



patented technology

Topfix[®] VMS

VELUX

Windproof horizontal sun protection fabric
for VELUX[®] Modular Skylights

Specification file

1. Description

At the request of VELUX, RENSON has optimized Topfix for installation on VELUX Modular Skylights; RENSON has now developed Topfix VMS.

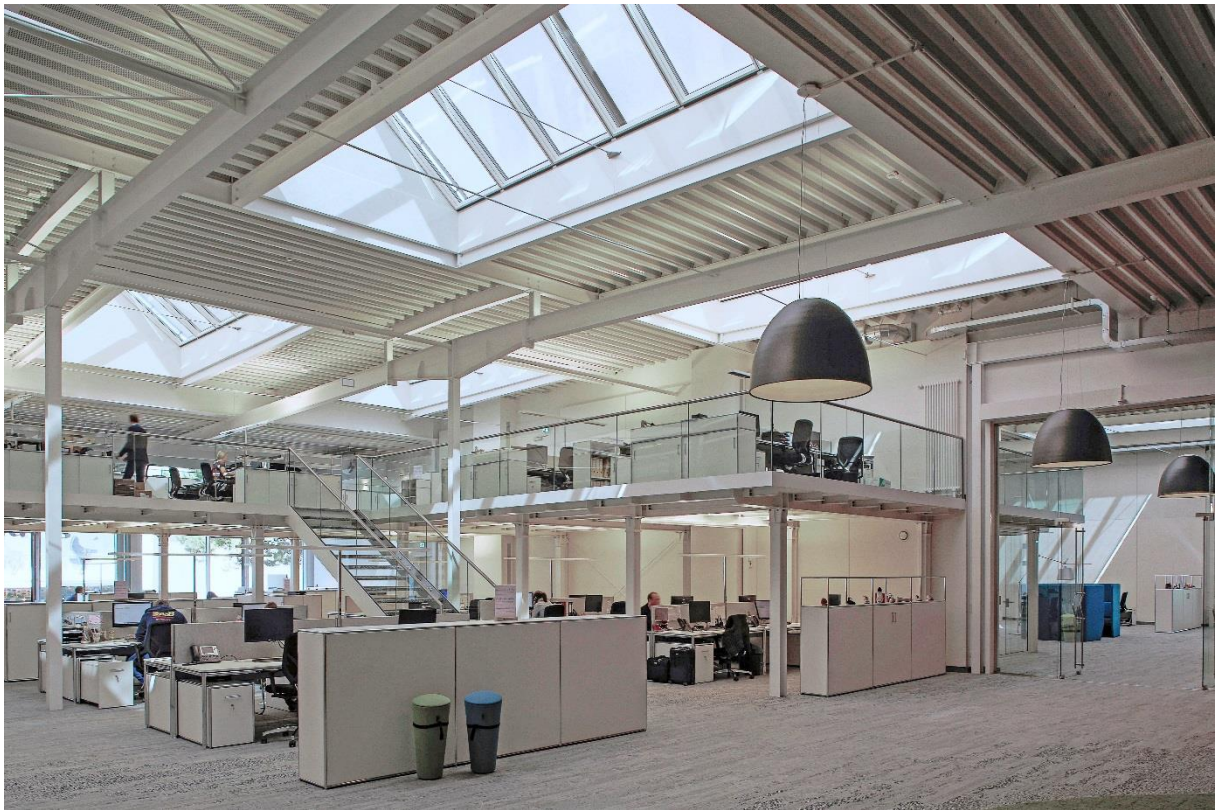
The Topfix VMS horizontal external solar shading implements a revolutionary tensioning technique involving the tried and tested Fixscreen technology. It has been specially developed for use with VELUX Modular Skylights modules. Topfix VMS fits both the fixed and movable modules, and has special mounting feet to ensure that it can be fixed exactly to VELUX Modular Skylights.

The combination of VELUX Modular Skylights and RENSON Topfix VMS is the best possible product solution and **the only one approved by VELUX and RENSON.**

The acclaimed Fixscreen technology allows for an unbeatable degree of fabric tension, even in extreme wind conditions up to 120 km/h, making torn and flapping fabric a thing of the past.

