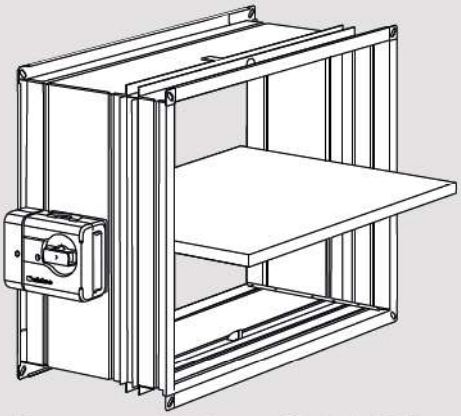
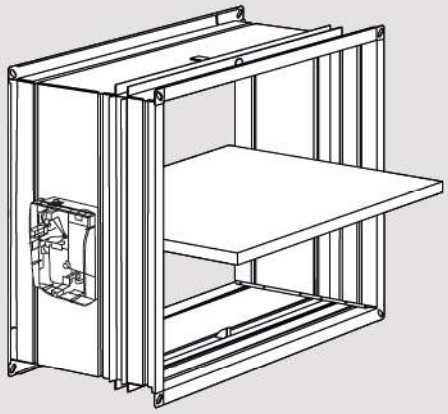
Rectangular self-controlled / remote controlled fire damper Isone® 2.1

EN Installation Instructions
DE Installationsanleitung
NL Montage- handleiding
ES Instrucción de instalación
IT Manuale di installazione
DA Montagevejledning

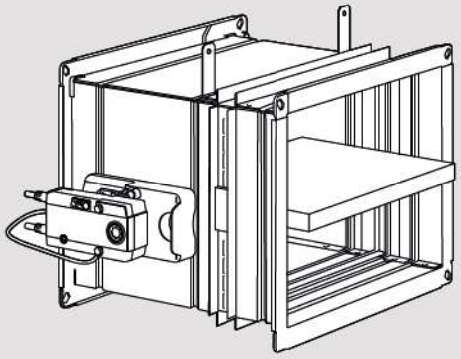
1812



Rectangular Isone® 2.1 PM
with fusible link



Rectangular Isone® 2.1 GM
with fusible link



Rectangular Isone® 2.1 GM
Motorised

aldes

CONTENTS

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1. IDENTIFICATION AND CERTIFICATION

EN

NF 537 – Actuated Safety Devices – D.A.S.

CE
1812

EFECTIS France
Route de l'orme des merisiers
Espace technologique
F-91193 SAINT-AUBIN
Tel: +33 (0)1 60 13 83 80 - Fax : +33 (0)1 60 13 70 80
E-mail: certification@efectis.com

This CE marking uses the following reference documents:

- Regulation 305/2011/EU,
- Notice relating to standard EN 15650:2010, published in the Official Journal of the French Republic on January 6 2012,
- December 29 2011 decree applying this decree to fire resistant dampers (published in the Official Journal of the French Republic),
- Standard EN 15650:2010 - Ventilation in buildings - Fire dampers classification according to NF EN 13501-3.

AFNOR Certification
11 rue Francis de Pressensé
95571 La Plaine Saint-Denis Cedex
Tel: +33(0)1 41 62 80 00 - Fax: 01 49 17 90 00
Websites: http://www.afnor.org - http://www.marque-nf.com
E-mail: certification@afnor.org

This mark certifies:

- Compliance with standards NF S61-937-1 and NF S61-937-5 "Actuated Safety Devices fire damper".
- Confers presumed conformity with the March 22, 2004 order amended on March 14, 2011, for the fire resistance classification.
- The values of the characteristics announced in this manual.
- The following certified essential characteristics:
    - Thermal fuse in accordance with standards ISO 21295-1 and 10294-4
    - Resettable by direct action on the mobile element outside the duct, after a cold trip.

EXAP EN 15882-2:2015, rules X.45 and X.46

ROHS

The product contains less than 0.07 g of lead per product.

REACH

To the best of our knowledge, this article does not contain more than 0.1% by weight of any substance in the ECHA candidate list and for which authorisation is required.

WEEE

This product must not be disposed of with household waste. At the end of its service life or when replaced, it must be taken to a recycling centre, a retailer or a collection centre. ALDES belongs to the Eco Systèmes eco-body www. ecosystemes.fr.

ALDES designed this product to be easily recycled.

1. IDENTIFICATION AND CERTIFICATION

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1.1. Normative designation of the product

Non-modular self-controlled or remotely controlled rectangular fire damper:

- Rectangular ISONE® 2.1 PM (from 200*100 mm to 800*600 mm)
- Rectangular ISONE® 2.1 GM (larger than 800 x 600 mm and up to 1000² / 1500*500 mm)

EI120 S (i <-> o, ve ho) under 500 Pa, for flush mounting in concrete wall or slab, aerated concrete wall or slab, light partition type A (60 min) and type F (120 min), plasterboard tile thickness 70 mm and 100 mm, and offset mounting.

1.2. Explanation of the label marking code

Tele = Remote controlled
SL = Free Surface
VDC = Direct current Voltage
Auto = Self-controlled
E = Shunt / R = Undervoltage
VM24 = 24V undervoltage trip
VM48 = 48V undervoltage trip
E.TELE = REMOTE control input
VAC = Alternating current Voltage
EI = Fire resistance rating
FDCU/DCU1= single-pole end and start of stroke position contacts
FDCU/DCU2 = dual-pole end and start of stroke position contacts
EHOP mini / 30S: reset motor

MOTOR 24V SENSOR + CONTACT = 24V motor + 72°C probe + limit switches

MOTOR 230V SENSOR + CONTACT = 230V motor + 72°C probe + limit switches

MOT AME 24V SENSOR + CONTACT = 24V motor + 72°C BAE165 sensor + limit switches

MOT AME 230V SENSOR + CONTACT = 230V motor + 72°C BAE165 sensor + limit switches

1.3. Detailed characteristics

Safety position = closed; Standby position = open
Control mode: self-controlled by thermal trip, in accordance with standard ISO 21925-1
Control mode: electric remote control

	Motorised model with BELIMO				Model with 72°C fusible link		
	BELIMO BFL		BELIMO BFN		Emission tripping device	cut off tripping device	cut off tripping device
	24V	230V	24V	230V	24/48 V	24V	48V
Rated voltage	AC 24V 50/60Hz - DC 24V	AC 230 V 50/60Hz	AC 24V 50/60Hz - DC 24V	AC 230 V 50/60Hz	24 Vdc / 48 Vdc	24 V dc	48 V dc
consumption (resetting)	2.5 W	3.5 W	4 W	5 W	3.5 W	0	0
Permanent consumption (excl. resetting)	0.8 W	1.1 W	1.4 W	2.1 W	0	1.5 W	0.75 W

1. IDENTIFICATION AND CERTIFICATION

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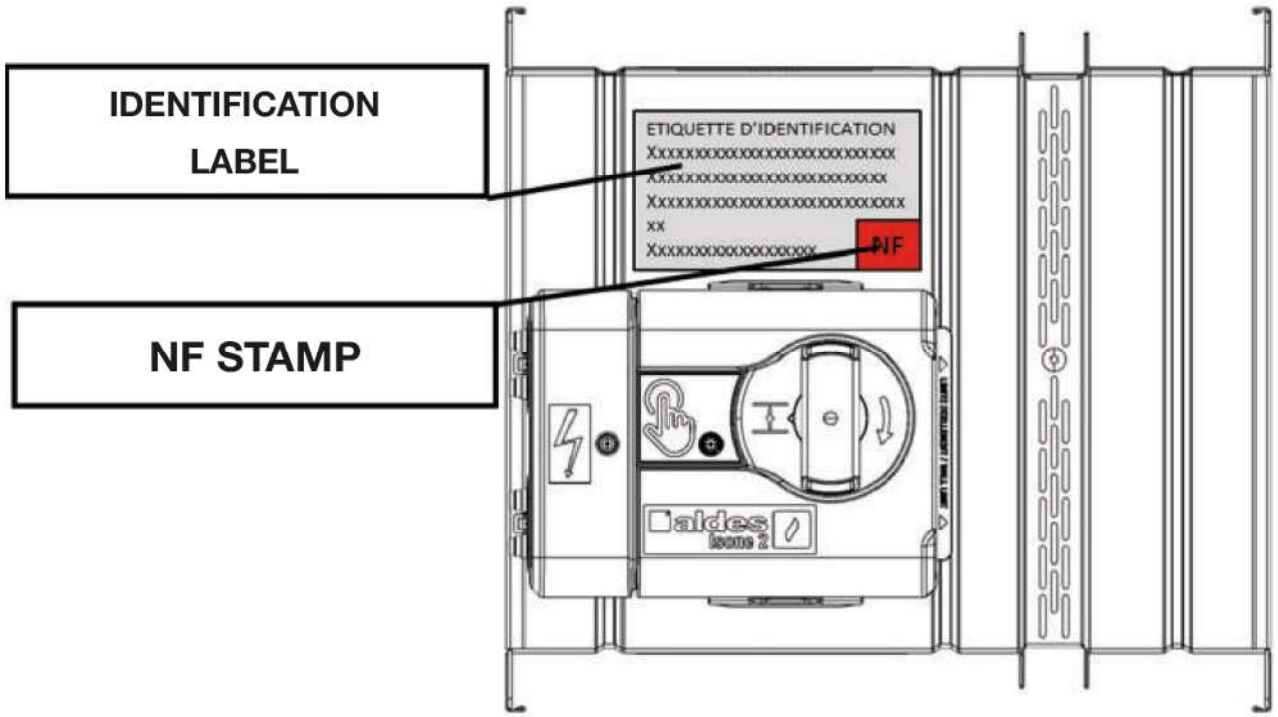
Model with fuse: Resettable by direct action on the mobile element outside the duct, after cold trip, manually (self-controlled valve) or by electric motor EHOPmini (remote controlled valve).

