

MULTIFUNCTIONAL SUR- FACE-MOUNTED ROLLER SHUTTER

VR150 **PURE**

art.nr. 066670

TABLE OF CONTENTS

1.	FINISHED SIZES	3
2.	FITTING OPTIONS	3
3.	THE BOX	6
4.	THE ROLL-UP TABLES	6
5.	THE CONSOLES	7
6.	THE CURTAIN	8
7.	THE BOTTOM LATH	9
8.	THE GUIDE RAILS	9
9.	OPERATION	10
9.1	Motor	10
9.2	Solar	11
9.3	Electric motor connection	12
10.	COLOUR CHART	13
11.	GENERAL REMARKS	14
12.	WIND RESISTANCE AND OPERATING CLASSES IN ACCORDANCE WITH NBN EN 13659	15
12.1	Compulsory application since 1 April 2006	15
12.2	Détermination des zones de vitesses de vent ou zones de charges de vent	15
12.3	Definition of the terrain or roughness category	16
12.4	Installation height	17
12.5	Wind resistance depending on slat and guide	17
15.	ORDER FORM	18

1. FINISHED SIZES

Finished width W = width including guide rails (excluding box extension).
 Finished height H = height including consoles.

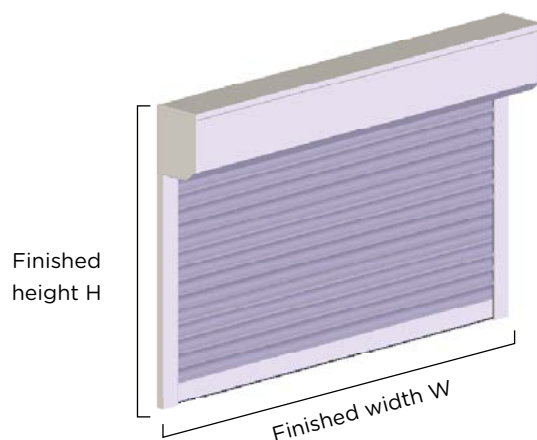


Figure 1:
 Finished sizes

Regarding to the wall in W and H, the play is deducted by the client!
 The maximum values for width, height, and area depending on the chosen slat, can be found on page 8 in table 3..

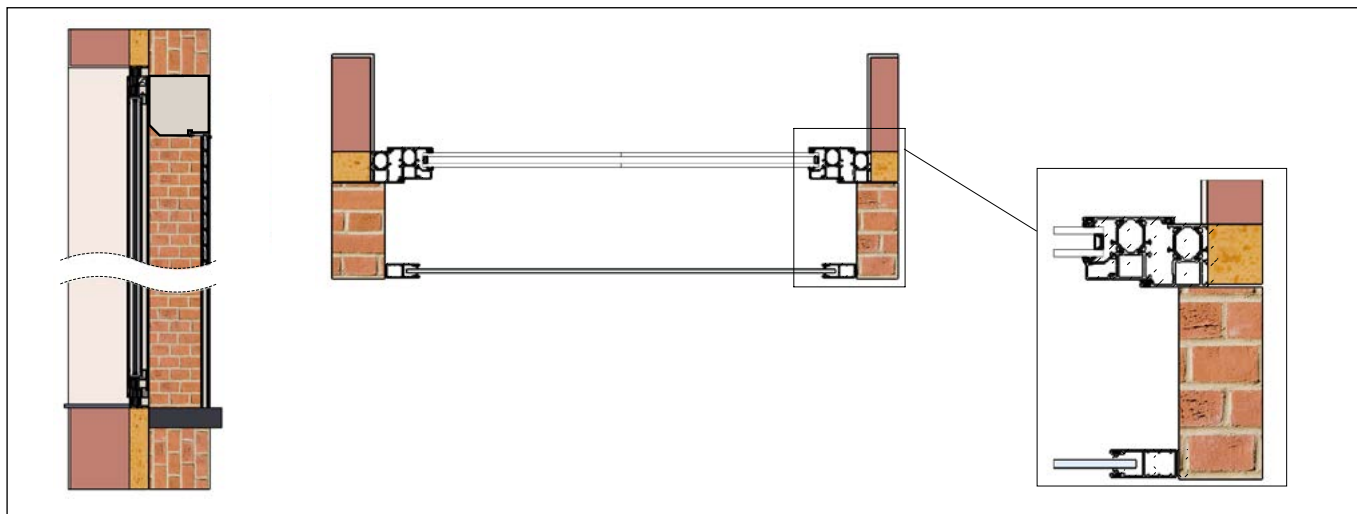
Note:

The total width from left to right console can sometimes be a millimetre wider relative to the width of the rear guide rail.

