Continuous louvre system
Cladding
Linius®
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       continuous louvre system specifications 75

RENSON® reserves the right to make technical changes to the products shown.
2. RENSON® company profile

6 good reasons to have RENSON® as a partner.

1. Customer satisfaction by personal contact, professional advice, excellent service and reliable, high-performance products are the main aims of our company.

2. RENSON® is a reputable and established multinational company with international expertise and experience thanks to the efforts of our local specialists. They are present in all regions of the world. RENSON has assisted with projects across the whole world, from Moscow to Tahiti and from Monaco to Shanghai.

3. A complete service from start to finish, effective support and advice during the design phase, site meetings and installation.

4. The production process is fully vertically integrated enabling manufacturing to the strictest of standards. Investments in injection moulding machinery, anodising facilities and a fully automatic powder coating installation ensure efficiency and accuracy.

5. Continuous research and development translates customer needs into unique solutions and innovative products.

6. RENSON® specialises in all aspects of ventilation and solar shading to achieve the current goals of the Healthy Building Concept®.
## Worldwide Reference List

### Belgium
- Madou Tower – Brussels
- Hogeschool GroepT – Leuven
- Airport – Zaventem
- Smithkline Beecham plant – Brussels
- Edifici Alcatel – Antwerp
- Private house/office – Menen
- Private residence – Bruges

### France
- Futuroscope – Poitiers
- Euralille – Lille
- Paris-Expo – Paris
- UV E – Rouen
- Gemey Maybelline – Orléans
  (Arch: Alain Bailly – Lionel Colson, Paris)
- CHU – Perpignan
- Ifremer – Sète
- Thomson – Rousset
- Inria – Rennes
- Institut Regional de Readapton – Nancy
- I.R.R. Louis Pierquin – Nancy
- Air terminal – Brest
- Hospital Centre – Cannes
- Palazzo delle esposizioni – Monaco

### Germany
- Al RBUS – Hamburg
- Airport – Frankfurt
- Messehalle – Frankfurt
- VW Design – Potsdam
- Audi – Neckarsulm
- Government quarter – Er furt
- Technology Centre – Gelsenkirchen
- Peek & Cloppenburg – Cologne
- Parking – Rostock
- Technology Centre – Heidelberg
- Wilmersdorf f Arcades – Berlin
- LSG Sky Chefs – Frankfurt
- Elbe Shopping Centre – Hamburg
- Erlangen Arcades – Erlangen
- Frauenhof Institute – Magdeburg
- Labour Agency – Berlin-Central

### Israel
- Telephone company – Naharia

### Hungary
- Vodafone – Budapest
- NBC-Building – Budapest

### Italy
- University – Bologna

### Poland
- Riviera – Warszawa
- Reform Plaza – Warszawa
- Metro – Warszawa
- Hotel Mercure – Poznan
- Galeria Kazimierz – Kraków

### Turkey
- Telephone company – Naharia

### United Kingdom
- Sony Music – Delft
- Philips high tech campus – Eindhoven

### Turkey
- Pamuk Bank – Istanbul

### Switzerland
- World Trade Center – Lugano
- Zurich airport – Zurich

### Luxembourg
- Lycée technique du Centre – Dommeldange

### Austria
- Uniqua Tower – Wien
- Hypo Tirol – Innsbruck
- Mutter-Kind-Zentrum – Linz
- Sparkasse Linz – Linz

### Portugal
- Frente Mar da Ribeira de Boaventura – Madeira
Ref. OMEGA Pharma, Mechelen (BE) • L.069G

Company: SMAC AEROID
O’FARIL - Lexin Tessina - Toulouse. Peri: La Isla - Puigarnet G.

Ref. Fraunhofer Institute VDI. Magdeburg (D) • L.050 and L.033

Ref. Private House/office – Menen (BE) • Arch. Philippe Dujardin

Ref. Sunderland Aquatic Centre, Sunderland (UK) • Arch. Red Box Architecture
3. Purpose of the continuous louvre system (CLS)

1. Screening of installations
An application ideal for concealing unsightly equipment from view.

2. Ventilation
An assembly allowing the air flow in and out of a building whilst restricting the entry of rain. Here the CLS offers by far the best aesthetic solution.

3. Screening against the weather
The continuous louvres system protects your installation from wind, rain and vermin.

4. Acoustics
Fitted with acoustic blades, the CLS is ideal for the screening of noisy installations. The structure of the louvres system together with the noise damping qualities ensure that noise is strongly damped, while keeping good ventilation.

5. Aesthetic cladding
Applications in which the blade profile design is preferred to other applications.

6. Interior
Interior cladding, possibly incorporating back lighting.
4. Overview

The continuous louvre system consists of a support structure to which blades are fitted.

The support structure carries the complete louvre assembly and is formed by vertically placed mullions fixed by brackets at set distances. Depending on the structure, RENSON offers different mullion types. Blade supports are permanently fixed to the mullions allowing the blades to be clip-locked onto their supports. The method of construction is simple and well tested. Mitred corners, doors, vermin, bird or insect screens can all be incorporated.

Depending on the application, different constructions are possible.

Blade types

Extruded aluminium - standard blades:

- Ref. L.033.01 Standard blade
  p. 12
- Ref. L.050.00 Standard blade
  p. 18
- Ref. L.050S Standard blade
  p. 18
- Ref. L.066.01 Standard blade
  p. 24
- Ref. L.075.01 Standard blade
  p. 28
- Ref. L.095.01 Standard blade
  p. 30
- Ref. L.120.01 Standard blade
  p. 32

Extruded aluminium - blades with large free area:

- Ref. L.050HF Blade with large free area
  p. 20
- Ref. L.060HF Blade with large free area
  p. 22
- Ref. L.120.01 Blade with large free area
  p. 32
Extruded aluminium - blades for restricted access and visual screening:

- **Ref. L.033.08**
  - Labyrinthine blade
  - p. 14

- **Ref. L.033V**
  - V-blade
  - p. 14

- **Ref. L.066V**
  - V-blade
  - p. 26

Extruded aluminium - acoustic blades:

- **Ref. L.060AC**
  - Acoustic blade
  - p. 36

- **Ref. L.150ACS.01**
  - Acoustic blade
  - p. 38

- **Ref. L.150ACL.01**
  - Acoustic blade
  - p. 38

Rolled aluminium - rolled sheet blades:

- **Ref. L.065AL and L.065AL.02**
  - Aluminium
  - p. 34

- **Ref. L.065GL**
  - Galvanised steel
  - p. 34

- **Ref. L.065StS**
  - Stainless steel
  - p. 34
Extruded aluminium - aesthetic blades for cladding/sunprotection

Ref. L.050.21
Loggia® blade
p. 42

Ref. L.066P
Rectangular blade
p. 40

Ref. L.066.21
Loggia® blade
p. 42

Ref. L.050.21
Loggia® blade
p. 42

Extruded aluminium - closed blades

Ref. L.033CL
Closed blade
p. 16

Ref. L.050CL
Closed blade
p. 19

Ref. L.066CL
Closed blade
p. 25

Extruded aluminium - project profiles (*)