FDCU1 safety and standby position contacts
Additional FDCU2 safety and standby position contacts in additional function
Vertical mounting Ve (horizontal tunnel) and horizontal mounting Ho (vertical tunnel)
Direction of mounting: Blade axis horizontal or vertical
Air and fire direction of circulation indifferent

Endurance:
- model with fuse: 300 cycles
- model with BELIMO motor: 10,000 cycles

Dimensional range: 200X100mm to 1500*500 / 1000²
Mounting: flush wall / floor mounting



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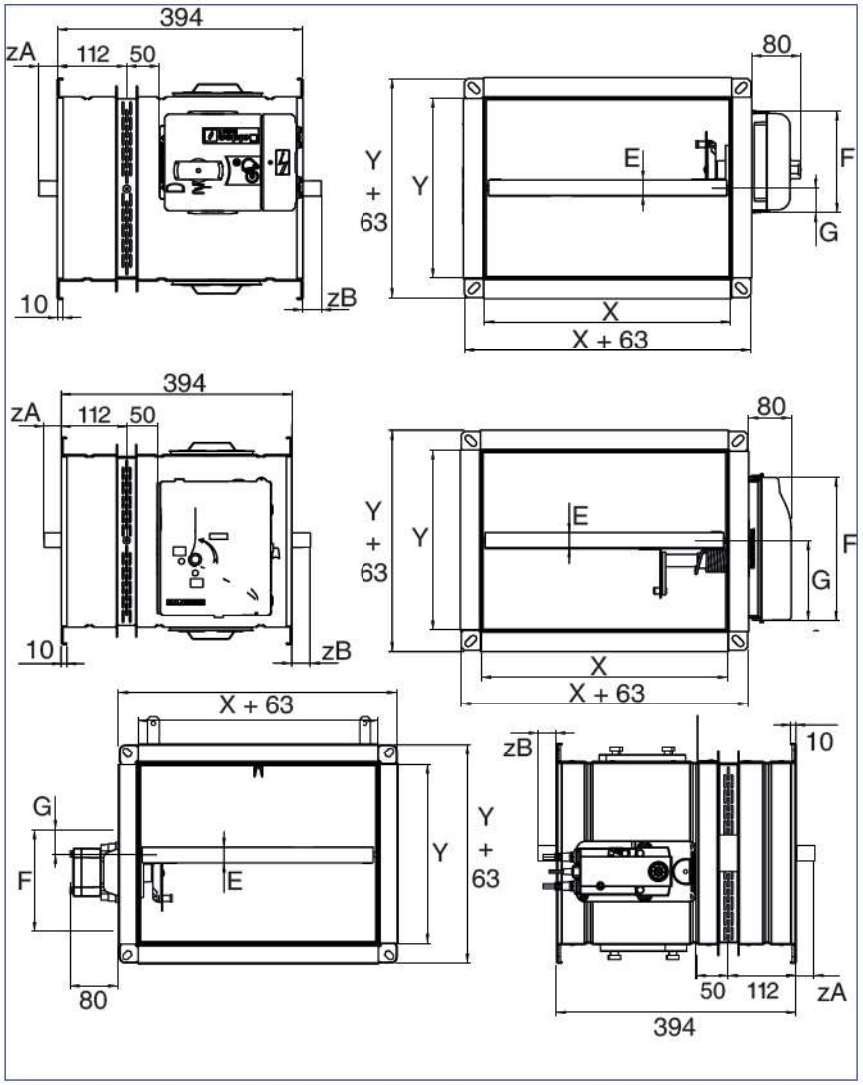
1.4. Dimensions/ Weight

1.4.1. PM/ GM dimensions - Model with fusible link

PM

GM

MOTORISED MODEL



Model	X (mm)	Y	E	F	E	F	G	ZB
			With fusible link		Motorised			
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
PM	Between 200 and 800	100	25	169	100	200	71	-
		100					71	-
		Between 200 and 600					71	-
GM	Between 850 and 1500	Between 650 and 1000	50	242	99	150	99	Y/2 - 929

ZA, ZB : Blade movement.

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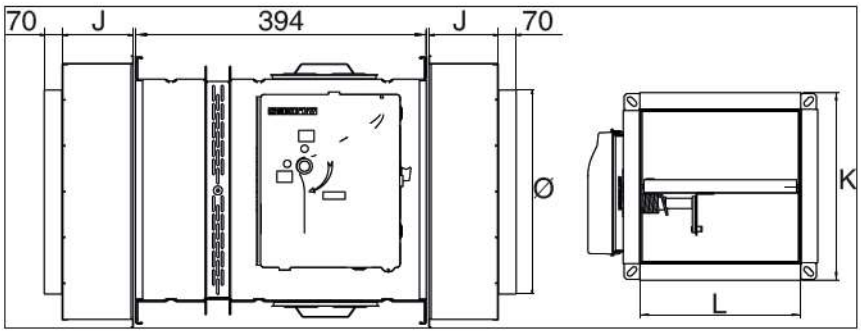
1.4.2. GM dimensions (circular damper)



Ø (mm)	Dimensions (mm)			XxY rectangular damper (mm)	Free area (dm²)	Weight (kg)
	J	K	L			
560	202	665	600	600	23.03	25.6
630	254	735	675	670	27.82	32.3
710	279	805	755	750	35.84	38.0
800	329	905	845	840	46.07	45.5
900	379	1005	945	940	58.92	54.5

1.4.3. Free area (dm²)

Height Y (mm)	Width X (mm)												
	200	250	300	350	400	450	500	550	600	650	700	750	800
100	0.94	1.21	1.47	1.74	2.00	2.27	2.53	2.80	3.06	3.33	3.59	3.86	4.12
150	1.83	2.35	2.86	3.38	3.89	4.41	4.92	5.44	5.95	6.47	6.98	7.50	8.01
200	2.72	3.49	4.25	5.02	5.78	6.55	7.31	8.08	8.84	9.61	10.37	11.14	11.90
250	3.61	4.63	5.64	6.66	7.67	8.69	9.70	10.72	11.73	12.75	13.76	14.78	15.79
300	4.5	5.77	7.03	8.30	9.56	10.83	12.09	13.36	14.62	15.89	17.15	18.42	19.68
350	5.39	6.91	8.42	9.94	11.45	12.97	14.48	16.00	17.51	19.03	20.54	22.06	23.57
400	6.28	8.05	9.81	11.58	13.34	15.11	16.87	18.64	20.40	22.17	23.93	25.70	27.46
450	7.17	9.19	11.20	13.22	15.23	17.25	19.26	21.28	23.29	25.31	27.32	29.34	31.35
500	8.06	10.33	12.59	14.86	17.12	19.39	21.65	23.92	26.18	28.45	30.71	32.98	35.24
550	8.95	11.47	13.98	16.50	19.01	21.53	24.04	26.56	29.07	31.59	34.10	36.62	39.13
600	9.84	12.61	15.37	18.14	20.90	23.67	26.43	29.20	31.96	34.73	37.49	40.26	43.02
650	10.29	13.18	16.07	18.96	21.85	24.74	27.63	30.52	33.41	36.30	39.19	42.08	44.97
700	11.18	14.32	17.46	20.60	23.74	26.88	30.02	33.16	36.30	39.44	42.58	45.72	48.86
750	12.07	15.46	18.85	22.24	25.63	29.02	32.41	35.80	39.19	42.58	45.97	49.36	52.75
800	12.96	16.60	20.24	23.88	27.52	31.16	34.8	38.44	42.08	45.72	49.36	53.00	56.64
850	13.85	17.74	21.63	25.52	29.41	33.3	37.19	41.08	44.97	48.86	52.75	56.64	60.53
900	14.74	18.88	23.02	27.16	31.30	35.44	39.58	43.72	47.86	52.00	56.14	60.28	64.42
950	15.63	20.02	24.41	28.80	33.19	37.58	41.97	46.36	50.75	55.14	59.53	63.92	68.31
1000	16.52	21.16	25.80	30.44	35.08	39.72	44.36	49.00	53.64	58.28	62.92	67.56	72.20

: Rectangular Isone® 2.1 PM damper

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1.4.4. *Free area continued (dm2)*