2. Applications

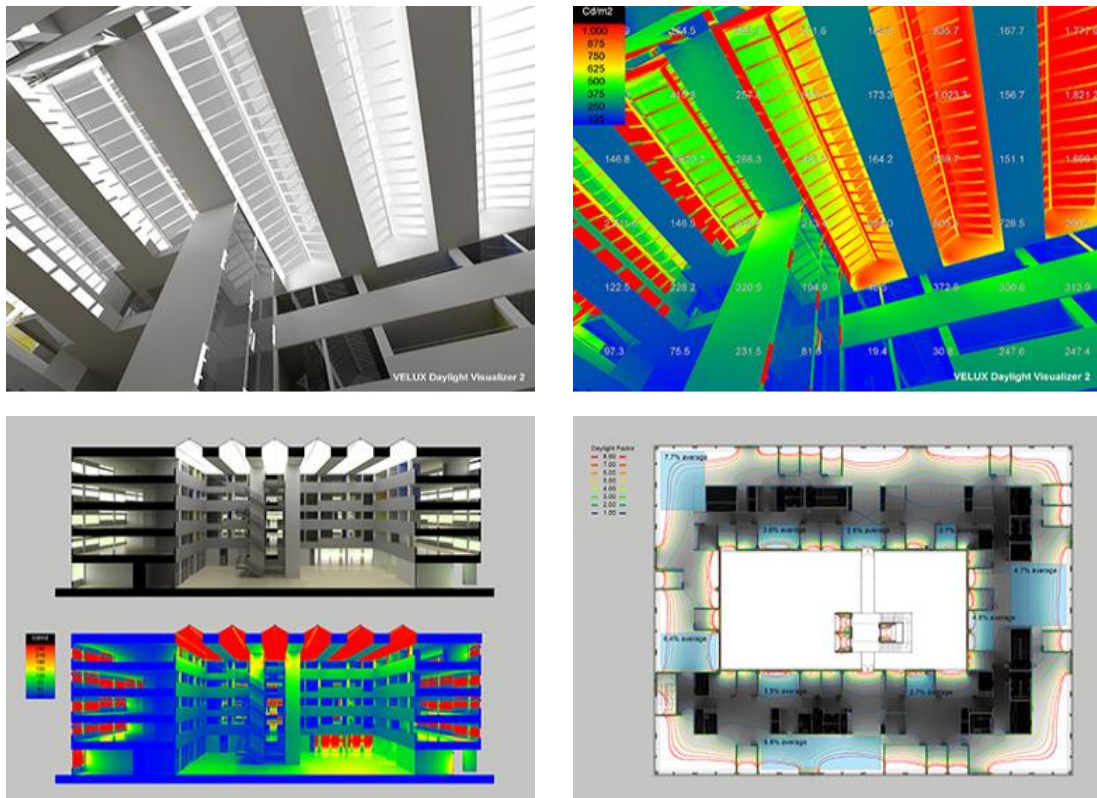
2.1. VELUX Modular Skylights – Example



Wortmann - Germany

2.2. Why solar shading?

VELUX Daylight Visualizer



By providing a sufficient number of windows we try to ensure that as much natural light as possible shines into our buildings. But because the intensity of natural light depends on factors like cloud cover, the season of the year or the time of day and we actually prefer quite constant conditions of comfort, this source of light needs careful management.

If sunlight is allowed to enter buildings in an uncontrolled way, an 'overdose' of natural light can seriously affect our well-being on account of:

- overheating (greenhouse effect)
- glare
- discolouration of furniture, flooring or curtains
- reflections on TV and computer screens

2.3. Inside or outside solar shading?

When choosing for VELUX Modular Skylights, you can opt to integrate inside solar shading. This will already have a positive influence on the indoor comfort, but the greatest effect is achieved by means of external solar shading.



VELUX inside solar shading



RENSON outside solar shading

Below an overview with the g_{tot} or total solar penetration factor. This is the total amount of energy that penetrates indoors through a window with sun protection (inside or outside solar shading). It is therefore a measure of the efficiency of the sun protection screen.

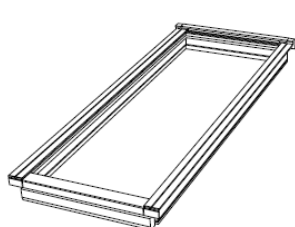
	VELUX inside solar shading			RENSON outside solar shading		
	grey 4083	white 4084	black 4085	grey S92-2045	white S92-2044	black S92-2053
g_{tot} glasstype 10	0,47	0,39	0,50	0,07	0,14	0,09
g_{tot} glasstype 11	0,24	0,19	0,26	0,06	0,09	0,09
g_{tot} glasstype 12	0,15	0,13	0,16	0,06	0,07	0,08
g_{tot} glasstype 16	0,42	0,35	0,44	0,05	0,11	0,07
g_{tot} glasstype 17	0,22	0,19	0,24	0,05	0,07	0,06
g_{tot} glasstype 18	0,13	0,11	0,13	0,04	0,05	0,06

Fabric choice RENSOn: see p14

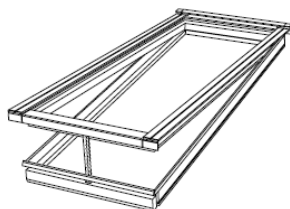
3. Technical specifications

3.1. VELUX Modular Skylights modules

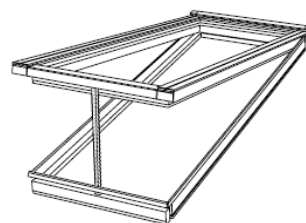
The VELUX Modular Skylights system can be used in a range of different circumstances. There are three types of module available:



Fixed module



Comfort ventilation



Smoke extraction

These modules can be used for hospitals, retirement homes, offices, schools, atriums, shopping malls,... Depending on the application following systems can be selected as mentioned below:



