



# Installation and maintenance instructions

ARCALAM® Pneumatic

**Designation and commercial reference : Arcalam Evolution Pneumatic**

**Certificate No.** : 0333 CPR 219 054

**DOP No .:** ALP

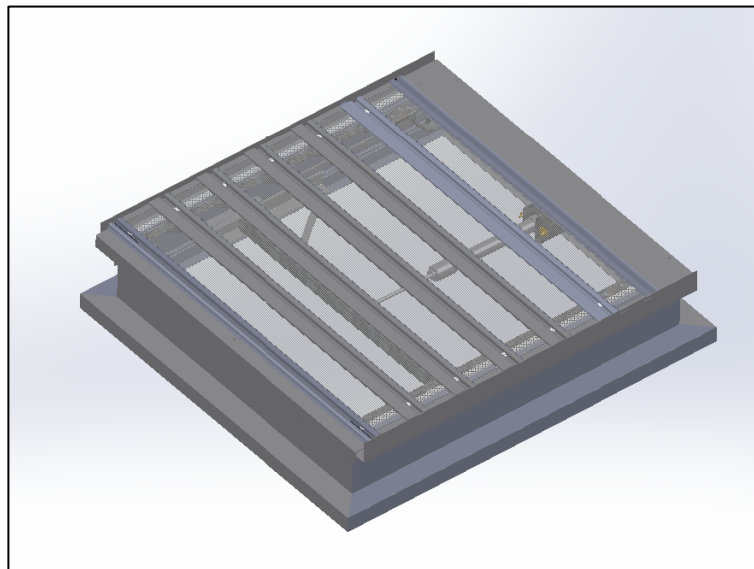
**Year of certificate:** 2006

**Reference standard: NF** EN 12101-2 / NF S 61-937-1 / NF S 61-937-7 / NF S 61-937-8

**Reference standard: NF** EN 12101-2 / NF S 61-937-1 / NF S 61-937-7

**Certification rule: CE 219** / NF 537

**Warning:** This notice does not constitute a contractual document; the manufacturer reserves the right to make without notice any modification he deems useful.



**Certifying body:**  
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This mark certifies:  
Compliance with standard  
NF EN 12101-2



This mark certifies:  
- Compliance with standard NF S 61-937-1 and NF S 61-937-7  
- The values of the characteristics announced in this sheet  
- Compliance with the rules of certification NF 537

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## 1 Identification:

Range Name : ARCALAM®  
Commercial reference: ARCALAM® EVOLUTION Pneumatic  
Type of DENFC Assembly: Facade <sup>1</sup>  
Roof   
Product certifications: CE Yes  No   
NF Yes  No

Descriptive:

The ARCALAM® EVOLUTION Pneumatic is a roof smoke extraction opening for the evacuation of fumes, heat and natural ventilation, opening at an angle of  $90^\circ \pm 5^\circ$  and equipped with the necessary components for its opening. It is powered by pneumatic energy within the meaning of standard NF EN 12101-2. The availability of the energy source must be ensured.

## 2 Possible hazards in the range:

- Chassis:
  - Aluminum or galvanized steel shell
  - Aluminium working
- Fills:
  - 10 mm thick cellular polycarbonate
  - Aluminium profiles
  - Laminated glass 33.2
- Options:
  - Hot melt
  - Position switch

## 3 Features:

### 3.1 General characteristics of Operated Safety Devices (SARs) :

- A D.A.S. must not issue an order
- Devices for checking the safety and/or waiting positions of the D.A.S.
- Unblocking energy external to the D.A.S.
- Functional independence of the self-control and remote control
- No remote reset if passing in safety position by self-control
- Rearmament by remote control only if the energy to the previous rearmament has been interrupted
- End-of-life damping
- Type B or type A if height of the component to be handled less than or equal to 2.50 m from the ground.