Ref. L.033HF
Blade with large free area
p. 14

Ref. L.050.25
Blade with extended nose
p. 20

Ref. L.066S
Blade soft line
p. 24

(*) = Project profiles not in stock

WWW.RENSON.EU
Supporting structure Linius®

- Ref. LD.0065 Continuous support p. 51
- Ref. LD.0440 For constructions and sideways fixation p. 53
- Ref. LD.0460 Medium vertical span p. 54
- Ref. LD.0995 Large vertical span p. 55
- Ref. LD.1250 For extra large unsupported spans p. 56

Supporting structure Sunclips®

- Ref. LD.0108 Adapter profile p. 55
- Ref. SD.014 Continuous support p. 55
- Ref. SD.054 Medium vertical span p. 55
- Ref. SD.100 Large vertical span p. 55

Extruded aluminium – with integrated insect mesh

- Ref. L.066.06 Blade with extended nose p. 24
- Ref. L.075S Blade soft line p. 28
- Ref. L.033IM1 Blade with integrated insect mesh p. 15
- Ref. L.033IM1 Blade with integrated insect mesh p. 15

Creating healthy spaces
5. Blade types - L.033

**Description**
Extruded aluminium profile for light duty with a 33.3 mm pitch. Normally used for smaller surface areas, round and special shapes.

**Materials**
Aluminium extrusion, alloy EN AW 6063 T66

**Finish**
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Mesh**
Fixed to rear of the support structure.

**Features**
Can be curved with a minimum radius of 800 mm. Top blade L.033.02 for an attractive top connection (cannot be curved). Short bottom blade L.033.04 and long bottom blade L.033.03. Can be used together with block blade L.033.05 (see p. 71)

**Doors**
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

**Blade support**
Single blade support: type L.033.11
Double blade support for thermal expansion: type L.033.12 (connecting piece for 2 blades)

---

**Technical data L.033.01**
- Pitch: 33.3 mm
- Depth: 20.4 mm
- Height: 37.5 mm
- K-Factor*, supply: 19.04
- Visual free area*: 59%
- Physical free area*: 44.7%
- Max. unsupported span between two mullions**: 800 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref.: Young Budget Homes show home (B)
5. Blade types - L.033 Variations

Description
Extruded aluminium profile with a 33.3 mm pitch.

Application examples
L.033V and L.033.08:
- High-risk applications, such as high voltage units requiring restricted access
- Small format for high weather resistance (L.033V: HEVAC category A)
- Blade L.033V can be used together with blade L.033.01 thanks to their identical appearance
L.033HF:
- Physical free area 50%
L.033CL:
- Suitable for fully or partially closed continuous louver systems

Technical data L.033V
Pitch: 33.3 mm
Depth x Height: 39.6 mm x 37.6 mm
K-Factor*, supply: 61.04
Visual free area*: 60 %
Physical free area*: 43 %
Max. unsupported span between two mullions**: 800 mm

Technical data L.033.08
Pitch: 33.3 mm
Depth x Height: 20.4 mm x 42.3 mm
K-Factor*, supply: 82.7
Visual free area*: 56 %
Physical free area*: 26 %
Max. unsupported span between two mullions**: 950 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
**Description**

Extruded aluminium profile with integrated insect mesh. This 33.3 mm pitch blade clipped into the standard blade support combines weather resistance and insect protection. No separate insect mesh is needed, resulting in considerable time savings during installation. This blade is also the ideal solution for applications where installation of a separate insect mesh is difficult. The L.033IM1 blade combines perfectly with the standard L.033.01 blade and L.033CL closed blade.

**Materials**

Aluminium extrusion, alloy EN AW 6063 T66

**Finish**

- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Doors**

Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 – 65).

**Blade support**

Single blade support: type L.033.11
Double blade support for thermal expansion: type L.033.12 (connecting piece for 2 blades)

---

**Technical data L.033IM1**

Pitch: 33,3 mm  
Diepte: 20,4 mm  
Height: 38,2 mm  
K-Factor*: supply: 34,7  
Visual free area*: 59 %  
Physical free area*: 24 %  
Max. unsupported span between two mullions**: 1350 mm

* Definition see p. 44  
** At qb 800 Pa wind pressure

---

Installation up to 2x faster
5. Blade types - L.033 Variations

**Description**

**Materials**
Aluminium extrusion, alloy EN AW 6063 T66

**Finish**
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Mesh**
Fixed to the support structure

**Doors**
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

**Blade support**
Single blade support: L.033.11
Double blade support for thermal expansion: L.033.12
(connecting piece for 2 blades)
The blade supports are the same for all L.033 blade types. They are only fitted upside down for blade type L.033V.

**Technical data L.033HF**
Pitch: 33.3 mm
Depth x Height: 20.4 mm x 37.5 mm
K-Factor*: supply: 20.99
Visual free area*: 59 %
Physical free area*: 50 %
Max. unsupported span between two mullions**: 800 mm

**Technical data L.033CL**
Pitch: 33.3 mm
Depth x Height: 20.4 mm x 38.2 mm
Max. unsupported span between two mullions**: 1400 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. : Fire station, Pijnacker (NL)
5. Blade types - L.050

Description
Heavy-duty extruded aluminium profile at 50 mm pitch with very high air flow.

Applications
Often to be found where the blade pitch reflects the aesthetics of the overall project design. Available as doors, shapes and circles.
L.050CL - Suitable for fully or partially closed continuous louvre systems.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 µ/40 µ (UK))

Mesh
Clipped between the blades (see p. 61) or fixed to the rear of the support structure

Description

Technical data L.050.00
Pitch: 50 mm
Depth: 41,0 mm
Height: 56,0 mm
K-Factor*, supply: 12,57
Visual free area*: 70%
Physical free area*: 49%
Max. unsupported span between two mullions**: 1200 mm

L.050S
Pitch: 50 mm
Depth: 41,0 mm
Height: 56,0 mm
K-Factor*, supply: 12,57
Visual free area*: 70%
Physical free area*: 49%
Max. unsupported span between two mullions**: 1200 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Features
Blade L.050.00 can also be curved with a minimum radius of 800 mm. Top blade L.050.02 available for attractive top connection. Short bottom blade L.050.04 and long bottom blade L.050.03 for optimal finish. Can be used together with block blade L.050.05 (see p. 71)

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.050.110
Double blade support for thermal expansion: L.050.120 (connecting piece for 2 blades)

Technical data
**L.050CL**
Pitch: 50 mm
Depth x Height: 41 x 60
Max. unsupported span between two mullions**: 2100 mm

* Definition see p. 44
** At qb 800 Pa wind pressure

Ref.: De Brug Unilever, Rotterdam (NL)
5. Blade types - L.050HF

Description
Heavy-duty extruded aluminium profile at 50 mm pitch with very high air flow. Often to be found where the blade pitch reflects the aesthetics of the overall project design.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.050.110
Double blade support for thermal expansion: L.050.120
(connecting piece for 2 blades)