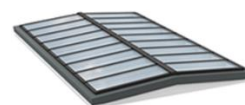
Longlight
5-25°



Wall-mounted
longlight
5-40°



Ridgelight
25-40°



Ridgelight
5°



Atrium longlight
5-25°



Northlight
40-90°

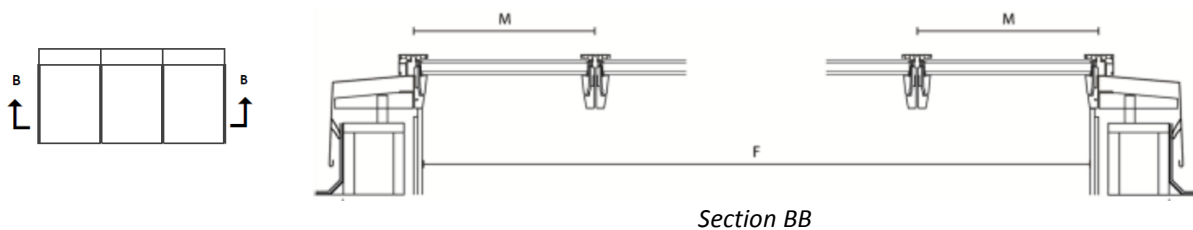
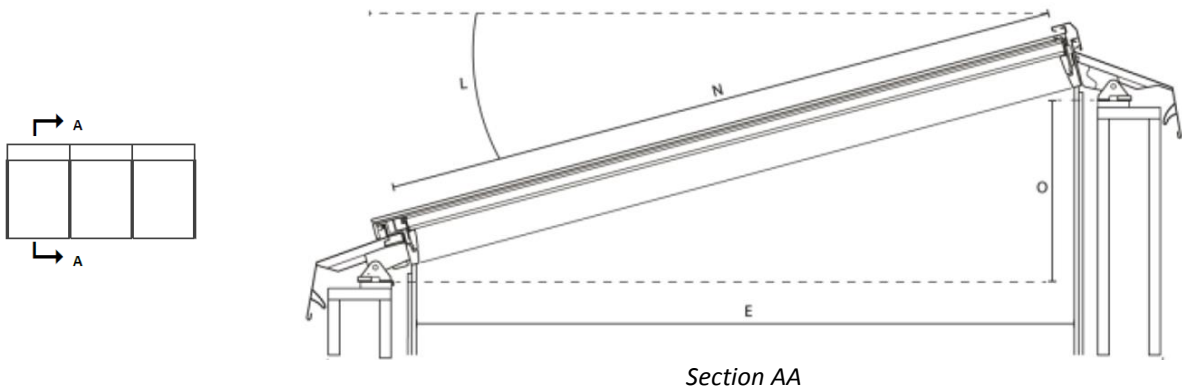


Atrium ridgelight
25-40°

3.1.1. Dimensions

The VELUX Modular Skylight modules are available in different dimensions and are characterised by the parameters below:

- M = module width of the VELUX module
- N = projection of the VELUX module
- L = angle of inclination in °



For more information regarding dimensions, please see <http://www.velux.com/solutions/products-and-solutions/modular-skylights>.

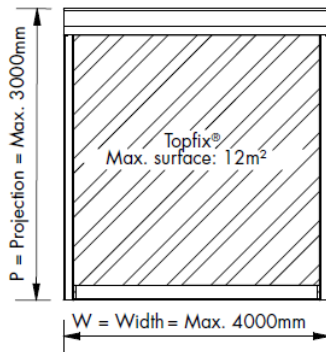
3.1.2. Components

For more information regarding the components of the Topfix VMS as for example the different glazing options, please see <http://www.velux.com/solutions/products-and-solutions/modular-skylights>.

3.2. Topfix VMS

The Topfix VMS is a **windproof** horizontal sunscreen that can be mounted to a VELUX Modular Skylight by means of mounting feet.

3.2.1. Dimensions



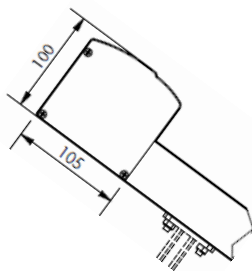
Maximum:

width (W) 4,000mm x projection (P) 3,000mm (bottom bar H90xD50mm)

width (W) 3,000mm x projection (P) 3,000mm (bottom bar H60xD40mm)

3.2.2. Topfix VMS components

3.2.2.1. Box



Dimensions: H 105 mm x D 100 mm

Profiles of extruded aluminium.

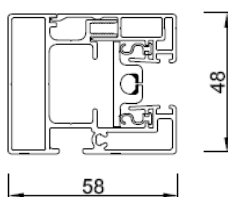
The box consists of a fixed profile and a detachable profile.

The side supporting endpieces of the box, which support the roller mechanism and are equipped with pins, connect the box to the side channels.

The box is always at the top (installed top to bottom)



3.2.2.2. Side channels



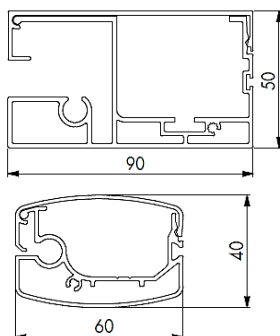
Dimensions: W 58 mm x D 48 mm

Are made of 2 extruded aluminium profiles.

The HPVC inner rail is equipped with 2 S-profiles on each side, to ensure ideal fabric tension and to compensate for heavy wind loads.

A covering panel at the bottom end of the side channel seals it and also functions as a pulley block.

3.2.2.3. Bottom bar



Dimensions: H 90 mm x D 50 mm (excl. sealing strip)

Made of 2 extruded aluminium profiles.

Is fitted with plastic endpieces.

OPTION! Small bottom bar!

If the width of all/the Topfix VMS is less than or equal to 3,000 mm.

Dimensions H 60 mm x D 40 mm

3.2.2.4. Mounting feet

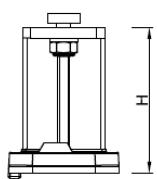


Fig. 1: Single mounting foot

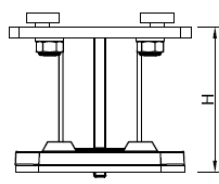


Fig. 2: Linked mounting foot

The mounting feet have been specially developed to ensure the best possible connection with VELUX Modular Skylights.

The height of the mounting feet depend on the selected ventilation option:

- For the combination 'Fixed modules' and 'Comfort Ventilation module(s)' (open system): H = 80 mm
- For the combination 'Fixed modules' and 'Smoke Extraction module(s)': H = 160 mm

3.2.3. Windproof sun protection fabric

The wind resistance capacity of the Topfix VMS is achieved through the combination of **Fixscreen-technology** and the tensioning mechanism. The Topfix VMS has class 3 wind resistance capacity.