<sup>1</sup> : Natural Smoke and Heat Evacuation Device

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## 3.2 General characteristics of the constituents:

- Control of the positions of the D.A.S (if presence of a position contactor).
- Class III for electrical equipment operating under very low safety voltage (TBTS)
- Isolation of electrical circuits in TBTS and electrical circuits of other equipment
- Minimum protection class IP 42
- Presence of the main connecting device
- Specific TBTS connection device
- Operation of the traction stop device
- Minimum electrical characteristics of position contacts
- Independence of control electrical circuits with other circuits
- Test pressures of equipment Pneumatic tyres

## 3.3 Wind load classification:

- The DENFC is classified in the following category: WL 1500  
*The designation 1500 represents the test wind load expressed in Pa.*

## 4 Reception – storage:

Make sure in the presence of the carrier that the device is not damaged.

In case of deterioration of the packaging, carry out a complete check of the outlet (a reservation a posteriori will not be accepted).

Storage is preferably carried out in the transport position and in the original packaging away from bad weather and dirt.

## 5 Unpacking – handling:

Take care not to scratch fills with a cutting tool. Proceed through the chassis edge.

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## 6 The range:

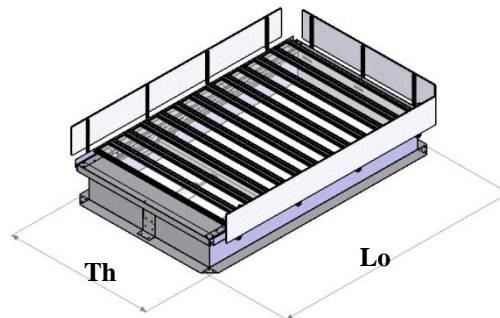
The input characteristics of the device are available on the CE marking label on the inside front of the upstand.

The dimensions of the upstand hopper vary from:

- 1107 mm to 3051 mm in length
- 1000 mm to 2200 mm in width

Hopper Dimension			
Width "The" (in mm)		Length "Lo" (in mm)	
≥ 1000	≤ 2200	≥ 1107	≤ 3051

"Lo" is the length of the device  
 "The" is the width of the device.



*The range can open the ARCALAM EVOLUTION PNEUMATIQUE despite the presence of an unfavourable wind of 10 m/s and an overload of: 25 kg/m<sup>2</sup> or 50 kg/m<sup>2</sup>.*

Below is the summary table of the air consumption according to your device and its filling and snow load (SLxxx).

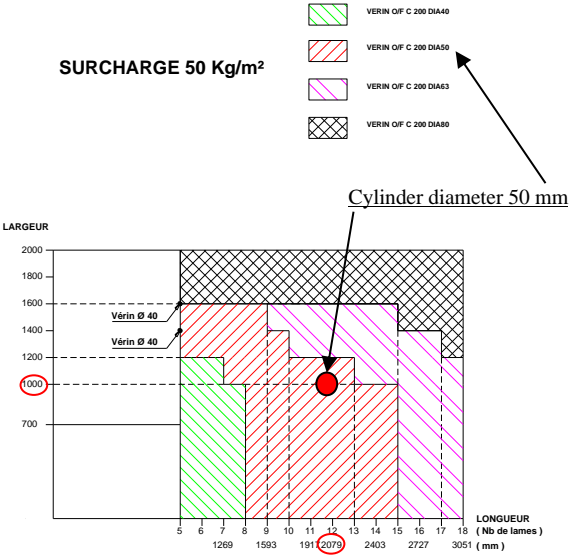
Cylinder			Opening	Closure and pressure in aeration
Ø cylinder (mm)	Volume (in litres)	Volume (in NI)	Pressure (bar)	Pressure (bar)
32	0.161	2.415	15	7
40	0.250	3.750	15	7
50	0.390	5.850	15	7
63	0.623	9.345	15	7
80	1.010	15.150	15	7