Height Y (mm)	Width X (mm)													
	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	10.60	11.24	11.88	12.52	13.16	13.80	14.44	15.08	15.72	16.36	17.00	17.64	18.28	18.92
250	14.74	15.63	16.52	17.41	18.30	19.19	20.08	20.97	21.86	22.75	23.64	24.53	25.42	26.31
300	18.88	20.02	21.16	22.30	23.44	24.58	25.72	26.86	28.00	29.14	30.28	31.42	32.56	33.70
350	23.02	24.41	25.80	27.19	28.58	29.97	31.36	32.75	34.14	35.53	36.92	38.31	39.70	41.09
400	27.16	28.80	30.44	32.08	33.72	35.36	37.00	38.64	40.28	41.92	43.56	45.20	46.84	48.48
450	31.30	33.19	35.08	36.97	38.86	40.75	42.64	44.53	46.42	48.31	50.20	52.09	53.98	55.87
500	35.44	37.58	39.72	41.86	44.00	46.14	48.28	50.42	52.56	54.70	56.84	58.98	61.12	63.26
550	39.58	41.97	44.36	46.75	49.14	51.53	53.92	56.31	58.70	61.09	63.48	65.87	68.26	-
600	43.72	46.36	49.00	51.64	54.28	56.92	59.56	62.20	64.84	67.48	70.12	72.76	-	-
650	47.86	50.75	53.64	56.53	59.42	62.31	65.20	68.09	70.98	73.87	76.76	-	-	-
700	52.00	55.14	58.28	61.42	64.56	67.70	70.84	73.98	77.12	80.26	-	-	-	-
750	56.14	59.53	62.92	66.31	69.70	73.09	76.48	79.87	83.26	-	-	-	-	-
800	60.28	63.92	67.56	71.20	74.84	78.48	82.12	85.76	-	-	-	-	-	-
850	64.42	68.31	72.20	76.09	79.98	83.87	87.76	-	-	-	-	-	-	-
900	68.56	72.70	76.84	80.98	85.12	89.26	-	-	-	-	-	-	-	-
950	72.70	77.09	81.48	85.87	90.26	-	-	-	-	-	-	-	-	-
1000	76.84	81.48	86.12	90.76	-	-	-	-	-	-	-	-	-	-

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1.5. Precautions

STORAGE BEFORE INSTALLATION

- Storage before installation must be protected from the weather in a closed, dry and frost-free room.
- The dampers shall not be stacked higher than the original factory packaging. They should be arranged to prevent damage to mechanisms or moving parts, and to avoid deformations of the device body due to excess loads or humidity.
- Do not nest small products in larger ones.
- Do not expose the valves directly to the sun and heat to avoid premature ageing of the fuse.
- Do not move the product by pushing or rolling it.
- Do not carry the valve by the transmission (risk of breakage and malfunction).
- Avoid shocks and damage.

PROTECTING THE EQUIPMENT DURING INSTALLATION

- Although the fire damper, and more particularly its mechanism, is protected by a synthetic material cover, it should be protected from projections of any kind (mortar, paint, flocking, etc.) that may affect operation of the trip devices and signalling devices.
- The equipment should also be protected against the risk of water run-off or high condensation, both for the refractory part and the metal parts, or electromagnetic components.
- Hot seals are essential for fire resistance of the valve, no mechanical action shall be made on the refractory parts.
- All suitable precautions should be taken to prevent premature ageing of the equipment before it is put into service on completed installations.
- The damper shall be installed in the closed position.
- Wedging and filling in order to seal devices in place correctly should not cause deformations likely to adversely affect the operation of the fire damper.

INSPECTION OF THE EQUIPMENT PRIOR TO COMMISSIONING OF THE INSTALLATIONS

- Devices must be kept in the mechanical rest position before the ventilation networks are started up, so as to avoid loading retaining or trip devices when normal operating conditions are not satisfied.

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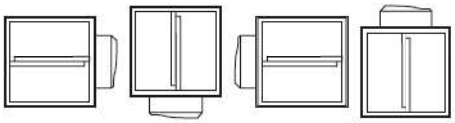
2.1. Connection to the air network

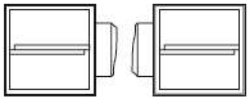
The rectangular ISONE® 2.1 sleeve is provided with flanges h = 30 mm to make it very simple to position the ventilation duct. The damper should not support any forces exerted by the ducts. The sleeves should be attached without mechanical pressure and should enable perfect alignment of the ducts with the damper. Depending on the dimensions of the damper, the mobile blade may move inside the duct. The aeraulic connection should be made using best practices, ensure the best possible seal (covering the oblong holes on the sleeve edge, filling, etc.).

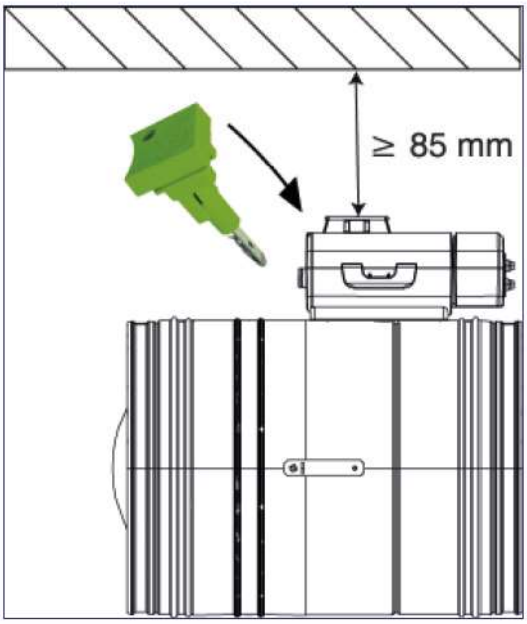
2.2 Positioning the mechanism

ISONE® 2.1 PM:



ISONE® 2.1 GM:





Note: The mechanism housing must remain accessible after the damper has been installed. Provide an inspection hatch for this purpose, with a space of at least 85 mm between the mechanism and the adjacent wall.

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2.3. Installation

2.3.1. Summary table

Type of partition	Support Construction	Thickness	Fire resistance (below 500 Pa)	Type of installation			Drawing No.	Page
				Installation base	Embedment type	specificity		
Wall	Concrete / aerated concrete (mv≥450kg/m3)	≥ 100 mm	EI 120 S	embedment	Cement or plaster based mortar	-	10	13
Slab	Concrete / aerated concrete (mv> 600kg/m3)	≥ 150 mm	EI 120 S	embedment			11	13
Wall	Type A plasterboard (EI60)	≥ 98 mm	EI 60 S	with mineral wool	-	header after assembly	12	13
				embedment	Plaster based mortar		13	14
				with mineral wool	-	12.5mm thick plasterboard heel ditto support partition or 16mm thick promatect-MT	14	14
				embedment	Plaster based mortar	12.5mm thick plasterboard heel ditto support partition or 16mm thick promatect-MT	15	15
				-	-	EasyInstall kit	16	15
			EI 90 S	-	-	EasyInstall kit	16	15
	Type F plasterboard (EI120)		EI 120 S	embedment	plaster based mortar	12.5mm thick plasterboard heel ditto support partition or 16mm thick promatect-MT	15	15
	BA25 plasterboard							

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Type of partition	Support Construction	Thickness	Fire resistance (below 500 Pa)	Type of installation			Drawing No.	Page
				Installation base	Embedment type	specificity		
Wall	Plaster tiles ($\rho \geq 900 kg/m^3$)	70 mm	EI 60 S	embedment	plaster based mortar	-	17	16
			EI 90 S			12.5mm thick plasterboard heel 12.5mm type F or 16mm thick promatect MT	18	16
		100 mm	EI 90 S			-	17	16
Wall			EI 120 S			with support insulation	18	16
Wall - offset	PROMAT duct	≥ 50 mm	EI 120 S			with support insulation	19	16
	Geoflam desenfire duct	≥ 45 mm						

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2.3.2. Installation: Reinforced concrete / Aerated concrete wall and slab

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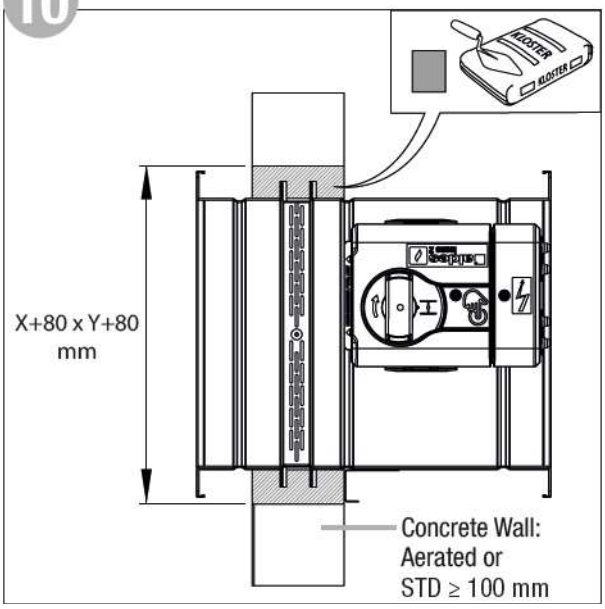

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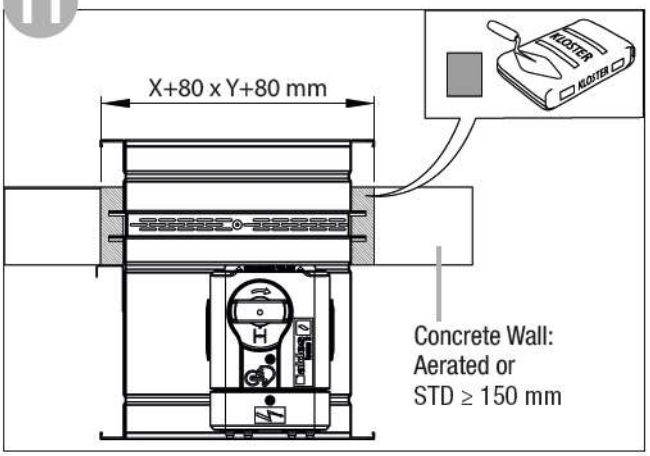

2.3.3. Installation: Plasterboard wall

Note: The 4 rails must be screwed on each side.