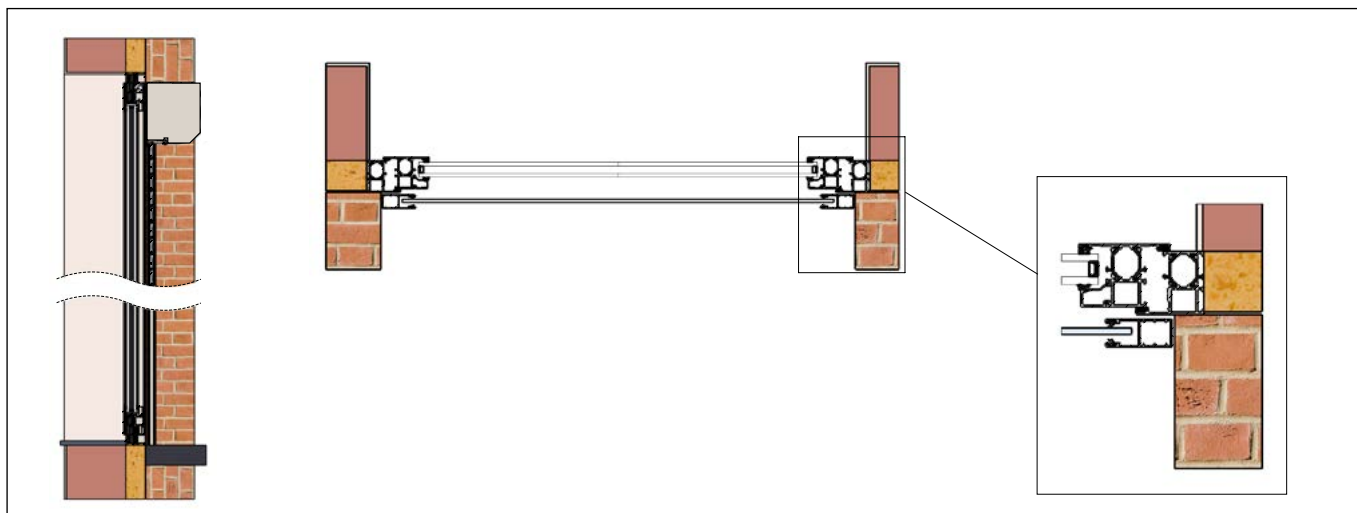
2. FITTING OPTIONS

- Four fitting options: see Figure 2.
 - In the window opening: assembly types 1 and 2.
 - On the window opening: assembly types 3 and 5
- The maximum dimensions (see table 3) are based on mounting in front of a window, which means at most at 150 mm distance from the window.
- Free-standing installations (such as garage openings) are not recommended.s

Type 1: Plan:



Type 2: Plan:



Type 1:

Properties:

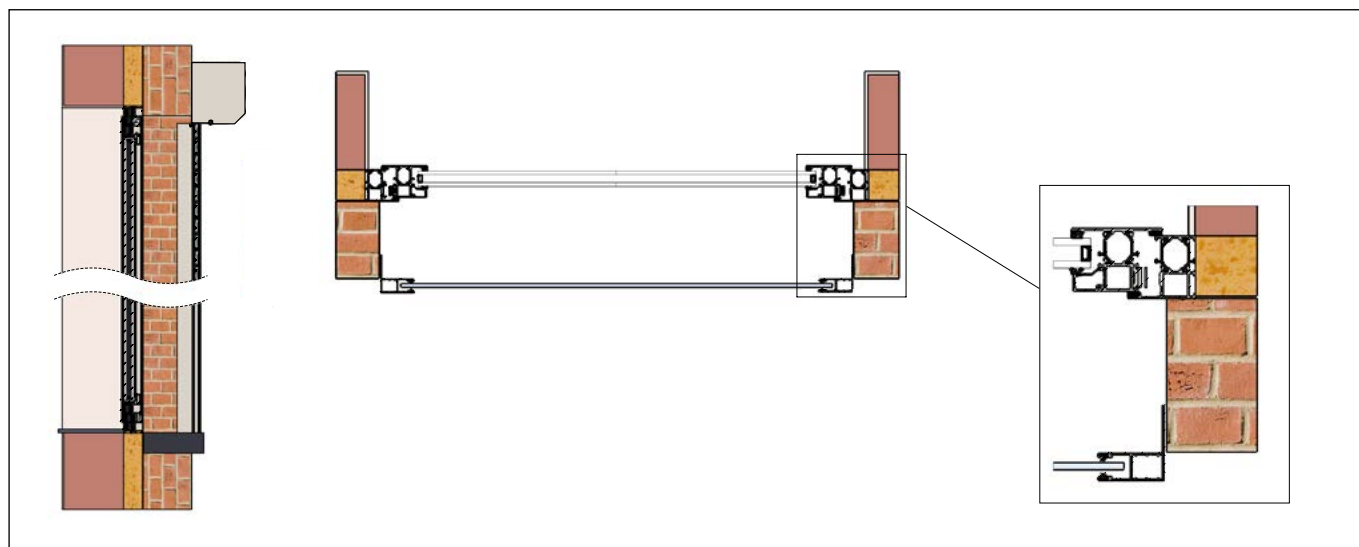
- Right-hand roller
- Curtain front.
- Guide rails 117 or 118, between the wall.
- Box in the opening.