Technical data L.050HF
Pitch: 50 mm
Depth: 41,0 mm
Height: 50,0 mm
K-Factor*, supply: 8,03
Visual free area*: 70%
Physical free area*: 60%
Max. unsupported span between two mullions**: 1050 mm

L.050.25
Pitch: 50 mm
Depth: 41,0 mm
Height: 56,0 mm
K-Factor*, supply: 15,69
Visual free area*: 50%
Physical free area*: 32,5%
Max. unsupported span between two mullions**: 1300 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. : Peak & Cloppenburg, Cologne (D)
Description
Extruded aluminium louvre profile with minimal air flow resistance. Particularly suitable where a large airflow is required in combination with considerable optical density and a sharp design.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.060HF.11
Double blade support for thermal expansion: L.060HF.12 (connecting piece for 2 blades)

Technical data L.060HF
Pitch: 60 mm
Depth: 78 mm
Height: 60 mm
K-Factor*, supply: 4,81
K-Factor*, extraction: 4,53
Visual free area*: 90%
Physical free area*: 76%
Max. unsupported span between two mullions**: 800 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. : Fire station, Aalst (B)
5. Blade types - L.066

Description
Heavy-duty extruded aluminium profile at 66 mm pitch with high air flow. The largest of the “small” format louvres retaining high air flow characteristics whilst providing a significant degree of weatherability.

L.066CL - Suitable for fully or partially closed continuous louvre systems.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Technical data L.066.01
Pitch: 66 mm  
Depth: 55,0 mm  
Height: 76,5 mm  
K-Factor*: supply: 13,62  
Visual free area*: 70%  
Physical free area*: 49.2%  
Max. unsupported span between two mullions**: 1600 mm

Technical data L.066S
Pitch: 66 mm  
Depth: 55,0 mm  
Height: 76,5 mm  
K-Factor*, supply: 13,62  
Visual free area*: 70%  
Physical free area*: 49%  
Max. unsupported span between two mullions**: 1600 mm

* Definition see p. 44  
** At qb 800 Pa wind pressure
**Technical data L.066.06**
Pitch: 66 mm  
Depth: 55,0 mm  
Height: 76,5 mm  
K-Factor*, supply: 13,62  
Visual free area*: 70%  
Physical free area*: 49%  
Max. unsupported span between two mullions**: 1600 mm

**Technical data L.066CL**
Pitch: 66 mm  
Depth x Height: 55 x 76,5  
Max. unsupported span between two mullions**: 2300 mm

* Definition see p. 44  
** At qb 800 Pa wind pressure

**Description**

**Finish**
- Anodised (20 micron)  
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Mesh**
Fixed to rear of the support structure.

**Doors**
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

**Blade support**
Single blade support: type L.066.11  
Double blade support for thermal expansion: L.066.12  
(connecting piece for 2 blades)  
Blade support for variable pitch:  
- single: type L.066.13  
- double: type L.066.14
5. Blade types - L.066V

Description
Extruded aluminium V-shape profile with a 66 mm pitch. For applications requiring restricted access, such as in high voltage units, or visual screen and high water-resistance. If a continuous louvre wall with high water-tightness properties is required, the blade is installed vertically to achieve HEVAC class A water resistance at 1.5 m/s (see pp. 44-45). Blade L.066V can be combined with blade L.066 thanks to their identical appearance.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.066.11
Double blade support for thermal expansion: L.066.12 (connecting piece for 2 blades)
The blade supports are the same for all L.066 blade types. They are only fitted upside down for blade type L.066V.

Technical data L.066V

| Pitch: 66 mm |
| Depth: 61,5 mm |
| Height: 74 mm |
| K-Factor*, supply: 66,10 |
| K-Factor*, extraction: 79,72 |
| Visual free area*: 70% |
| Physical free area*: 40,6% |
| Max. unsupported span between two mullions**: 1650 mm |

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. : Fraunhoferinstitut VDTC, Magdeburg (D)
5. Blade types - L.075

Description
Heavy duty extruded aluminium profile with an optimal air flow and a 75 mm pitch. This latest innovation in the RENSON® range is available with a wide range of mesh options to handle all kinds of circumstances.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Clicked between the blades or fixed to the rear of the support structure (see p. 61).

Features
- Top blade L.075.02 for optimal finish
- Lower blade L.075.03 for optimal sill lining
- Frame without flange (see p. 63)
- Frame with flange (see p. 63)

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.075.11
Double blade support for thermal expansion: L.075.12
(connecting piece for 2 blades)

Technical data L.075.01
Pitch: 75 mm
Depth: 63,5 mm
Height: 89,2 mm
K-Factor*, supply: 16,52
Visual free area*: 94%
Physical free area*: 43%
Max. unsupported span between two mullions**: 1550 mm

Technical data L.075S
Pitch: 75 mm
Depth: 57,5 mm
Height: 89,5 mm
K-Factor*, supply: 16,52
Visual free area*: 86%
Physical free area*: 46,5%
Max. unsupported span between two mullions**: 1000 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade
5. Blade types - L.095

Description
Extra heavy-duty extruded aluminium blade with high free airflow and a pitch of 95 mm.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Clicked between the blades or fixed to the rear of the support structure (see p. 61).

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.095.11
Double blade support for thermal expansion: L.095.12
(connecting piece for 2 blades)

Technical data L.095
- Pitch: 95 mm
- Depth: 77.5 mm
- Height: 102.1 mm
- K-Factor*, supply: 11.41
- Visual free area*: 86%
- Physical free area*: 55.5%
- Max. unsupported span between two mullions**: 1300 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. Frente Mar da Ribeira de Boaventura (Madeira)
5. Blade types - L.120

Description
Extruded aluminium profile for large spans at 120 mm pitch with an optimal air flow. Improved installation speed thanks to a small number of clips and blades.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type L.120.11
Double blade support for thermal expansion: L.120.12 (connecting piece for 2 blades)

Technical data L.120
- Pitch: 120 mm
- Depth: 90 mm
- Height: 120 mm
- K-factor*, supply: 12.62
- K-factor*, extraction: 12.50
- Visual free area*: 66%
- Physical free area*: 60%
- Max. unsupported span between two mullions**: 2300 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref. Parkhaus am Römerwall, Rostock (D)
Description
Rolled aluminium profile (L.065AL); rolled aluminium profile, perforated (L.065AL .02) galvanized steel (L.065GL) or stainless steel (L.065STS). Light duty strip material with a pitch of 65 mm and resistance to normal weather conditions. For use as a screen, ideal if a low-priced solution is required. Mounted with a soft flowing appearance (M1) or with front corner line (M2).

Materials
<table>
<thead>
<tr>
<th>Aluminium EN AW 3005-H18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvanised steel EN 10142</td>
</tr>
<tr>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

Finish
Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK)) (only for L.065AL)

Mesh
Fixed to rear of the support structure.