By way of comparison, the standard wind classes are defined as follows:

EN 13561: 2004+A1: 2008		
Wind class	Wind force (Beaufort scale)	Wind speed
Class 0	Product not tested or non-standard	
Class 1	4 Bft	< 38 km/h
Class 2	5 Bft	< 49 km/h
Class 3	6 Bft	≥ 49 km/h

Based on windtunneltests, the guaranteed wind resistance is determined:

- Guaranteed wind resistance in closed position up till 120km/h (mounting feet with H = 80mm)
- Guaranteed wind resistance in closed position up till 80km/h (mounting feet with H = 160mm)

3.2.3.1. Fixscreen-technology



The RENSON Fixscreen is the world's first screen that is truly wind-resistant. Thanks to its ingenious zip system, Fixscreen-technology ensures that the fabric remains wind resistant in any position. The principle is simple: The solar protection fabric has a special trim with a zip. This keeps the entire structure firmly held within the two side channels. These side channels are designed using Renson's Smooth-technology.

3.2.3.2. Smooth-technology



Smooth-technology refers to the innovative guidance system that provides for even better wind resistance and extremely smooth operation. This technology also ensures smooth and silent movement of the zipper in the side channel and through the patented, wear-resistant layer contained in the side channel. Also, it guarantees that the fabric remains taut and wrinkle-free, and there is no longer any need to lubricate the mechanism every year.

3.3. VELUX VMS – VMS Topfix combination

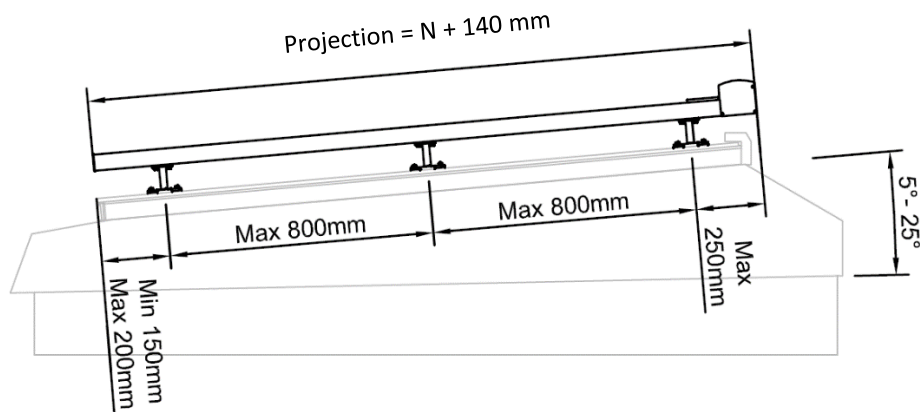
3.3.1. Topfix VMS dimensions

Width: min. 1,150 mm, max. 4,000 mm

The width of the Topfix VMS is determined by the number of VMS modules underneath. Each VMS module has a width of 'M'. So for a single Topfix VMS, the total width is the sum of the 'M' values of all of the underlying VMS modules.

Projection: min. 1,000 mm, max. 3,000 mm

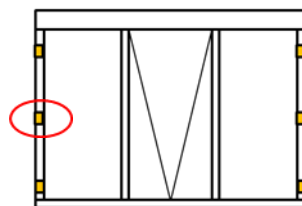
The projection of the Topfix VMS is determined by the 'N' value of the underlying VMS modules. A projection of 'N' + 140 mm is recommended under normal circumstances. Depending on the situation, a larger projection value can be used.



3.3.2. Topfix VMS single component system

Place the smoke extraction and comfort ventilation modules in such a way that the Topfix VMS can always be mounted on a fixed module. Both the left-hand mounting feet as well as the right-hand ones!

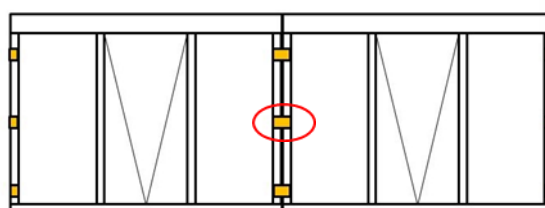
The Topfix VMS mounting feet can only be mounted to the fixed modules!



Single mounting feet (see 3.2.2.4 Mounting feet, Fig. 1)

3.3.3. Topfix VMS connected system

Any number of Topfix VMS single-component systems can be mounted next to each other or connected to one. In that case, two single systems are connected by inter-linked mounting feet. Every system has its own motor.