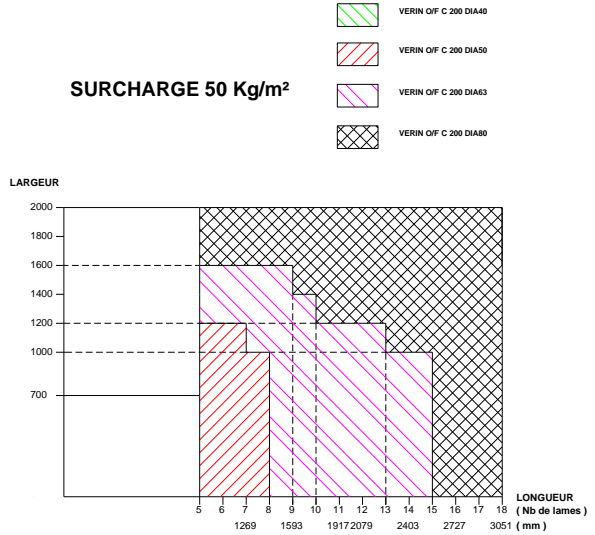
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## ESSAIS DE CHARGES SUR ARCALAM EVOLUTION PNEUMATIQUE REMPISSAGE PCA ET CAPOT OPAQUE

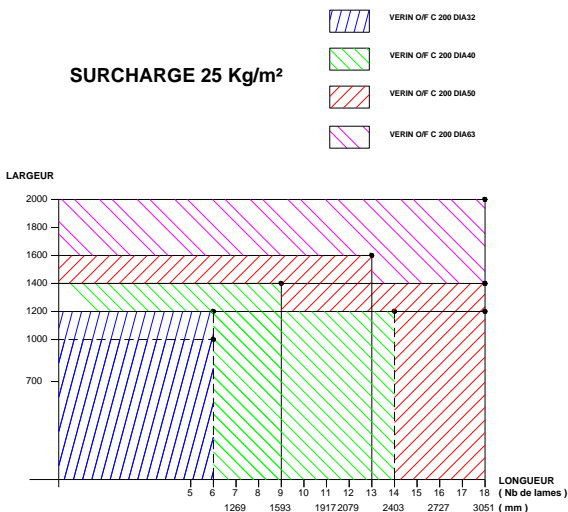


## ESSAIS DE CHARGES SUR ARCALAM EVOLUTION PNEUMATIQUE REMPISSAGE VERRE FEUILLETE

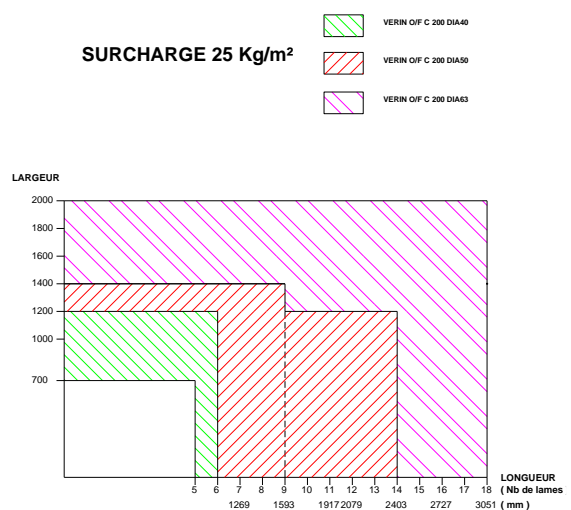


Example: for a device of 1000 X 2079 (12 blades) with a filling of PCA or aluminum cover, it will be put a cylinder O / F stroke of 200 mm and diameter 50 mm.

## ESSAIS DE CHARGES SUR ARCALAM EVOLUTION PNEUMATIQUE REMPISSAGE PCA ET CAPOT OPAQUE



## ESSAIS DE CHARGES SUR ARCALAM EVOLUTION PNEUMATIQUE REMPISSAGE VERRE FEUILLETE





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## 7 Determination of opening surfaces

### Geometric surface

The geometric surface is the surface released by the opening, at the level of the dormant frame.  
SGO (in dm<sup>2</sup>) = The × Ho /10000

## 8 Arcalam installation and implementation rules:

Caution: Any maneuver that may damage the mechanisms and/or structure of the DENFC is prohibited. SKYDOME® cannot be held responsible for the impact of such maneuvers.