Doors
Only with L.065AL

Blade support
Type L.065AL:
- Single blade support type L.065AL.11
- Double blade support type L.065AL.12 (connecting piece for 2 blades)

Type L.065GL and STS:
- Single blade support type L.065GL.11
- Double blade support type L.065GL.12 (connecting piece for 2 blades)

Technical data
L.065AL, GL & STS
- Pitch: 65 mm
- Depth: 50,0 mm
- Height: 70,0 mm
- K-Factor*: supply: 13,32
- Visual free area*: 70%
- Physical free area*: 56%
- Max. unsupported span between two mullions**: 1200 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Rolled blade

Ref.: Alexandrium Shopping Centre, Rotterdam (NL)
5. Blade types - Acoustic blades L.060AC

Description
Extruded aluminium profile with a pitch of 60 mm and perforated back; maximum blade length of 6,000 mm. Blades packed with inorganic mineral wool for acoustic performance. Developed to provide an aesthetic solution for noise reducing continuous louvre applications.

Materials

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Acoustic properties
L.060AC: $R_w(C;C_p)= 6 (1;-2)$ dB

Blade support
L.060AC : single blade support: type L.060AC .11
Double blade support for thermal expansion: L.060AC .12
(connecting piece for 2 blades)

Technical data L.060AC
- Pitch: 64 mm
- Depth: 69 mm
- Height: 73 mm
- K-Factor*: 9.22
- Visual free area*: 76 %
- Physical free area*: 34 %
- Max. unsupported span between two mullions**: 1700 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded acoustic aluminium blade

Ref. : Bouwhuis, Zoetermeer (NL)
Description
Extruded aluminium profile with a pitch of 150 mm and perforated underside; maximum blade length of 6,000 mm. Blades packed with inorganic mineral wool for acoustic performance. Developed to provide an aesthetic solution for noise reducing continuous louvre applications.

Materials

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Acoustic properties
L.150ACS: $R_{na}(C;C_a)= 11 (-1;-2) \text{ dB}$
L.150ACL: $R_{na}(C;C_a)= 15 (-1;-4) \text{ dB}$
L.170ACL: $R_{na}(C;C_a)= 13 (-1;-3) \text{ dB}$

Blade support
L.150ACS: type L.150ACS.11
L.150ACL: type L.150ACL.11
L.170ACL: type L.170ACL.11

Technical data L.150ACS
Pitch: 150 mm
Depth: 147 mm
Height: 239 mm
K-Factor*, supply: 27,4
Visual free area*: 54%
Physical free area*: 34,3%
Max. unsupported span between two mullions**: 2800 mm

L.150ACL
Pitch: 150 mm
Depth: 222 mm
Height: 328 mm
K-Factor*, supply: 37,3
Visual free area*: 54%
Physical free area*: 34,3%
Max. unsupported span between two mullions**: 2700 mm

L.170ACL
Pitch: 170 mm
Depth: 222 mm
Height: 328 mm
K-Factor*, supply: 28.58
Visual free area*: 59%
Physical free area*: 37%
Max. unsupported span between two mullions**: 2700 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded acoustic aluminium blade

Ref.: EKZ Shopping Centre, Hamburg (D)

L.150ACS

L.150ACL
Description
The Linius® L.066P Plano type is characterised by its unique and contemporary design. Linius® Plano blades are rectangular extruded aluminium blades. The system can be used for different purposes. It offers the opportunity to create modern architectural constructions in a simple way, both outside and inside.

Applications
- Sunshading blades
- Visual screen
- Aesthetic cladding
- Both exterior and interior applications
- Room divider
- Ceiling covering
- Integration in Loggia® type sunshading panels

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Blade support
Single blade support: L.066P.11
Double blade support for thermal expansion: L.066P.12
(connecting piece for 2 blades)

Technical data L.066P
Pitch: 66 mm
Depth: 53 mm
Height: 15 mm
Visual free area*: 77 %
Physical free area*: 77 %
Max. unsupported span between two mullions**: 800 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
Extruded aluminium blade

Ref.: RENSON® Sunprotection-Projects, Waregem (B)
5. Blade types - Aesthetic blades for cladding/ sunprotection

Description
Extruded aluminium profile with a 50mm (L.050.21) and 66mm (L.066.21) pitch. For aesthetic wall cladding, sun protection or visual barrier applications.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
L.050.21 : single blade support: type L.050.11
Double blade support for thermal expansion: L.050.12 (verbindingsstuk voor 2 lamellen)
L.066.21 : single blade support: type L.066.11
Double blade support for thermal expansion: L.066.12 (connecting piece for 2 blades)

Technical data L.050.21
Pitch: 50 mm
Depth: 31 mm
Height: 40,5 mm
Visual free area*: 80%
Physical free area*: 53%
Max. unsupported span between two mullions**: 800 mm

L.066.21
Pitch: 66 mm
Depth: 33 mm
Height: 46 mm
Visual free area*: 92%
Physical free area*: 50%
Max. unsupported span between two mullions**: 1200 mm

* Definition see p. 44
** At qb 800 Pa wind pressure
5. Blade types - Sunclips® Evo

Description
Sunclips® Evo blades composed of extruded aluminium profiles useable as solar shading, cladding or visual barrier. Sunclips® Evo blades are semi-open C-shaped profiles fitted with screw ducts with 96, 130 and 176 mm oversizing.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh
Fixed to rear of the support structure.

Doors
Single and double doors available with standard RENSON® hardware and rotating on pivot (see p. 64 - 65)

Blade support
Single blade support: type SE.082.11
Double blade support for thermal expansion: SE.082.12
(connecting piece for 2 blades)

Technical data Sunclips® Evo
Pitch: variable (min. 100mm)
Depth and height:
Evo 96 = 70 mm
Evo 130 = 94.5 mm
Evo 176 = 127 mm
Physical free area* Evo 96: 53%
K-Factor* Evo 96: 6,23
Max. unsupported span between two mullions**:
Evo 96 = 1400 mm
Evo 130 = 1600 mm
Evo 176 = 2000 mm
* Definition see p. 44
** At qb 800 Pa wind pressure
6. Selection criteria

This chapter offers you assistance in selecting the ideal RENSON® louvre ventilation system. Some definitions well-known in the field of natural ventilation are explained.

If the CLS is only used for aesthetic reasons, the theoretical values calculated using the formulas below can still provide an added value.

**Definition 1: visual free area (*)**
The visual free area is determined by the ratio between the visual distance between two blades (A) and the pitch of the blade (C).

**Definition 2: physical free area (*)**
The physical free area is determined by the ratio between the narrowest opening between two blades (B) and the pitch of the blade (C).

(*) Both definitions of the free area do not take into account the influence of top and bottom blades.