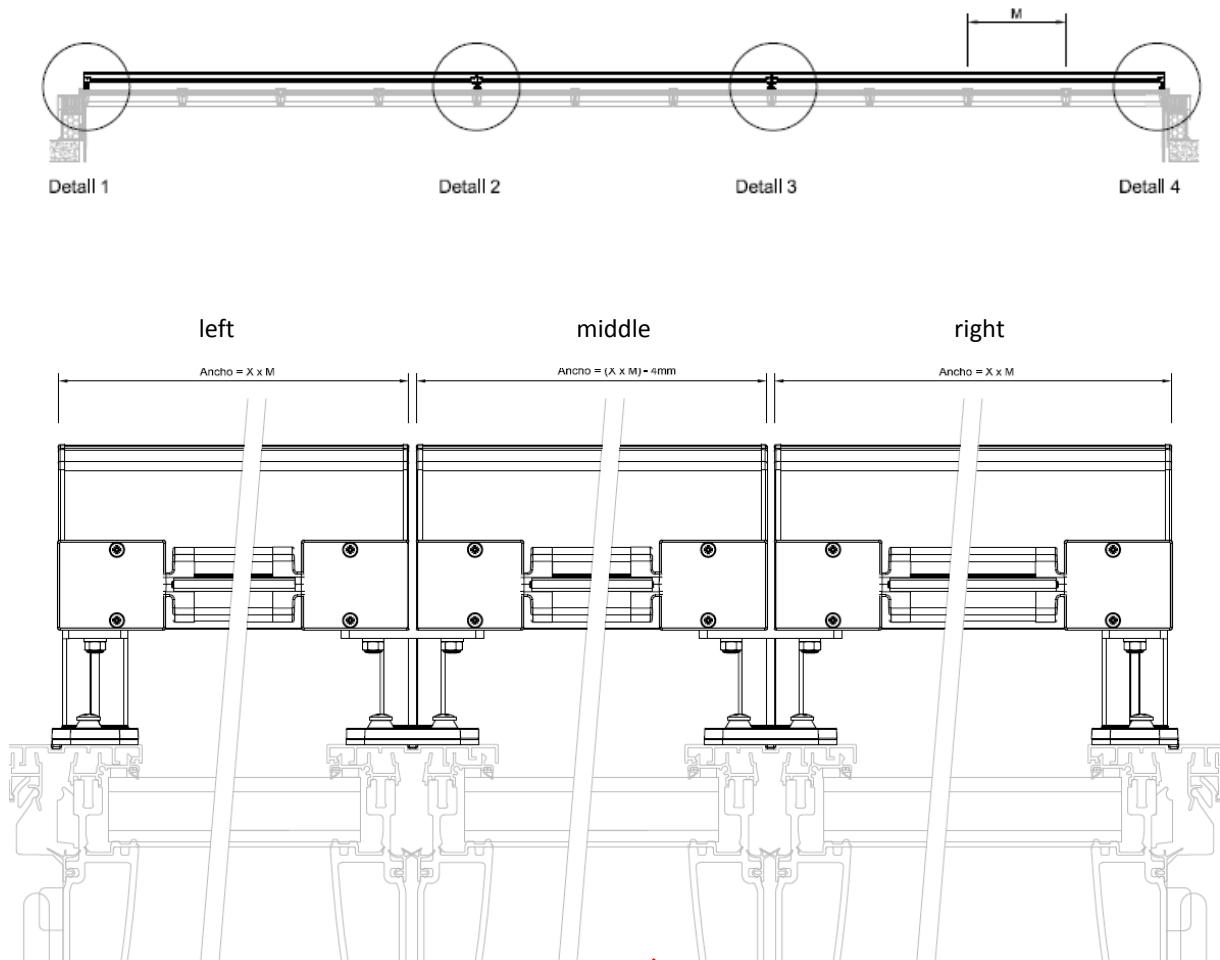


Linked mounting feet (see 3.2.2.4 Mounting feet, Fig. 2)

It is important to determine the position of the Topfix VMS. Is it on the left, in the middle or on the right? To determine the position, look at the Topfix VMS set-up at the side of the detachable profile of the box.

The width of the Topfix VMS on the left and on the right is determined as for a single-component system. For a Topfix VMS in the middle, take the sum of the M values (VMS width) of all the underlying VMS modules – 4 mm.

The projection is determined in the same way as for a single-component system.



*The Topfix VMS mounting feet must always be mounted to the **fixed** modules!*

3.4. Control and motor specifications

Take into account which VELUX Modular Skylights modules are being used (smoke extraction, comfort ventilation and fixed, in this order).

3.4.1. One motor type per project

VMS module type	Fixed and smoke extraction (+ comfort) ventilation	Fixed + comfort ventilation		Fixed	
Automation	Open system	Open system	Integra IO		Integra IO
Control	BMS (*) + Windowmaster Flexismoke (or equivalent)	BMS (*)	Tahoma IO automation (**)	Switch or BMS	Tahoma IO automation (**)
Motor Voltage Cable length	Rensonmotor 24 V DC 5 m	Becker SMI 230 V AC 2 m	Somfy IO 230 V AC 5 m	Rensonmotor(***) 230 V AC 3 m	Somfy IO 230 V AC 5 m
Additional length of UV-resistant cable via extra Hirschmann connector					
Required material	Regulator set S6020342	Regulator set G6002788		(***)	
Height of mounting foot	160 mm	80 mm			
Wind resistance	up till 80 km/h in closed position	up till 120 km/h in closed position			

(*) A special protocol is provided for use in building management systems (BMS). This protocol is necessary to avoid conflicts between the VELUX Modular Skylights and the Topfix VMS.

- If 24 V DC tubular motor > then Windowmaster FlexiSmoke Module (or equivalent) to be used
- If 230 V AC tubular motor with standard motor interface > protocol to be integrated in building management system

(**) Automation not possible with the Integra IO! Be aware of possible conflicts between the module and motor controls.

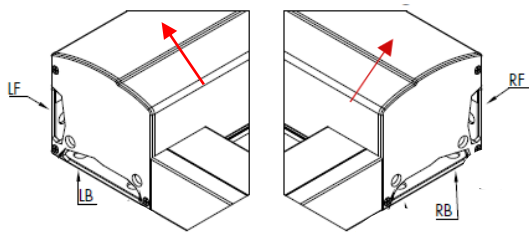
(***) Possible other motors:

Motor	Voltage	Cable length	Required material
Renson motor,	24 V DC,	5 m	(Regulator set S6020342 required)
Becker SMI,	230 V AC,	2 m	(Regulator set G6002788 required)
Somfy IO,	230 V AC,	5 m	
Somfy RTS,	230 V AC,	5 m	
Somfy LT,	230 V AC,	3 m	

Important!