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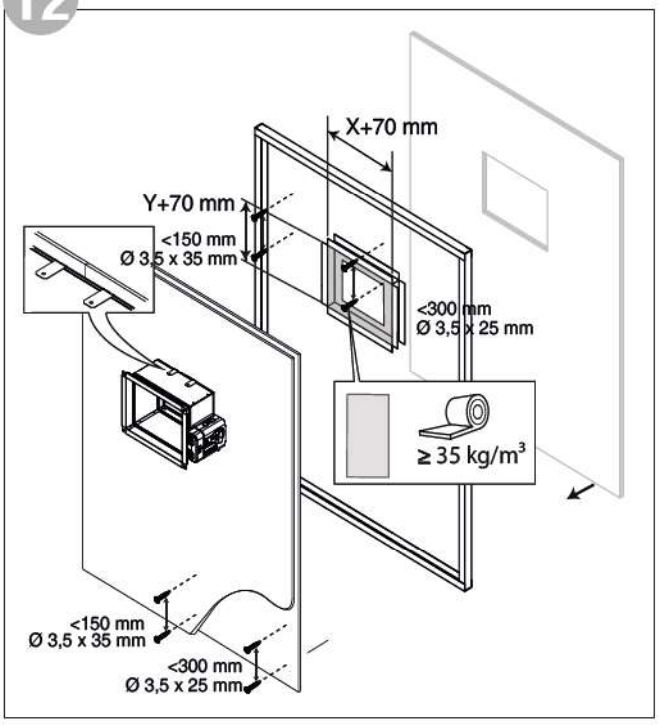

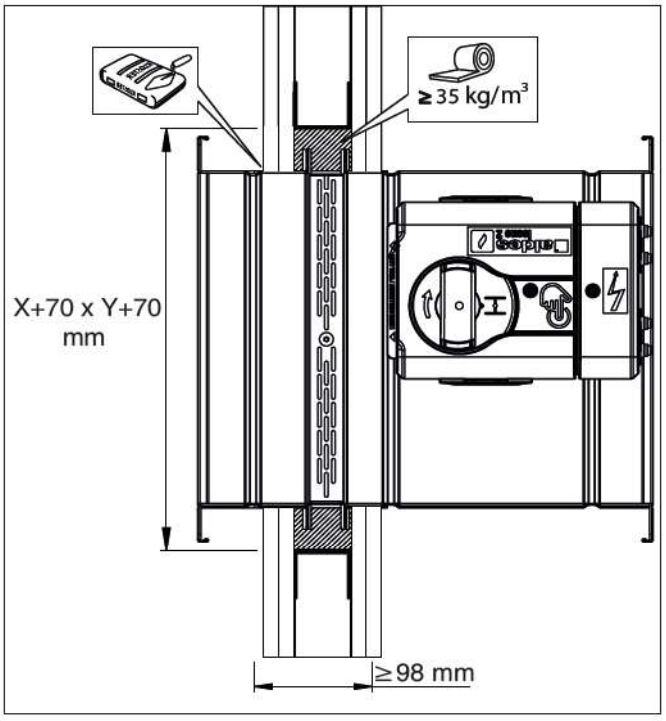

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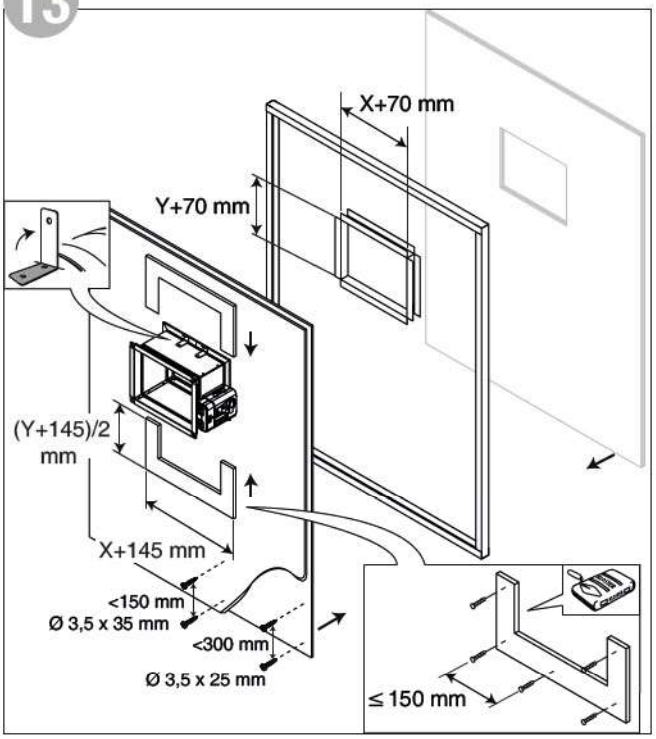
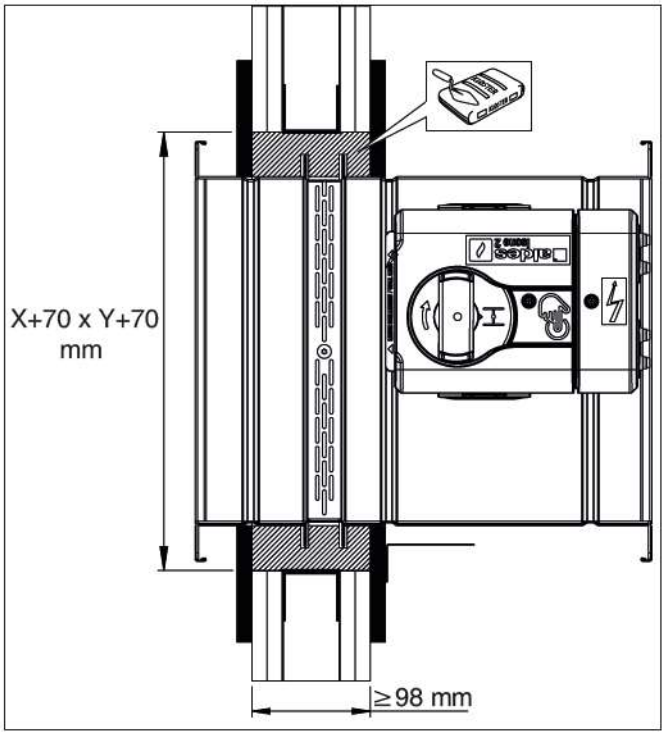
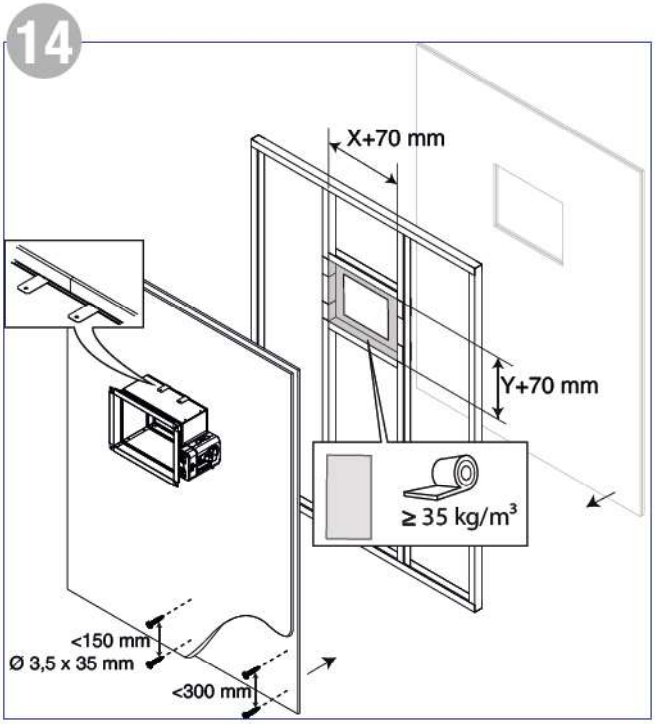
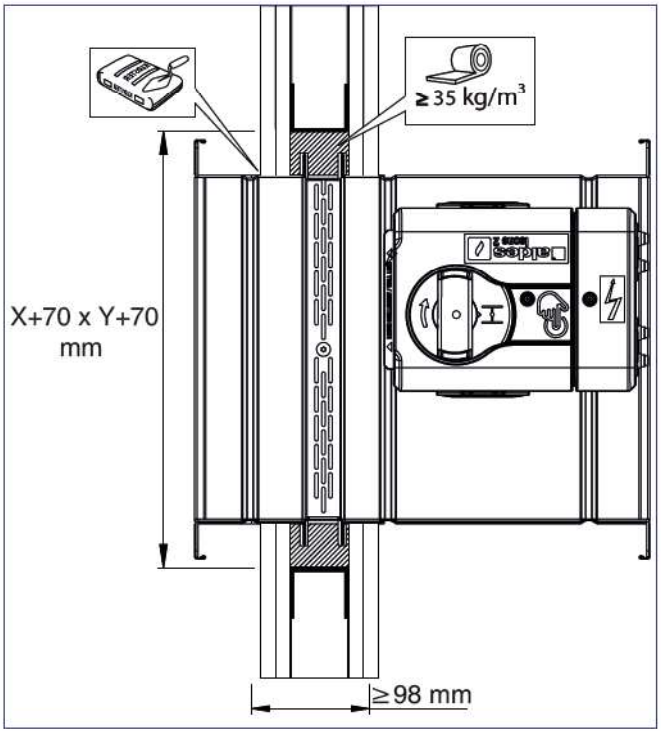