**Definition 3: K-Factor**
The K-factor is a value describing the aerodynamic resistance to air flow. Contrary to the free area it describes the relationship between the air flow through the louvre and the pressure drop over it. For exact interpretation purposes, the calculation is explained step by step below.

To find the resistance to air flow due to the insertion of a louvre into an opening, a K-factor must be used. This factor is determined by trial and error. Where specific volumes or air speeds are required, one can better not use the free area to calculate the drop of pressure over or the size of the louvre.

RENSON® recommends the use of K-factors which are established by the actual testing of a louvre. Blades with the same free area can have different K-factors. This is caused by small differences in the shape of the profiles (e.g. different blade gradient, different shape of the edges of the blades, etc.).

The free area must be used in cases where the open part of the CL S must be equal to a certain percentage of the floor surface.

Before one can determine the pressure drop one must determine the air speed using the following equation:

\[
\text{Air speed} = \frac{\text{FLOW RATE}}{\text{SURFACE AREA}} \quad (a)
\]

- Flow rate = m³/s the volume of air passing through the CL S
- Surface area = m² the size of the louvre (front view)
- Air speed = m/s the speed of the approaching air at the front of the CLS.
  (This is the result of a certain volume passing through the CLS.)

If two elements are known in this equation one can calculate the third.

\[
\text{Pressure drop} = K \times 0.6 \times \text{Air speed}^2 \quad (b)
\]

One can transpose the equations to determine dimensions, air speeds or pressure drop.
Use of the K-Factor method

### METHOD 1: identify suitable louvre type for a certain opening size

1. Determine the required air flow rate
2. Determine the available opening (size of the louvre)
3. Determine the maximum permitted pressure drop
4. Choose the appropriate louvre type based on the K-factor

### METHOD 2: determine required louvre size when louvre type is already chosen

1. Choose preferred louvre type
2. Determine the air speed at the face of the louvre by means of the K-factor and the maximum pressure drop
3. Determine the required air flow rate
4. Determine the minimum louvre size

---

#### Example of method 1

Which type of louvre is suitable to achieve the desired ventilation volume of 55,000 m³/h with a maximum pressure drop of 25 Pa and an opening of 10 m²?

**Calculation:**

<table>
<thead>
<tr>
<th>Calculation formula (a)</th>
<th>Calculation formula (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate = 55000 / 3600 = 15.28 m³/s</td>
<td>Pressure drop = 25 Pa</td>
</tr>
<tr>
<td>Size of the louvre = 10 m²</td>
<td>Air speed = 1.53 m/s</td>
</tr>
</tbody>
</table>

This is the maximum K-value to achieve the desired volume with a certain pressure drop and size. Blade types L.050, L.050HF, L.060AC, L.060HF, L.065, L.066, L.075, L.095 and L.120 can be recommended. The final choice depends on personal preference.

#### Example of method 2

Blade type L.050 is preferred by the architect. What size is required to achieve a maximum pressure drop of 30 Pa for a given flow rate of 10,000 m³/h?

**Calculation:**

<table>
<thead>
<tr>
<th>Calculation formula (a)</th>
<th>Calculation formula (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow rate = 55000 / 3600 = 15.28 m³/s</td>
<td>Surface area = 2.78 m²/s</td>
</tr>
<tr>
<td>Size of the louvre = 10 m²</td>
<td>1.99 m/s</td>
</tr>
</tbody>
</table>

This is the minimum surface area of louvre type L.050 needed to obtain a pressure drop of less than 30 Pa at a flow rate of 10,000 m³/h.
The RENSON® louvres were subjected to HEVAC testing in Great Britain by a body accredited worldwide.

A wall of 1 m², possibly fitted with a stainless steel 304 mesh, was tested in torrential rain with a capacity of 75 litres/hour and a wind speed of 13 m/second. The HEVAC class table is drawn up depending on the results obtained, i.e. the quantity of water passing through the louvre. 

<table>
<thead>
<tr>
<th>Quantity of water</th>
<th>Surface area of louvre</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 mm/h (= 75 l/h)</td>
<td>1 m²</td>
<td></td>
</tr>
</tbody>
</table>

**Test of a standard CLS**

**Test of a CLS with mesh and sill**
### With mesh 2.3 x 2.3 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Air speed (m/s)</th>
<th>Standard design Class</th>
<th>With sill Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.033.01</td>
<td>0.0</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>L.033.08</td>
<td>0.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>-</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>-</td>
<td>D</td>
</tr>
<tr>
<td>L.050.00</td>
<td>0.0</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>L.066.01</td>
<td>0.0</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>D</td>
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<td>2.5</td>
<td>D</td>
<td>C</td>
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<td>L.096V</td>
<td>0.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>-</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>-</td>
<td>D</td>
</tr>
<tr>
<td>L.066V (vertical blades)</td>
<td>0.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>-</td>
<td>C</td>
</tr>
<tr>
<td>L.095.01</td>
<td>0.0</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>L.150ACS</td>
<td>0.0</td>
<td>-</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>-</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>-</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>-</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>-</td>
<td>D</td>
</tr>
</tbody>
</table>

### With mesh 6 x 6 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Air speed (m/s)</th>
<th>Standard design Class</th>
<th>With sill Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.033V</td>
<td>0</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>L.050.00</td>
<td>0</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>L.095.01</td>
<td>0</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>0.5</td>
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<td>C</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

### Type L.075.01

<table>
<thead>
<tr>
<th>Air speed (m/s)</th>
<th>without mesh</th>
<th>with mesh L.075.32</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>0.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>1</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>1.5</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

### Type L.075.01 (with mesh)

<table>
<thead>
<tr>
<th>Air speed (m/s)</th>
<th>without mesh L.075.33</th>
<th>with mesh L.075.34</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>0.5</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>1</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>1.5</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

### Watertightness

<table>
<thead>
<tr>
<th>Class</th>
<th>% Watertightness</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100 - 99</td>
</tr>
<tr>
<td>B</td>
<td>98,9 - 95</td>
</tr>
<tr>
<td>C</td>
<td>94,9 - 80</td>
</tr>
<tr>
<td>D</td>
<td>&lt; 80</td>
</tr>
</tbody>
</table>
## Overview table

<table>
<thead>
<tr>
<th>BLADE TYPE</th>
<th>Pitch (mm)</th>
<th>Blade height (mm)</th>
<th>Materials</th>
<th>Mesh</th>
<th>Curved</th>
<th>Door</th>
<th>Mitred corner</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.033.01</td>
<td>33.3</td>
<td>37.5</td>
<td>alu</td>
<td>behind</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.033.08</td>
<td>33.3</td>
<td>42.3</td>
<td>alu</td>
<td>behind</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.033HF</td>
<td>33.3</td>
<td>37.5</td>
<td>alu</td>
<td>behind</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.033V</td>
<td>33.3</td>
<td>37.6</td>
<td>alu</td>
<td>behind</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.033CL</td>
<td>33.3</td>
<td>38.2</td>
<td>alu</td>
<td>-</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.033IM1</td>
<td>33.3</td>
<td>38.2</td>
<td>alu</td>
<td>integrated</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.050.00</td>
<td>50</td>
<td>56</td>
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<td>behind</td>
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<td>yes</td>
</tr>
<tr>
<td>L.050.01</td>
<td>50</td>
<td>56</td>
<td>alu</td>
<td>L.050.33 between</td>
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<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.050.01</td>
<td>50</td>
<td>56</td>
<td>alu</td>
<td>L.050.34 between</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.050.21</td>
<td>50</td>
<td>40</td>
<td>alu</td>
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<td>yes</td>
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<td>yes</td>
</tr>
<tr>
<td>L.050HF</td>
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<td>50</td>
<td>alu</td>
<td>behind</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>L.050S</td>
<td>50</td>
<td>56</td>
<td>alu</td>
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The friction coefficient (determined using wind tunnel tests) indicates how the wind affects the blade.