A junction box must be installed to ensure correct electrical connection between the VELUX VMS and the Topfix VMS. Install the box in an easily accessible place.

3.4.2. Cable feed



The fabric roller tube can be removed at the side of the detachable profile; this is the point of view for determining the position L (left) or R (right).

Cables can be conducted through the flashing of the VELUX VMS by means of a waterproof cable gland of the right size on the sheet metal of the flashing.

3.4.3. Hirschmann connector

Depending on the motor type, a Hirsch plug can be connected onto the cable.

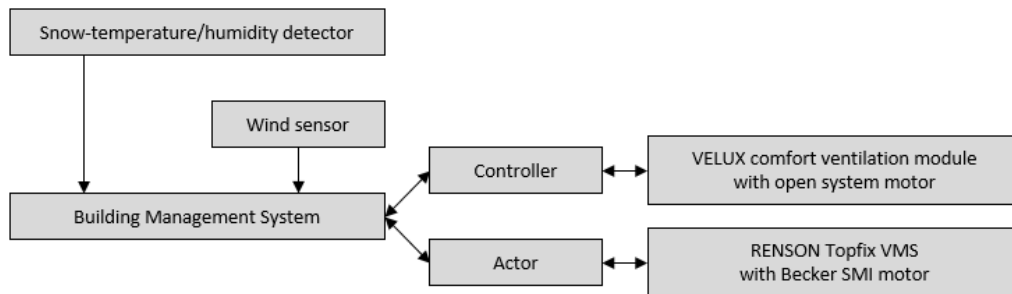
- When BECKER SMI motors are used: Hirschmann STAS4N + clip
- When other motor types are used: Hirschmann STAS3N + clip

Important!

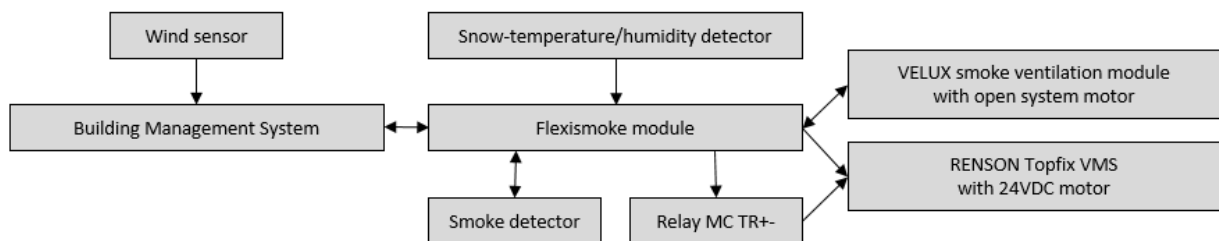
If the motor is a Rensonmotor 24 V DC, then the potential loss of voltage must be taken into account when extending the cables.

3.4.4. Principle connection diagrams

VELUX comfort ventilation module + RENSON Topfix VMS (Becker SMI motor)




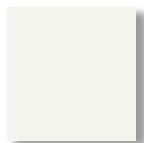
VELUX smoke extraction module + RENSON Topfix VMS (Rensonmotor 24 V DC)



3.5. Colours of the aluminium profiles

All visible aluminium profiles (box, side channels and bottom bar) can be anodized (20 µm) or painted (60-80 µm) using any RAL colour. The endcaps are made of cast aluminium and are painted using the same RAL colour (60-80 µm) as the profiles.

The standard finishes are natural-tone anodized (F1), the exterior colour of the VMS and the TOP RAL colours listed below:

VELUX PREFERENCE		If you would like to order the Topfix VMS in the same colour as the exterior colour of the VELUX Modular Skylight (Noir 2100 Sable YW (Akzo Nobel)) RENSON order No.: STR0292
		If you would like to order the Topfix VMS in the same colour as the interior colour of the VELUX Modular Skylight (9010 gloss 30) RENSON order No.: EUR 9010

3.6. Screen fabrics

3.6.1. Fabric type

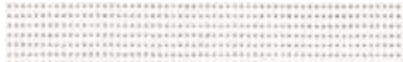





Screen fabrics based on coated, pre-stressed polyester fabric ('polyester fabric' for short) are used here.

3.6.1. Fabric selection

3.6.1.1. Soltis polyester fabric

This sun protection fabric is made of high tensile strength polyester yarn (HTP). After weaving, the fabric is stretched very taut in both directions and then fixed using liquid PVC by means of the Précontraint technique. This provides the fabric with a great deal of dimensional stability, so that it cannot become deformed under load. The fabric fulfils the requirements involving high fabric tension without much sagging, making it very suitable for covering large areas.

- Soltis 86 polyester fabric
Horizontally manufactured in 1,770 mm sizes (2,670 mm for a limited selection).
- Soltis 92 polyester fabric
Horizontally manufactured in 1,770 mm sizes (2,670 mm for a limited selection).

VELUX PREFERENCE	
S86 – 2044	
S86 – 2045	
S86 – 2053	
S92 – 2044	
S92 – 2045	
S92 – 2053	

3.6.1.2. Rensonscreen polyester fabric

This sun protection fabric is made of a very strong polyester core and it is woven according to the Rachel Trameur technique that results in a very high degree of resistance to bad weather conditions. This technique allows the threads to move independently of each other, so that in case a tear occurs the mechanical energy can be dispersed and absorbed.