### 8.1 Support:

The support receiving the DENFC must be flat, within the normative tolerances of building construction.

### 8.2 The installation of the DENFC:

#### 8.2.1 Implementation of Arcalam according to its support:

- *Trimmer :* Through self-drilling screws or rivets or others  
Boulonneries respecting a **maximum distance between 2 fastenings of 330 mm.**
- *Ribbed steel sheets:* Through self-drilling screws or rivets or others  
Bolts respecting a **maximum distance between 2 fasteners of 330 mm.**
- *Masonry support:* Through adapted fastenings respecting a **center distance Maximum between 2 fasteners of 200 mm.**

The insulation that may be present on the DENFC includes a bituminous film designed to receive leakage readings directly.

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## 8.2.2 Implementation of L'Arcalam in enhanced version:

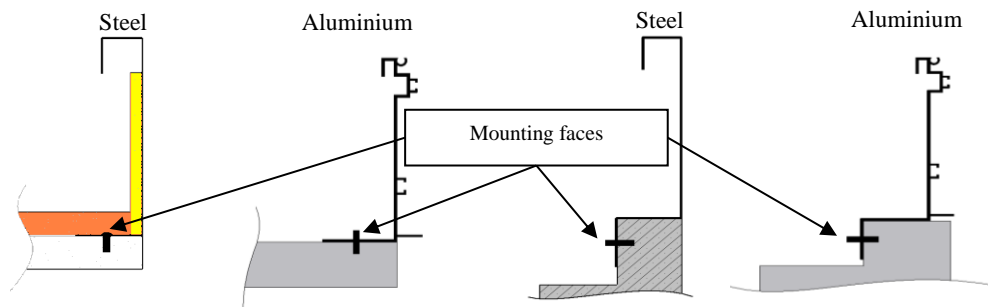
The center distance requirements described above are identical for the raised version subject to installation on a suitable existing support, i.e. steel, concrete, wood, or any other material which has already passed the thermal deformation test.

The geometric surface ( $A_v$ ) of the existing support costing must be greater than or equal to the geometric surface of the capping cost.

The smoke extraction DENFC must be fixed and sealed according to the requirements defined in the waterproofing D.T.U. (Unified Technical Document) in force.

## 8.2.3 Schematics for fixing a device according to its version:

**Figure 1: Standard Rib Scheme**  
**Diagram 2: Rising Rack**



**Caution:** Any other place for the fixation, may cause water leaks.





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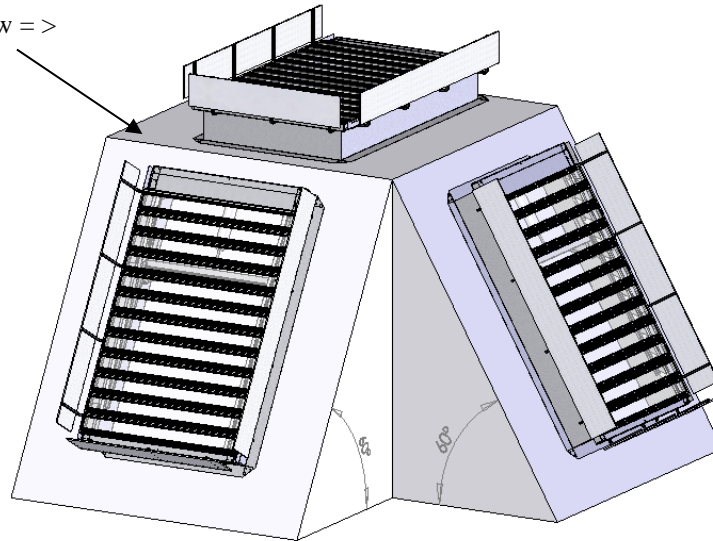
## ARCALAM® Pneumatic

### 8.2.4 Implementation of the Acalam :

**Rule:** The roof slope must be between 3° and 60° maximum (i.e. 173%) regardless of the position of the axis of articulation. However, when the axis of articulation is perpendicular to the slope, the cylinder must be positioned at the top of the slope.