$C_f = \text{coefficient used to determine the horizontal load (drag) on a blade}$

$C_{fz} = \text{coefficient used to determine the vertical load (lift) on a blade}$
7. Supporting structures

A system consisting of extruded aluminium mullions on which the blade supports and blades are fixed.

The fully homogenous structure is designed according to CEN/TC 250/SC9 Eurocode - 9/BS8118 for the structural use of aluminium. The fitting of the mullions is determined in accordance with CEN/TC 250/SC1 Eurocode 1/BS, section 3 and good craftsmanship.

The blades click tight onto the blade supports. The choice of the pitch and other aspects is based on the data described on page 29. The various options of doors, mitred corners and acoustic elements can be selected and integrated in the design.

The complete supporting structure is prepared for the fastening of the blade supports. Fastening can already fully take place at the factory or be partly left for assembly on the site. With the last option one has the flexibility to fasten the last blade supports on site and cut the mullions to size for a perfect installation.
Description
Extruded aluminium profile for continuous support, directly assembled on an existing wall or steel supporting structure.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Technical data
LD.0065
Profile depth: 6.5 mm
Profile width: 30 mm
Moment of inertia: 260 mm⁴
Flexural modulus: 59 mm³

Recommended for fastening to fixed structures.
7. Supporting structure - LD.0195

Description
Extruded aluminium profile for limited vertical span, directly assembled on an existing wall or steel supporting structure. Type LD.0195 is used to a maximum span of ± 600 mm.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Technical data LD.0195
Profile depth: 17.50 mm
Profile width: 36 mm
Moment of inertia: 6.560 mm⁴
Max. height span: ± 600 mm
Flexural modulus: 607 mm³

(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
7. Supporting structure - LD.0440

Description
Extruded aluminium profile suitable for constructions and sideways fixation (see illustration). Used up to a maximum span of ± 1500 mm*.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 µ/40 µ (UK))

Technical data
LD.0460
Profile depth: 44 mm
Profile width: 36 mm
Moment of inertia: 83.228 mm⁴
Max. height span: ± 1500 mm
Flexural modulus: 3.622 mm³

(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
7. Supporting structure - LD.0460

**Description**
Extruded aluminium profile for medium vertical span used up to a maximum span of ± 1,500 mm.

**Materials**
Aluminium extrusion, alloy EN AW 6063 T66

**Finish**
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Technical data**

LD.0460
Profile depth: 44 mm  
Profile width: 36 mm  
Moment of inertia: 81,900 mm⁴  
Flexural modulus: 3426 mm³  
Max. height span: ± 1500 mm

(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
7. Supporting structure - LD.0995

**Description**
The LD.0995 type can be used for large vertical spans up to ± 2,800 mm. It is attached to the structure using the mechanical fasteners supplied.

**Materials**
Aluminium extrusion, alloy EN AW 6063 T66

**Finish**
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

**Technical data**
**LD.0995**
- Profile depth: 97,50 mm
- Profile width: 40 mm
- Moment of inertia: 481,949 mm$^4$
- Flexural modulus: 11,197 mm$^3$
- Max. height span: ± 2,800 mm

(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
7. Supporting structure - LD.1250

Description
Extruded aluminium profile suitable for very large spans. Used up to a maximum span of ± 3600mm*.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL
  or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Technical data
LD.1250
Profile depth: 125mm
Profile width: 36mm
Moment of inertia: 1,219,444mm⁴
Flexural modulus: 18,531mm³
Max. height span: ± 3600mm

(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
7. Sunclips® supporting structures - Type SD.014 - SD.054 - SD.100

Description
Extruded aluminium profiles, always to be used in combination with adapter profile LD.0108 (depth 14, 54 and 100 mm) as supporting structure for aesthetic application. Also for use in combination with Linius® blades as horizontal sun blind. For more info please see our RENSON® Sunclips® brochure.

Materials
Aluminium extrusion, alloy EN AW 6063 T66

Finish
- Anodised (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 µ/40 µ (UK))

Technical data SD.
Profile depth: SD.014 = 14,5 mm  
SD.054 = 54 mm  
SD.100 = 100 mm  
Profile width: SD.014/54/100 = 40 mm  
Moment of inertia: SD.014 = 4.506 mm⁴  
SD.054 = 208.600 mm⁴  
SD.100 = 1.248.321 mm⁴  
Flexural modulus: SD.014 = 495 mm³  
SD.054 = 7.371 mm³  
SD.100 = 24.381 mm³  
Max. height span: SD.014 +/- 600 mm  
SD.054 +/- 2000 mm  
SD.100 +/- 3600 mm  
(Max. span is calculated for a wind pressure of 800Pa and depends on applicable laws and the blade type)
8. System depth

Total depth of a continuous louver system (in mm):

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</table>
9. Fixing elements

The Linius® mullions are fixed to an existing structure by means of specific brackets. Using brackets type LZ.4206, LZ.4209, LZ.4210 and LZ.4211 of the standard RENSON® product range, assembly of the mullions is easy in most situations.

The corners LZ.4203 and LZ.4209 are assembled on the rear of the mullions by means of clamping pieces LZ.4202 or LZ.4211. These parts have a thread or press bolt, which allows them to be fixed at any height to the support structure.

The LZ.4206 bracket slides into the rear of the supporting sections and can move freely in these profiles. A fastening point with this bracket guarantees horizontal stability but allows vertical movement due to thermal expansion. Mounting bracket LZ.4210 is used for wall mounting or ground mounting.

The type of bracket and the amount needed depends on the properties of each type of mullion.

Fixing brackets LZ.4202 and LZ.4211

Type LZ.4202

Type LZ.4211

Type LZ.4206
U-shape mounting bracket LZ.4210

Angle bracket LZ.4203 and LZ.4209
Where necessary, project specific brackets can be designed and provided by a RENSON® approved manufacturer/installer.

Type LZ.4203

Type LZ.4209
A. Mesh

RENSON® offers various types of mesh to prevent the entry of insects, birds or vermin behind the continuous louvre system.