- Rensonscreen
Horizontally manufactured in ,1770 mm sizes (2,670 mm for a limited selection).
- Rensonscreen opaque
Horizontally manufactured in 1,770 mm sizes (2,670 mm for a limited selection).

3.6.3. Fabric selection regarding angle of inclination, width and projection

			POLYESTER			
			Soltis 86	Soltis 92	Rensonscreen	Rensonscreen Opaque
INCLINATION ANGLE (°)	WIDTH	PROJECTION	HORIZONTAL SUNSCREEN (water repellent depending on type of fabric)			
Topfix VMS						
Inclination ≤ 8°	W ≤ 4000mm	P ≤ 3000mm				
8° < Inclination ≤ 20°	W ≤ 4000mm	P ≤ 1500mm				
	W ≤ 1250mm	1500 < P ≤ 3000mm				
	1250 < W ≤ 4000mm					
Inclination > 20°	W ≤ 4000mm	P ≤ 3000mm				
Index						
<div><div></div> = Applicable</div> <div><div></div> = Not applicable</div>						
In general: the smaller the inclination, the bigger the risk of sagging of the fabric						

4. Installation

Installing the Topfix VMS on a VELUX Module Skylight must be carried out professionally and correctly. The procedure has been approved by VELUX and can only be carried out by approved Topfix VMS installers.

Before delivery and installation of the Topfix VMS, a mandatory product and installation training (theory & practice) is required. This training is free when followed in our training center (see www.renson.eu). Please contact our colleagues.



Toolkit

It is of utmost importance that a toolkit(S6020338) is ordered. This toolkit contains the necessary installation tools in order to ensure that the installation on the VELUX Modular Skylight modules is correct and is carried out without any problems.

5. Warranty

10 year warranty for all paintwork on the aluminium profiles.

5 year warranty against defects that may occur during normal domestic use and with regular maintenance.

5 year warranty for gloss (paintwork).

5 year warranty for electronic controls (motors and automation).

5 year warranty for fabric collection.

6.3. Example

REQUIRED

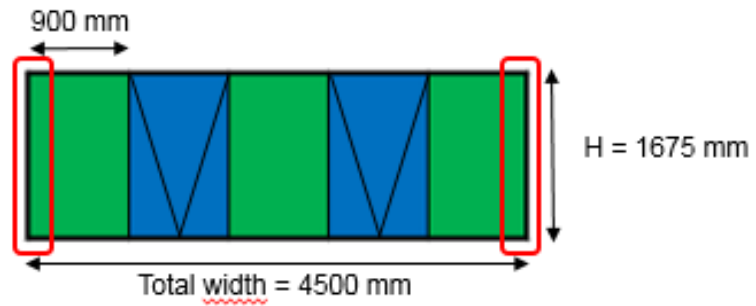
$M = 900 \text{ mm}$

$N = 1,675 \text{ mm}$

$L = 12^\circ$

3 x fixed modules + 2 x comfort ventilation

PROPOSAL 1

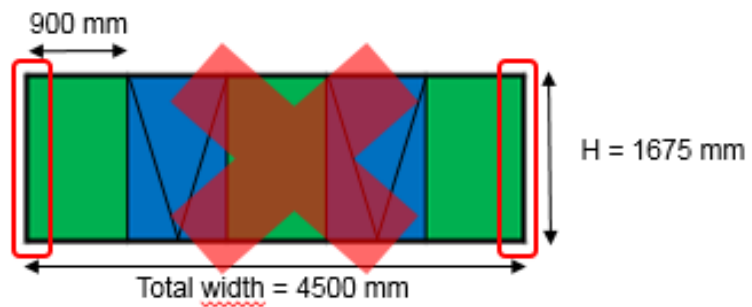


PROBLEM

The Topfix VMS is always mounted on a fixed module.

5 modules x 900 mm (M) = 4,500 mm

4,500 mm is too wide for the Topfix VMS



Rearranging the modules is not an option.

Another arrangement is possible by choosing a different module width.

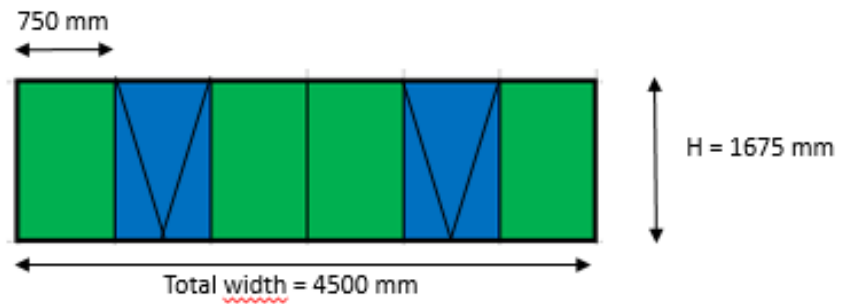
PROPOSAL 2

M = 750 mm

N = 1,675 mm

L = 12°

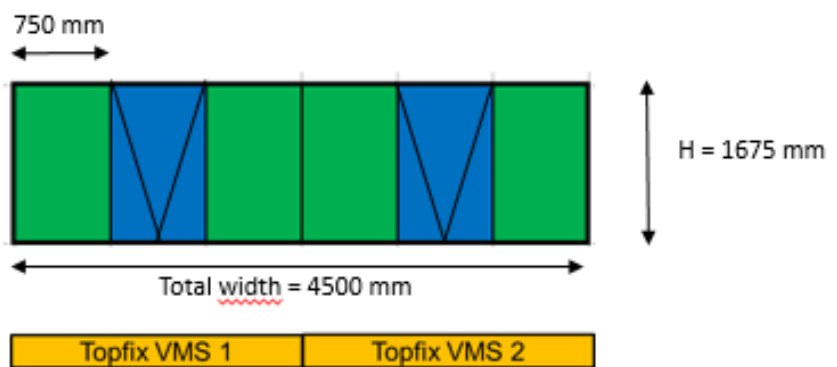
4 x fixed modules + 2 x comfort ventilation



The Topfix VMS is always mounted on a fixed module.