Mini 3°:

Horizontal plane yew =>  
inclined Curb



Maximum slope of 60°  
Cylinder at the top

***Warning: the device must be installed according to the standards, technical instructions, and any rules or texts in force.***

### 8.2.5 Installation of deflectors:

The device can optionally be equipped with deflectors to improve the aerodynamic coefficient of the device. These deflectors are located in the length of the device, as well as on the opposite side of the cylinder. They are fixed on the rib by means of self-drilling screws. ***(The pose remains the same in all cases)***

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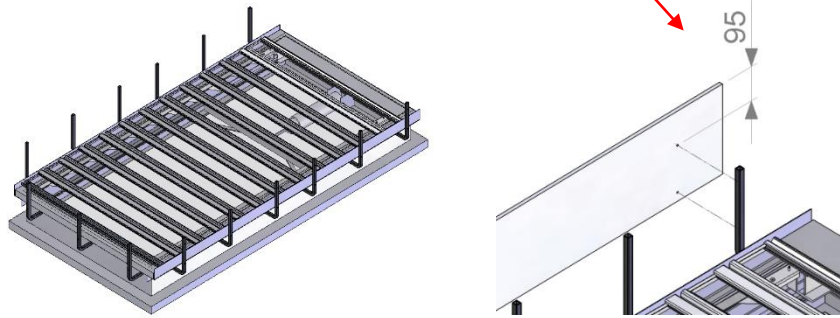


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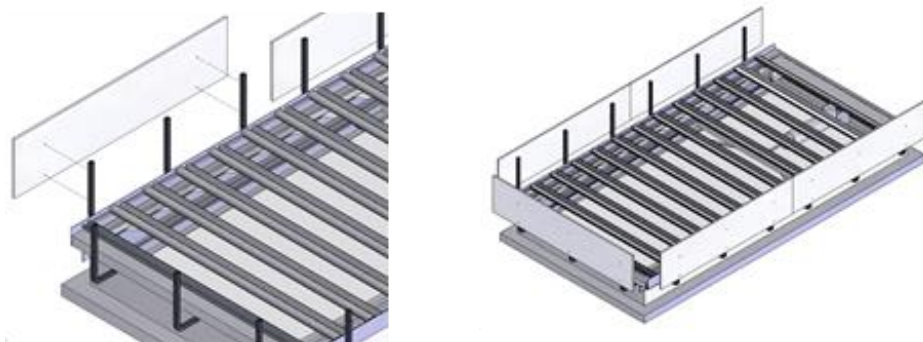
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## Fixing deflectors

Attention the holes located 95 mm from the edge are to be positioned upwards.



Attach the deflectors to the tubes from the holes at the ends. Then attach the deflector to the central tubes. Attention the side deflectors are different from the front deflectors.



## 8.3 Assembly and connection

For the connection of the DENFC and its options to the Safety Pneumatic Power Supply (APS): refer to the standard in force.

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## 9 Maintenance instructions

Please note: our devices are not warranted for an exhibition that may alter the initial characteristics of an element or function of the DENFC.

The operation, maintenance and periodic verification operations will be carried out according to the requirements of the texts and standards in force as well as the following SKYDOME® requirements :

- Proceed at least 2 times a year to the opening/closing in a safe position of the DENFC.
- Verification operations:
  - In particular, check the condition of the joints, connecting rods and cylinder rods. It is important to keep these elements lubricated ( Teflon grease for slides, oil), except the cylinder stem.
  - Control the tightening of the screwed elements.
  - Do not clean the cylinder stem with a solvent, as this can damage the inner seals.
  - Do not paint the stem of the cylinder.
  - Clean drainage channels
  - Check that the joints are not glued.
- DENFC verification operations must be carried out at least 1 time per year.