X+70 mm
Y+70 mm
(Y+145)/2
mm
X+145 mm
<150 mm
Ø 3,5 x 35 mm
<300 mm
Ø 3,5 x 25 mm
≤ 150 mm


X+70 x Y+70
mm
≥ 98 mm

14


X+70 mm
Y+70 mm
≥ 35 kg/m³
<150 mm
Ø 3,5 x 35 mm
<300 mm


≥ 35 kg/m³
X+70 x Y+70
mm
≥ 98 mm

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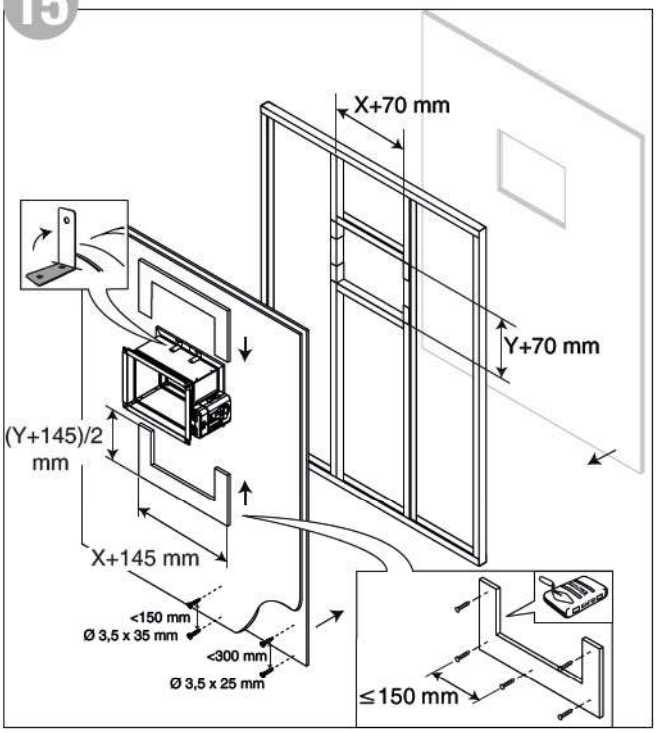
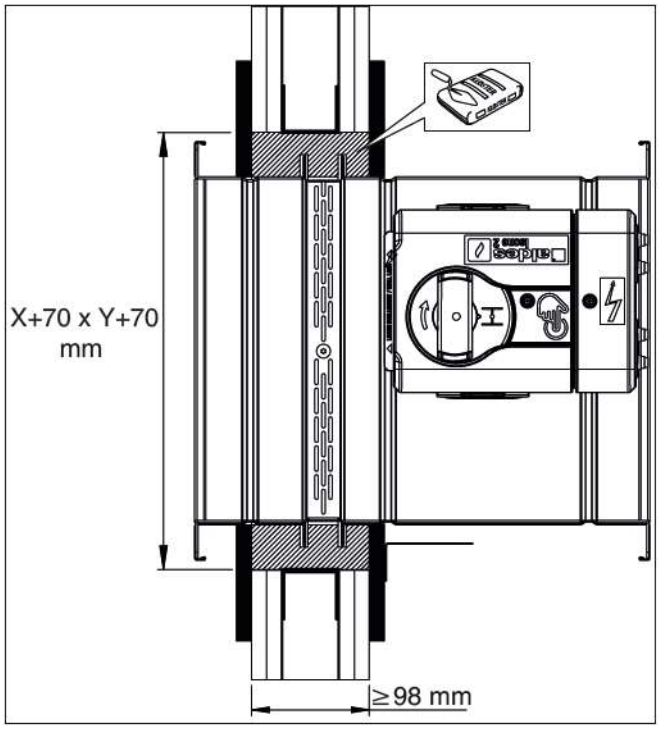

X+70 mm
Y+70 mm
(Y+145)/2
mm
X+145 mm
<150 mm
Ø 3,5 x 35 mm
<300 mm
Ø 3,5 x 25 mm
≤150 mm


X+70 x Y+70
mm
≥98 mm

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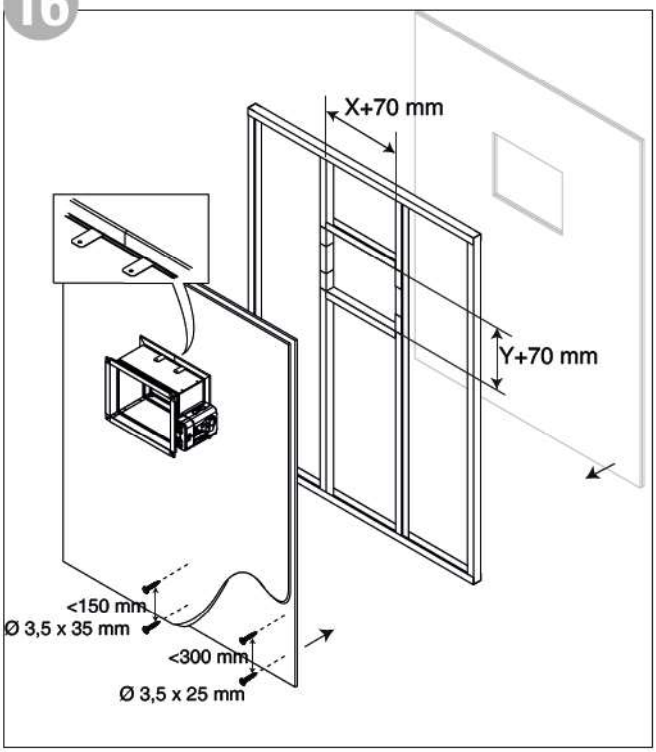
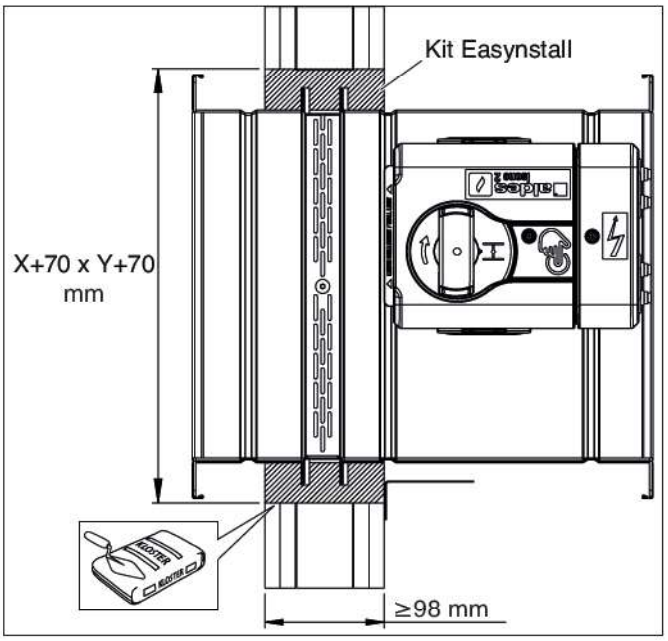
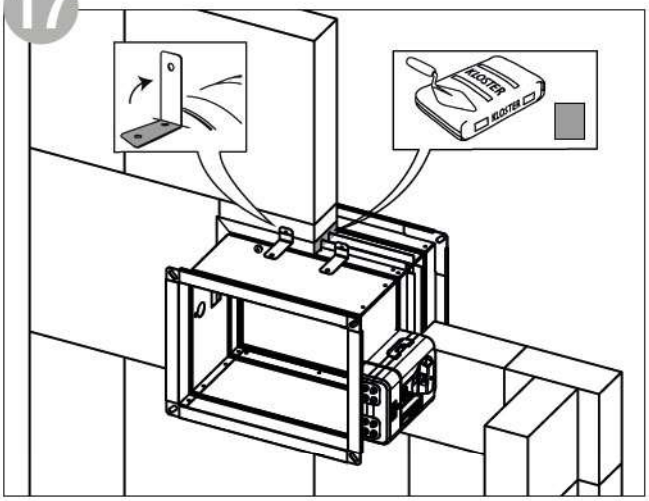