1. The mesh can be riveted to the rear of the CLS by means of a flat profile.

Various types of stainless steel mesh of different sizes are available on rolls:

- Bracket LZ.4206
  - Insect: 2.3 mm x 2.3 mm (stainless steel)
  - Bird: 6 mm x 6 mm (stainless steel)
  - Vermin: 20 mm x 20 mm (stainless steel)

2. The mesh can be clipped between two blades.
   This is possible with blade type L.075, L.050, L.095

For blade type L.075.01, there are 4 types of meshes:

- Dense sheet (BOP) L.075.31
- Insect mesh L.075.32
- Bird mesh L.075.33
- Insect mesh L.075.34

Material: hard PVC, colour: black
For blade type L.050.01, there are 3 types of meshes:

- Dense sheet (BOP) L.050.31
- Insect mesh L.050.34
  - Physical free area = 30.8%
- Bird mesh L.050.33
  - K-Factor = 19.73
  - Physical free area = 42%

For blade type L.095.01, there are 2 types of meshes:

- Dense sheet (BOP) L.095.31
- Bird mesh L.095.33
  - K-Factor = 19.73
  - Physical free area = 42%

B. Sills

A sill (type LZ.4140) can be fitted in the CL S to drain rain water off.

Fastener for a sill type LZ.4201

Instead of a sill, a frame can be used for the L.075 system (see item C).
The louvre system type 75 has been designed with the option of being provided with a frame with or without flange. The design with flange gives the aesthetically attractive appearance of a continuous blade surface. A sealing rubber can be used to give the louvre a perfect finish so use of silicone putty is unnecessary.
D. Doors

RENSON® offers single or double doors in custom made sizes, opening inwards or outwards. In some cases, access behind the continuous louver system is required, for example to maintain and service (hidden) industrial appliances. The doors are fitted with locks, pivots, handles and restraining chain upon specification.

Please note that the actual opening (C) is smaller than the total door size (O) due to the pivoting mechanism. The position of the pivot system will in turn depend on the total load of the louver door. RENSON® can assist you in determining the correct sizes.

### Difference between overall size (O) and clear door opening (C)

<table>
<thead>
<tr>
<th>Blade type</th>
<th>L.033 / L.033.08</th>
<th>L.033V</th>
<th>L.050 / L.0050HF</th>
<th>L.050.021</th>
<th>L.060AC / L.060HF</th>
<th>L.065AL</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>399</td>
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<td>-</td>
<td>237</td>
<td>-</td>
<td>238.5</td>
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<th>L.066P</th>
<th>L.066V</th>
<th>L.066.21</th>
<th>L.075</th>
<th>L.095</th>
<th>L.120</th>
<th>L.150ACS</th>
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<td>O - C (mm)</td>
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<td></td>
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<td>-</td>
<td>246</td>
<td>-</td>
<td>252.5</td>
<td>-</td>
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</table>

### Pivots

![Pivots Image]
Handles and locks

One can choose between none, a single or a double door handle. If you choose not to fit a door handle you can open and close the door with the key to the lock. The handle can be a fixed door knob or a standard handle. It is important to specify the handle type.

The Litto cylinder is the only approved option. Other proposals can be considered if full technical data is provided to RENSON®. Other types are available on request.

Accessories such as door dampers, storm chain,... are available on request.

Door restrictor

A door restrictor is available as an option.
11. Specialities

A. Linius® unitized system

Description

Innovative products are always challenging in terms of design, technique, flexibility and quality! To save valuable time in the assembly process on site, RENSON® developed the Linius® unitized system. The advantage of this system is that it allows an entire louvre system to be divided into modules, which arrive on site in pre-assembled condition. Upon installation of the mullions on site, successive cassettes can be easily and quickly installed using a clasping system.

Benefits

• Delivered as pre-assembled cassettes, hence:
  - quick installation, using clasped blades and simple clasping system
  - simple installation and alignment
  - easy assembly in hard-to-reach areas, e.g. high installations, only accessible from the interior ...
• Elements with invisible, encompassing frames
• Removable cassettes, e.g. machine areas
• Reclining elements possible
• Available with enfolded stainless steel mesh
• Elements for mitred corners possible
• Aesthetic appearance, solid and stable system

Properties

• Max. dimensions: 4m² per element – 9 to 16kg
• Cassette layout optional according to grid
• All Linius® range blades are suitable
• Assembly using lever for smaller cassettes
  OR using hoisting eye for larger cassettes and for high installations (crane)
• Technical documentation available

Materials

Aluminium extrusion, alloy EN AW 6063 T66.

Finish

- Anodised F1 (20 micron)
- Polyester powder coating RAL or Syntha Pulvin® colours (60 - 80 μ/40 μ (UK))

Mesh

Enfolded assembly of stainless steel mesh to the back of the cassettes
Extruded aluminium blade
11. Specialities

B. Curved blades

Today’s designs often call for expressive forms giving a building a specific look. RENSON® has developed a curved assembly system that allows the architect’s creativity to be transformed into reality.

Types L.033.01, L.033HF, L050.01 and L.050HF can be curved with a minimum radius of 800 mm.

Plans for such a curved design must be submitted to the technical department at RENSON® for approval before the start of the construction process.
C. Stand alone support structures

This system is used for freestanding louvre systems of limited sizes and/or wind loads where an additional primary steel structure is rendered unnecessary by a self-supporting aluminium structure.

D. Acoustic applications

Noise nuisance is an environmental pollutant. We at RENSON® are fully aware of this. As a solution, RENSON® offers an acoustic louvre that reduces noise pollution and complies with existing regulations. This acoustic louvre system allows air passage while reducing noise passage. The RENSON® technical department is at your disposal to advise and discuss a suitable acoustic construction.

In order to determine the ideal solution, the following factors are important:
- the desired dB noise level
- the noise level of the noise source
- the distance and location of the noise
- the required flow rate

The acoustic continuous louvre system consists of a support structure, acoustic blades and blade supports. The acoustic blade is filled with sound absorbing and non-combustible mineral wool.
E. Mitred corners

Where a corner is formed, the blades are cut to the correct angle so they fit perfectly and ensure an attractive aesthetic finish.

Possible solutions to fit corners

1. **Expansion**
   The mullions are fitted as close as possible to the corner

2. **Expansion joint included in mitre**
   The mullions are fitted as close as possible to the corner
F. Special shapes

RENSON® long ago moved on from the limits of a simple square design, and has continuously conceived solutions for specific applications.

These are applications mainly intended to create a certain aesthetic added value, but also applications where functional requirements must be combined with a contemporary design.

G. Block blades L.033 and L.050

This type of blade offers fast and easy assembly and better vandalism-resistance than the standard aluminium CL S. The blades can only be used for riveting or screw-fixing to an existing full back structure (wall, metal sheeting, ...).

The extruded profiles are only available in types L.033 or L.050.