## 10 Replacement

All components of the device are available on request from SKYDOME®

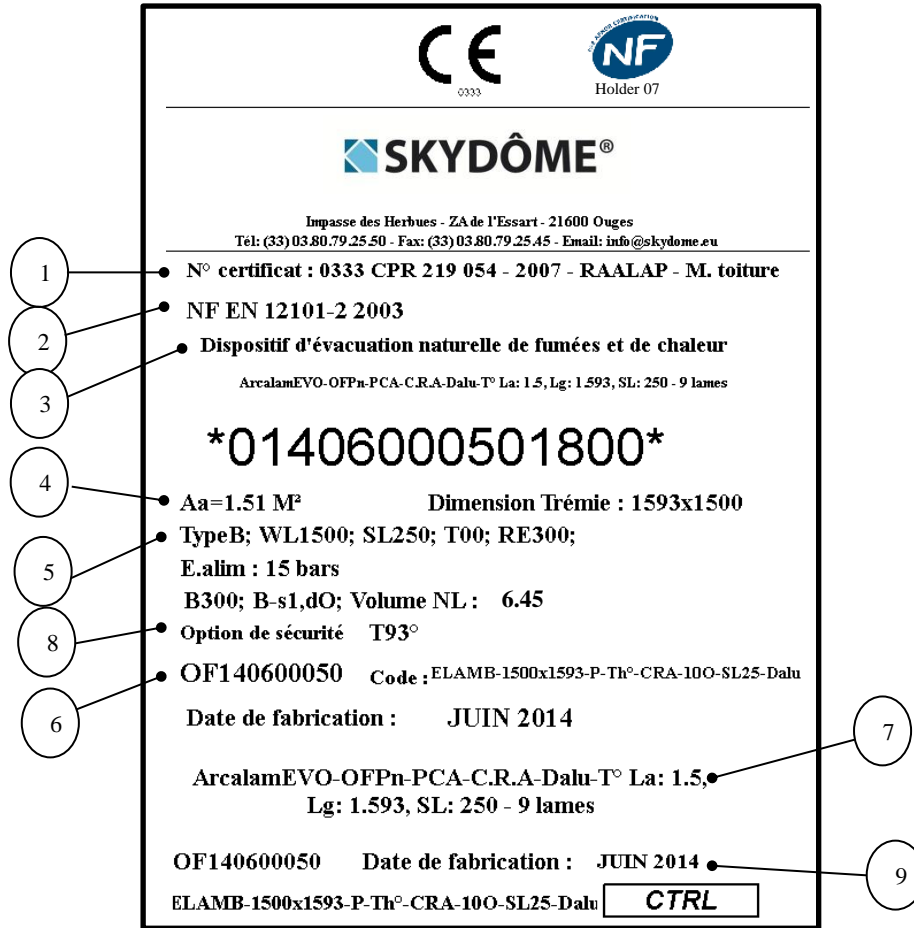
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## 11 Product marking



- ① Number of certificate, date of receipt, D.O.P. number and type of assembly
- ② Reference standard in effect.
- ③ Trade description of the device.
- ④ Hopper size and Useful Aperture area (Aa).



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- ⑤ Respectively:
  - Type of opening of the natural smoke and heat evacuation device.
  - Classification of wind load.
  - Classification of the snow load.
  - Ambient temperature classification.
  - Reliability classification.
  - Power input.
  - Heat resistance classification.
  - Reaction to fire classification of the materials constituting the DENFC, according to the European standard in force.
  - Consumption in normo liter
- ⑥ Manufacturing order number.
- ⑦ Item code (for device traceability).
- ⑧ Description of security options:  
Trigger temperature for hot melt option.
- ⑨ Date of manufacture of the device.

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