagram



Selection example:
For the given duct dimensions, we select a SCFC-GD damper with a diameter of 500 mm for a flow rate of 5000 m^3/h.

Referring to the diagram above using this flow rate we find the following data:
V_{eff}: 8,1 m/s.
Differential pressure: 10 Pa
Noise level: 43 dB(A)

Coding

Damper model *(see table p. 5 declared performance)*

SCFR-PD
SCFR-GD
SCFR-3H
SCFC-PD
SCFC-GD

Activation. Components

+ TH-70
+ TH-70 + FCU
+ TH-70 + DCU/FCU
+ 24 V CC E+ FCU
+ 48 V CC E+ FCU
+ 24 V CA E+ FCU
+ 48 V CA E+ FCU
+ 220 V E+ FCU
+ 24 V CC R+ FCU
+ 48 V CC R+ FCU
+ 24 V CA R+ FCU
+ 48 V CA R+ FCU
+ 220 V CA R+ FCU
+ M BLF 24 V CC
+ M BLF 230 V CC
+ 24 V CC E+ FCU/DCU + M BL 24/48 RESET
+ 48 V CC E+ FCU/DCU + M BL 24/48 RESET
+ 24 V AC E+ FCU/DCU + M BL 24/48 RESET
+ 48 V AC E+ FCU/DCU + M BL 24/48 RESET
+ 220 V AC E+ FCU/DCU + M BL 110/230 RESET
+ 24 V CC R+ FCU/DCU + M BL 24/48 RESET
+ 48 V CC R+ FCU/DCU + M BL 24/48 RESET
+ 24 V AC R+ FCU/DCU + M BL 24/48 RESET
+ 48 V AC R+ FCU/DCU + M BL 24/48 RESET
+ 220 V AC R+ FCU/DCU + M BL 110/230 RESET
+ M BLF 24 V CC + BSIA24-48 (NF Marking)
+ M BLF 48 V CC + BSIA24-48 (NF Marking)
+ M BLF 24 V CC + BSIA-R-24-48 (NF Marking)
+ M BLF 48 V CC + BSIA-R-24-48 (NF Marking)

Accessories

without mounting lugs
with lugs for slab floor
without mounting lugs, with inspection panels
with lugs for slab floor, with inspection panels

Size

Length x height
Diameter

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