They consist of 3 to 4 blades extruded together. The profiles are available as punched (L.033.07 / L.050.07) or unpunched (L.033.05 / L.050.05) versions. The block blades can be used in conjunction with the standard blades.
H. Turrets

A turret is placed on the rooftop of buildings to conceal industrial appliances. (chimney stacks,...)

RENSON® takes care of complete construction including the top plate and sill.

I. Louvre grilles

Linius® CLS blades can also be used for assembled made-to-measure louvres. These louvres are made of frame profiles for building in or surface mounting, filled with a blade type depending on passage or aesthetic requirements, optionally fitted with a stainless steel insect mesh. The louvres grilles and louvre system can then be aesthetically matched.

Louvre grilles are available in all forms, sizes, RAL colours, and as permanent or lockable versions. Louvre grilles with moving blades, sliding panels, or fixed or removable surface-mounted grilles for windows are also available.

J. Aesthetic façade cladding with Sunclips® and Icarus® blades

Besides the range of louvre systems, RENSON® also offers a whole range of aluminium profiles suitable for sunshading structures.

One of the systems can be vertically fitted to act as a louvre. This structure is mainly intended for purely aesthetic applications and/or sunshading.
12. Storage and maintenance

Care of equipment and materials

To avoid deformation of blades etc. it is imperative to use ‘soft handling’ methods to unload and store materials. Deliveries on pallets may never be stacked more than two high to minimise exposing others on the site to risk.

To prevent damage during storage, handling or delivery one must comply with the following rules:
- the products are preferably stored inside.
- with open outside storage, remove the packaging to prevent the entry of water and any overheating.
- never place the elements directly on damp ground.
- during storage one must guarantee sufficient ventilation of the elements.
- soiling by cement, mortar or lime must be immediately removed with plenty of clean water.

Make sure that nearby material or installations cannot accidentally fall against the boxes and cause damage. The components are packed in wooden crates to protect them against damage. Packages and boxes are labelled with the content. The label has a bar code with the internal computer system reference. Where possible the link is made with the production drawings that can be sent with the goods.

Deliveries are planned so the correct material arrives in the correct place in the preferred order of use!
General instructions

1. Doors

During the installation of a door in a CL S one must ensure that the fixation of the pivot system is perfectly aligned with the door pillars. For the height of the door one must take account of the level of the finished floor. Small corrections between position and height can still be made afterwards using floats. Big differences must be discussed with the site supervisor, taking into account the usual tolerances during assembly.

2. Mesh

Fixed to the supporting structure, supplied on a roll. Attached with screws and kept in place by a plate that clamps the mesh against the support.

3. Expansion

Respect the thermal expansion of aluminium based on the DIN 53752 standard (thermal coefficient of expansion = 0.024 mm/mK) and always leave the necessary space between the profiles.

4. Cleaning frequency

Aluminium elements exposed to regular rain and installed in a neutral atmosphere require thorough cleaning once or twice a year. Aluminium components situated in an urban or industrial environment need to be thoroughly cleaned at least twice a year. For coastal areas or areas with a strongly polluted atmosphere this frequency should be increased. Components not exposed to rain must be cleaned more frequently.
Summary of RENSON® Linius®
continuous louvre system specifications

Product description:
RENSON® Linius® CLS consists of sections of extruded AlMgSi0.5 aluminium with a surface treatment specified by the architect. The system consists of water-resistant ventilation blades, for simple and invisible assembly by clipping the blades into the blade supports included in the system.

Standards:
- Aluminium alloy: Al Mg Si 0.5 (F25)
- Standard: EN AW-6063
- Annealing: T66
- Strength calculations based on the following standards:
  - ENV 1999-1-1: calculation for aluminium structures
  - NBN B-03-002-2: wind load - dynamic effects
  - EN 1991-1-4: wind load

Surface treatment:
- Anodised in natural colour F1 (20 micron): pre-treated and anodised
- Powder-coated in RAL colours (60 to 80 micron): aluminium profiles are pre-treated to ensure a firm powder coating, and then powder-coated

System design:
BLADES:
- Blade type L .................... of extruded aluminium
- Dimensions:  Height: .................
- Depth: .................
- Pitch: .................
- Invisible assembly by clipping the blades into the corresponding blade support L. ....................11 and L. ....................12 (joint clips)
- Drag coefficient:  \( C_{f_h} \) (determined using wind tunnel tests): ................. (horizontal direction)
- \( C_{f_v} \) (determined using wind tunnel tests): ................. (vertical direction)
- Visual free area: .................
- Physical free area: .................
- K-factor: .................

SUPPORT STRUCTURE
- Support profile LD ............ of extruded aluminium:
  - Dimensions:  Height: .................
  - Depth: .................
- Minimum moment of inertia \( I_y = ................. \text{mm}^4 \) (at 800Pa wind load)
- Blade clips are pre-assembled onto support profile
- Fixing brackets LZ. .................

SPAN:
- Maximum unsupported span of the said system, at \( q_b = 800 \text{ Pa wind load} \):
  - Blade: .................
  - Support profile: .................

SYSTEM DEPTH:
- Blade and support profile: .................

ACCESSORIES:
- Encompassing frame L.075.21 with flange or L.075.22 without flange.
- Enrollable rubber seal L.075.41 for frame profiles L.075.21; L.075.22
- Corner trim connector LZ.4207 and intermediate trim connector LZ.4208 for frame profiles L.075.21; L.075.22
- PVC-strips L. ............ 31, L. ............ 32, L. ............ 33 or L. ............ 34 clicked between the blades - assembly from front possible
- Stainless steel 2.3 x 2.3: 6 x 6 or 20 x 20 mm mesh, attached to the back of the support structure
- Sill profile LZ.4140 and bracket LZ.4201

(Please strike out whichever is not applicable)
RENSON®, with its rich tradition in innovation and experience since 1909, is profiling itself as the undisputed European market leader in natural ventilation and sunprotection. Our headquarters are located in a remarkable building in Waregem (Belgium). The building is a working example of our Healthy Building Concept® and functions as a prototype, exhibiting our technological strengths.

RENSON®'s mission is the ongoing development, production and selling of unique and innovating products for natural ventilation and sunprotection. Our main objective is to improve the living conditions of people and at the same time cut energy costs. Our systems are environmentally friendly; sound absorbing and good for the health of all its users.

RENSON® HAS IT ALL:

- Our multidisciplinary R&D department is co-operating with leading European research organizations. The result of that is a complete range of innovative concepts and products.

- Our automatic powdercoating installation, anodisation unit, moulding centre, plastic injection moulding facilities, assembly department and warehouse are all accommodated within an area of 75,000 m². This degree of vertical integration allows RENSON® to ensure the quality consistency of its products.

- RENSON®'s headquarters, sales and marketing department and production plant are located in Belgium, but we also have plants and offices in France and in the UK. RENSON® has sales representatives active all over Europe and has set up a network of distributors throughout the world.

- The diversity and capability of our staff are our warranty for correct solutions for each individual building project. The creation of constructive long term relationships with construction specialists is our priority.