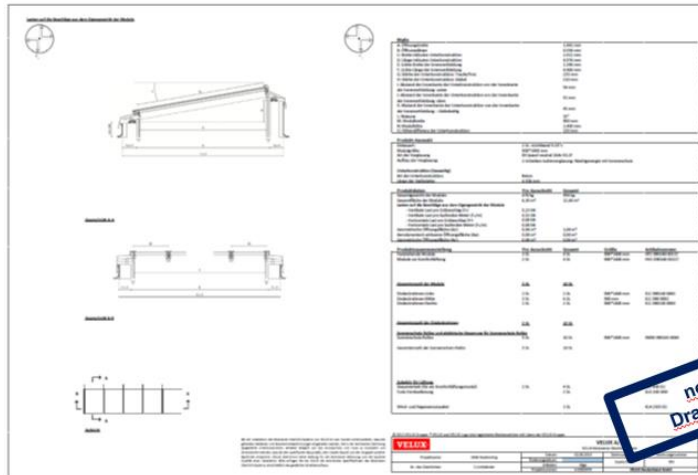
2 x (3 modules x 750 mm (M)) = 4,500 mm

2 x 2,250 mm is OK for Topfix VMS



A solution such as this can be found with the help of competent staff from the firms involved. The case illustrated above has been implemented in practice.

Technical drawing VELUX



VELUX or
customer

RENSON Sales

RENSON Presales

Check whether the configuration is possible

NICHT MÖGLICH

1	2	3	4	5	
900	900	900	900	900	1675
900	1800	2700	3600	4500	

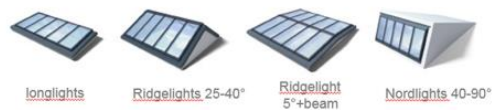
ALTERNATIV - NICHT MÖGLICH

1	2	3	4	5	
900	900	900	900	900	1675
900	1800	2700	3600	4500	

ALTERNATIV - MÖGLICH

1	2	3	4	5	
750	750	750	750	750	1675
750	1500	2250	3000	3750	4500
2250		2250			

gevraagd



Produktzusammenstellung	Pro Ausschnitt	Gesamt	Größe
Feststehende Module	3 St.	6 St.	900*1400 mm
Module zur Komfortlüftung	2 St.	4 St.	900*1400 mm

Gesamtanzahl der Module	5 St.	10 St.	
Eindeckrahmen Links	1 St.	2 St.	900*1400 mm
Eindeckrahmen Mitte	3 St.	6 St.	900 mm
Eindeckrahmen Rechts	1 St.	2 St.	900*1400 mm



Wortmann - Germany



Wortmann - Germany

7. Useful information

	Website	RENSON Customers	RENSON employee
Leaflet	✓		✓
Demo material			✓
Specification sheet	✓	✓	✓
Technical drawings	✓	✓	✓
Specification file		✓	✓
Impact of fabric choice for inside or outside solar shading		✓	✓
Price list		✓	✓
Installation training	✓		✓
Installation manual		✓	✓
Technical specifications motors		✓	✓
Warranty certificate		✓	✓
Declaration of performance	✓	✓	✓

Website: www.renson.eu

Renson Customers: <http://www.renson-customers.com/>



Creating healthy spaces

RENSON®: your partner in ventilation and sun protection

RENSON®, headquartered in Waregem (Belgium), is a trendsetter in Europe in natural ventilation and sun protection.

- **Creating healthy spaces**

From 1909, we've been developing energy efficient solutions assuring a healthy and comfortable indoor climate. Our remarkable headquarters - built according to the 'Healthy Building Concept' - is a beautiful example portraying our corporate mission.

- **No speed limit on innovation**

A multidisciplinary team of more than 70 R&D employees continually optimize our products and develop new and innovative concepts.

- **Strong in communication**

Contact with the customer is of the utmost importance. A group of 70 in-the-field employees worldwide and a powerful international distribution network are ready to advise you on site. EXIT5 at Waregem gives you the possibility to experience our products on your own and provides necessary training for installers.

- **A reliable partner in business**

We can guarantee our customers optimal quality and service thanks to our environmentally friendly and modern production sites (with automated powder coating line, anodisation line, plastic injection moulding and mold making shop) covering an area of 95.000 m².

RENSON® reserves the right to make technical changes to the products shown.
The latest brochures may be downloaded from www.renson.eu

RENSON® Export Department • Tel. +32 (0)56 62 71 11 • export@renson.net

RENSON® Sunprotection-Screens NV
IZ 1 Flanders Field • Kalkhoevestraat 45 • B-8790 Waregem
Tel. +32 (0)56 62 65 00 • Fax +32 (0)56 62 65 09
export@renson.be • www.renson.eu

RENSON® Fabrications LTD
Fairfax Units 1-5 • Bircholt Road • Parkwood Industrial Estate • Maidstone • Kent ME15 9SF
Tel. 01622/754123 • Fax 01622/689478
info@rensonuk.net • www.renson.eu