X+70 mm
Y+70 mm
<150 mm
Ø 3,5 x 35 mm
<300 mm
Ø 3,5 x 25 mm

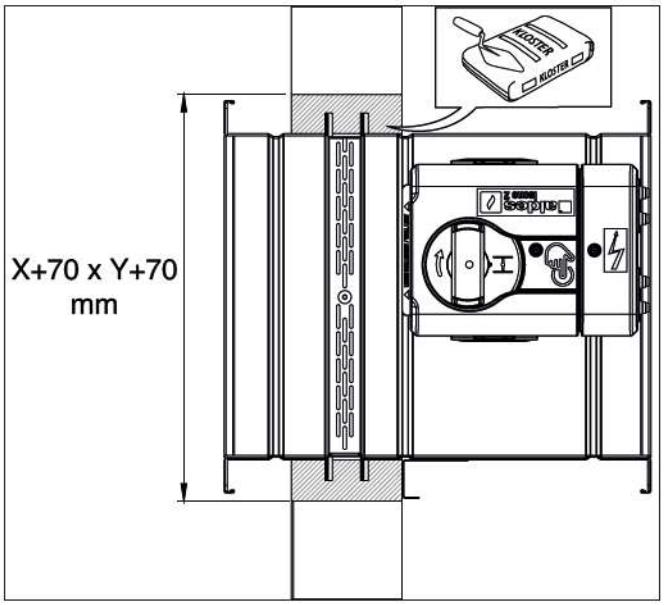

Kit Easynstall
X+70 x Y+70
mm
≥98 mm

EN

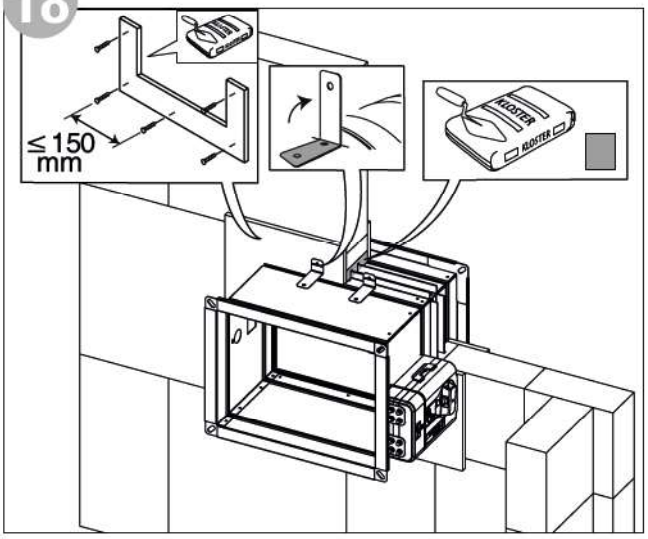
2.3.4. Installation: Plasterboard tile wall

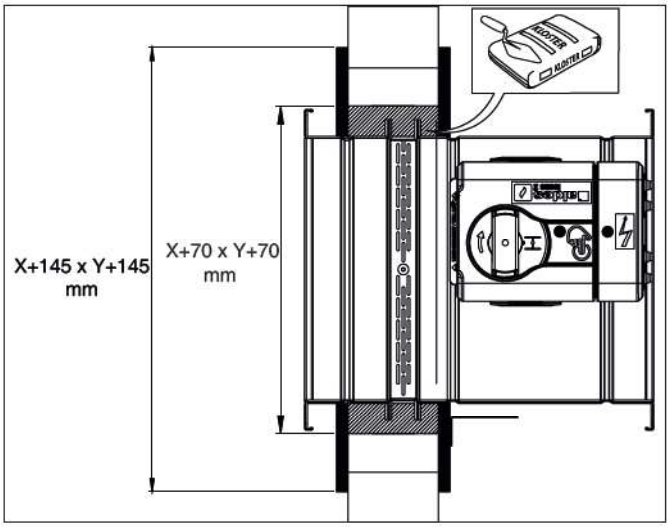
17





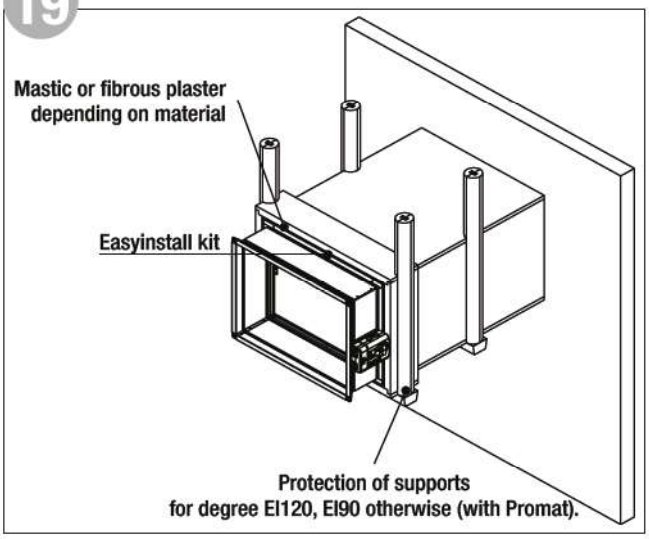
18

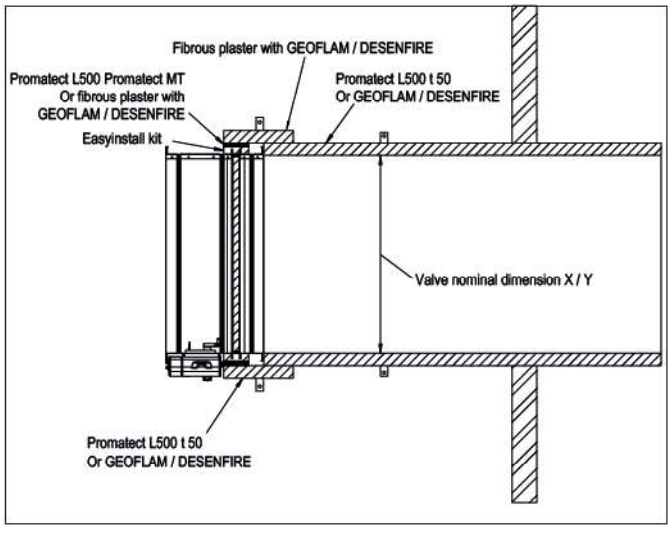




2.3.5. Installation: offset duct

19

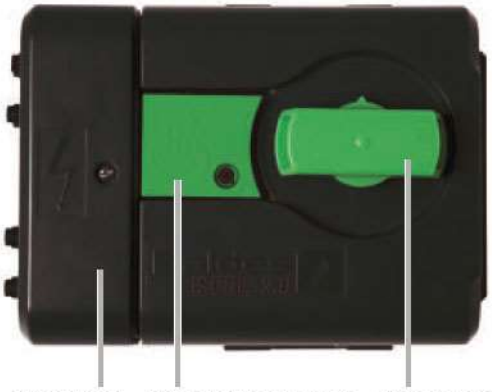




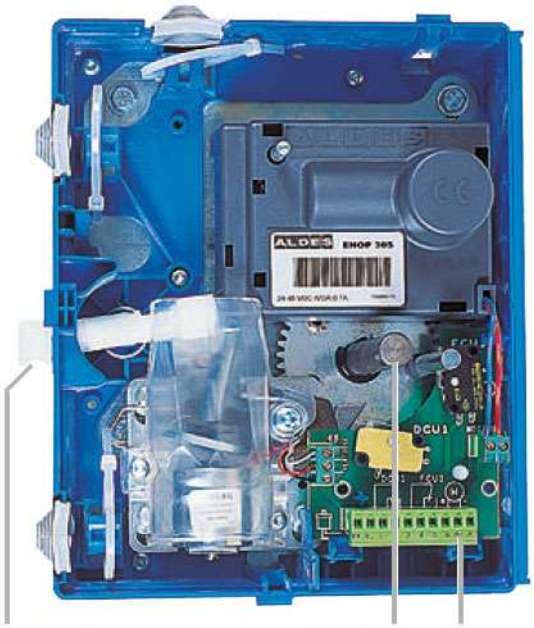
3. ACTIVATION

EN

MODEL WITH FUSIBLE LINK



Electrical connection box | Manual trip button | Reset handle



Manual trip button | Reset pin | Electrical connection

TRIP:

- Manual: By pressing the button on the white front face (PM) or the lever on the side (GM) without removing the cover.
- Self-controlled: Any temperature above 70°C will trip the fuse that is systematically mounted on all ISONE® 2.1 units (compulsory according to NFS 61-937-5 and NF-EN 1366-2).
- Remote controlled: Depending on the prior choice of the type of suction cup (dual voltage shunt 24/48-volt DC, 24-volt DC or 48-volt DC undervoltage), will cause the damper to move to the safety position.

RESET

With the damper in its 'safe' position (closed), it can be reset either:

- Manually with the handle (PM) / with the pin + tool (GM) without removing the cover.
- Remotely by the reset motor power supply. The motor stops automatically once the maximum torque level has been reached. It is recommended that you disconnect the power supply to the motor after 30 seconds.

SIGNALLING

- The limit switch contacts (FCU) indicate the safety position (closed) of the valve.
- The start of travel contacts (DCU) indicate the standby (open) position.

These contacts are represented free of action. Use NO contact terminals (1 and 3, 4 and 6) to close a signal circuit (or for example to light indicators).

4. ELECTRICAL CONNECTION

EN

GENERAL: All power supplies connected to the circular ISONE® 2.1 damper mechanism shall be SELV (safety extra low voltage).

The control lines shall comply with NF S 61-932, and particularly:

The cross-section of conductors shall be greater than or equal to 1.5 mm² for single-core cables and 1 mm² for multi-core cables.

Cable category C2 minimum.

NO/NC inverter contacts - I break = 3 A max. at 48 VDC.

Electromagnetic trip (select with order):

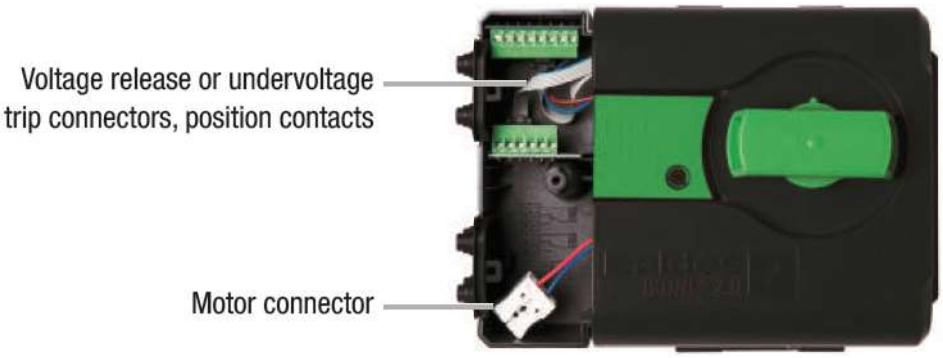
- Shunt trip: Un = 24 or 48 VDC (-15%/+20%) - P max) 3.5 W
- Undervoltage release: Un = 24 or 48 VDC (-15%/+20%) - P max) 1.5 W

EHOP Mini reset motor: Multi-voltage from 24 to 48 VDC (+/-10%) - I max = 0.7 A.

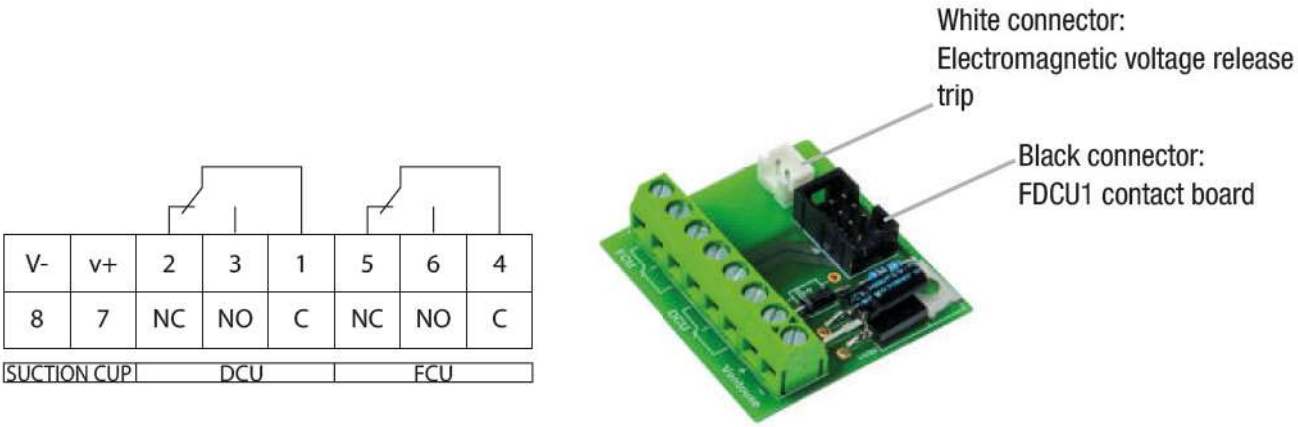
Contacts are shown at rest, free of any action.

4.1. ISONE® 2.1 PM housing

The connector housing must be opened with a TORX T15 bit.
The maximum tightening torque is 0.7 Nm



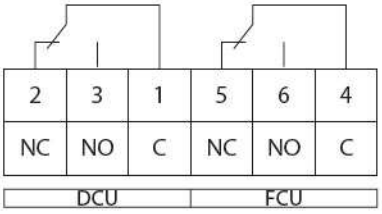
- VDS shunt trip remote control board + FDCU1 Start and End of stroke contacts:

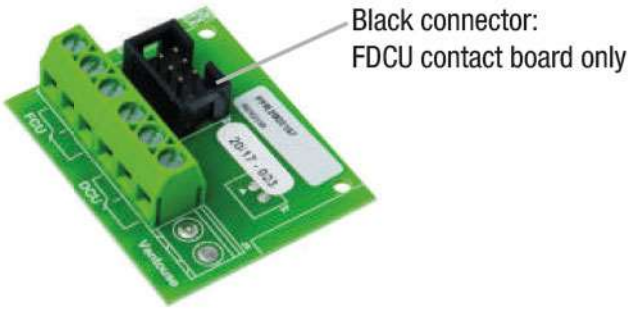


4. ELECTRICAL CONNECTION

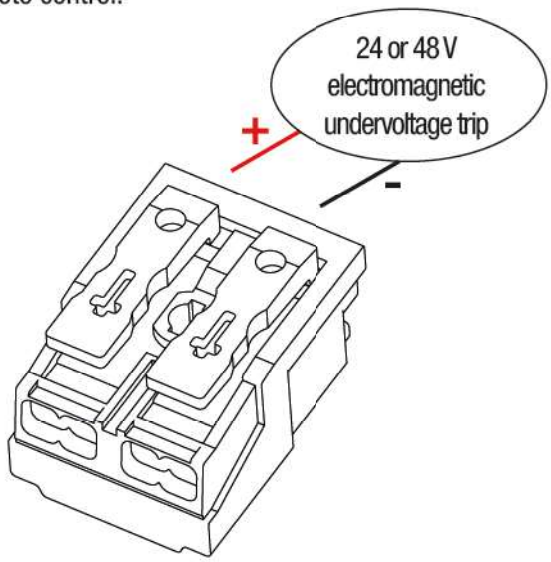
EN

- FDCU1 start and end of stroke contacts board only / FDCU2 additional contacts:

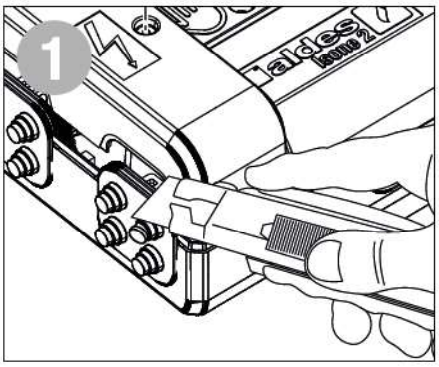


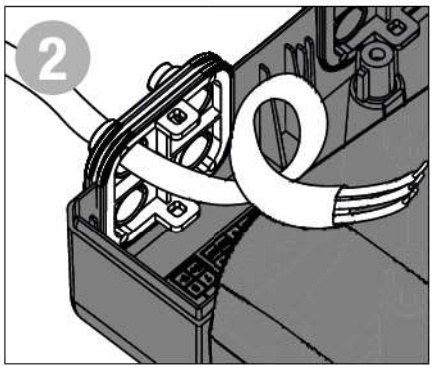


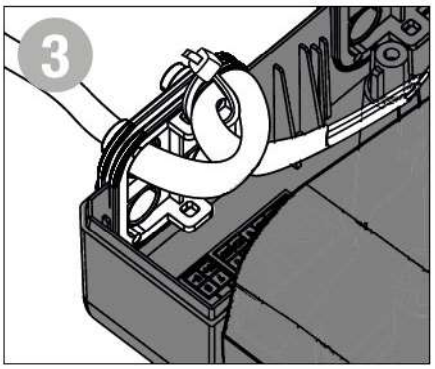
- VM undervoltage remote control:



- Motor: No special wiring direction.
- Cable passage: placing the traction stops







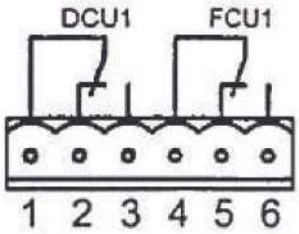
EN

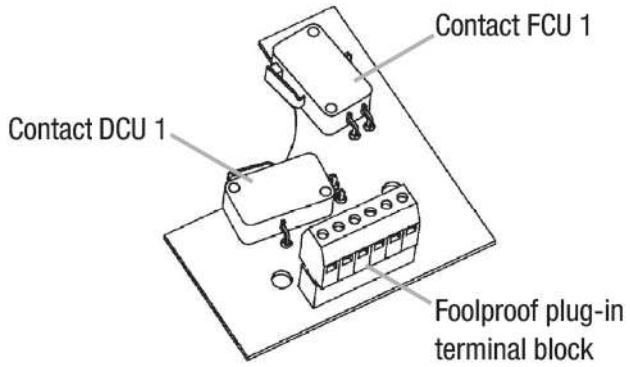
4.2. ISONE® 2.1 GM housing

All connections are made using unpluggable connectors (supplied). Contacts are represented at rest, free of action. There are three types of connection board depending on the options chosen (see damper label). All three boards can be unclipped without tools. Boards 1 and 2 are interchangeable.

- **Board No. 1: FDCU1 start and end of stroke contacts**

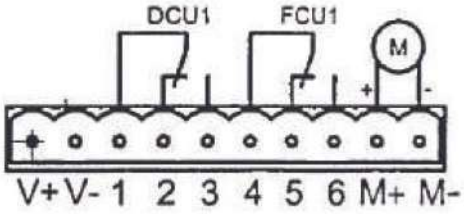
For damper with thermal trip only.

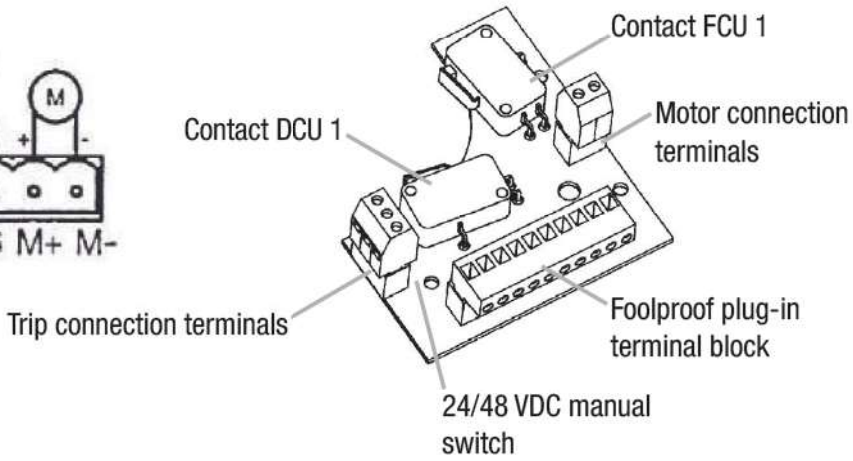




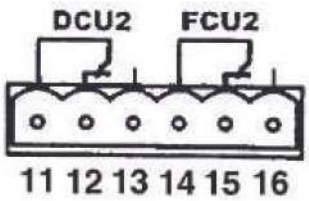
- **BOARD No. 2: board with FDCU1 start and end of stroke contacts, connections for electromagnetic trip and reset motor**

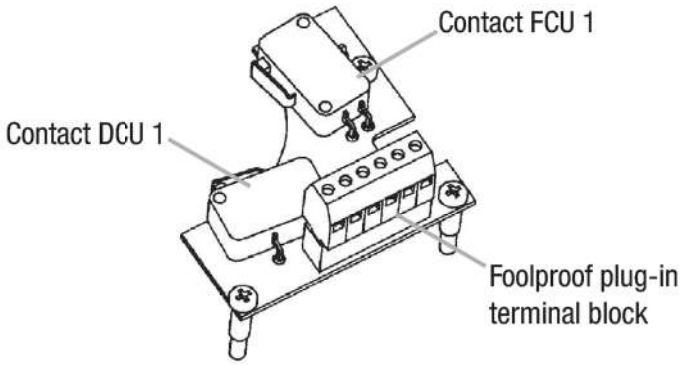
WARNING electromagnetic trip: The voltage is pre-set in the factory at 48 V, it can be changed by means of a switch (see below)





- **BOARD No. 3: FDCU2 second set of start and end of stroke contacts**

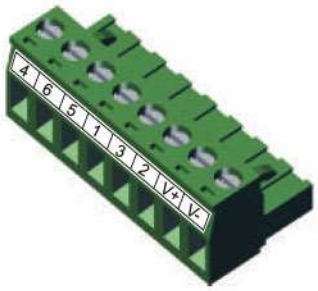




EN

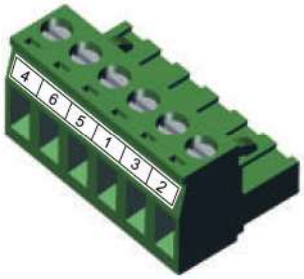
4.3. Remote housing

- Electromagnetic coil + FDCU1 contact set + reset motor:



FCU1	4	C
	6	NO
	5	NC
DCU1	1	C
	3	NO
	2	NC
24/48 VDC coil	V+	V+
	V-	V-

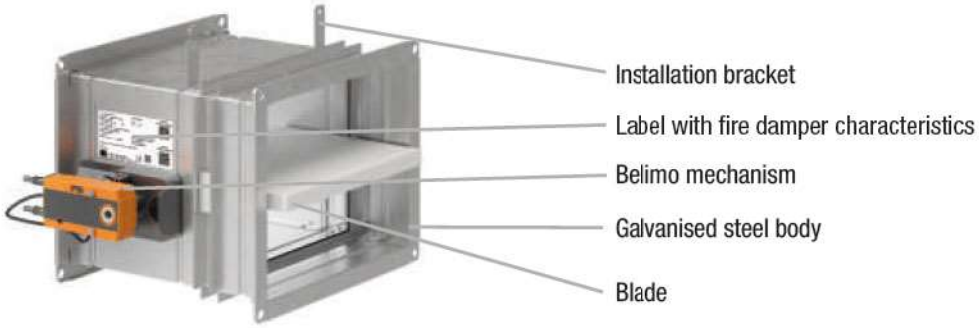
- FDCU2 contact set



FCU1	4	C
	6	NO
	5	NC
DCU1	1	C
	3	NO
	2	NC

EN

4.4. Motorised model with belimo



Triggering:

- Manual : by pushing the test button on the probe, below the motor
- Remote: depending on the chosen motor (24V or 230V)

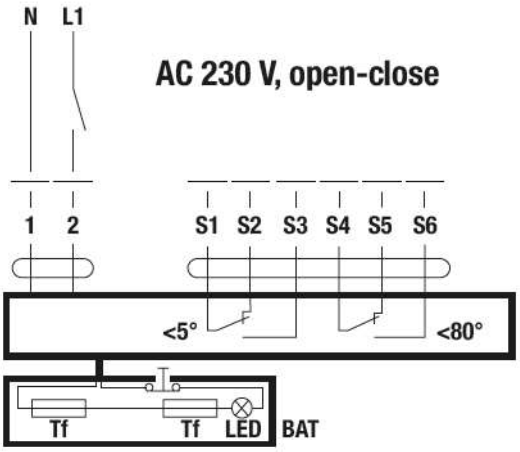
Motor:

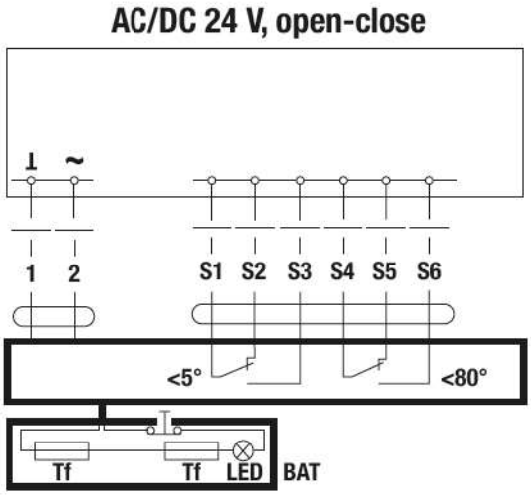
- BELIMO 24V BFL24-T-ST motor for PM model / BFN24-T-ST for GM model : equipped with connection plugs. Ready to use with communication and power supply unit, for integration in SBS-control networks, MP Bus networks, and Modbus networks.

If no additional module is used, cut the connection plugs and use the wire directly

- BELIMO BFL230-T motor for PM model / BFN230-T for GM model

ELECTRICAL WIRING:





5. MAINTENANCE

EN

- Take the usual precautions when working in the mechanism of a rotating machine equipped with gears and powerful springs.
- Grounding is not necessary because all elements are necessarily powered at safety extra-low voltage (SELV). We recommend that work be done with power off, to prevent short circuits that may damage the device.
- The covers protecting the mechanism and the electrical connections must be put back into place after each removal.
- Periodic test operations are planned, depending on the type of building (see NFS 61-933). We recommend a minimum of one annual manoeuvre.
- When changing an FTE probe, do not manipulate the mechanism (open and close the blade by manipulating the handle).