Type 2:

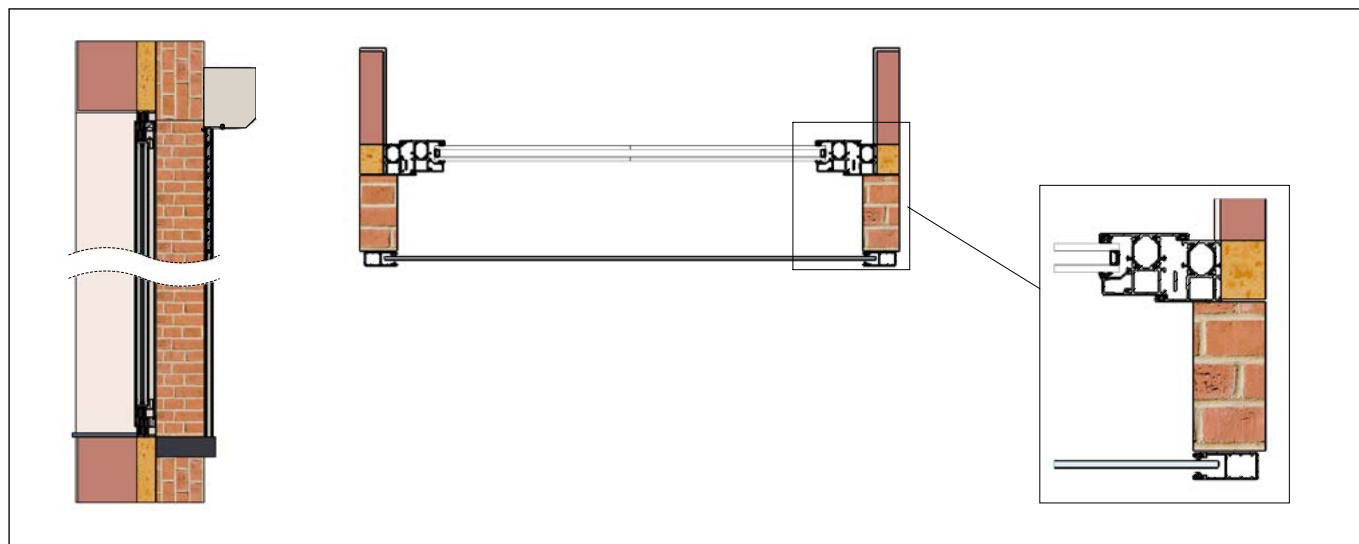
Properties:

- Left-hand roller
- Curtain back.
- Guide rails 117 or 118, between the wall.
- Box in the opening.

Type 3: Plan:



Type 5: Plan:



Type 3:

Properties:

- Left-hand roller
- Curtain back.
- Guide rails 117, between the wall.
- Box on the wall.

Type 5:

Properties:

- Left-hand roller
- Curtain back.
- Guide rails 118, on the wall.
- Box on the wall.

Figuur 2:

Montagemogelijkheden

3. THE BOX

Models:

– Model 'S':

- Bevelled inspection cover.
- Aluminium strip, profiled and folded.
- Available for box sizes 137, 150, 165, 180 and 205.

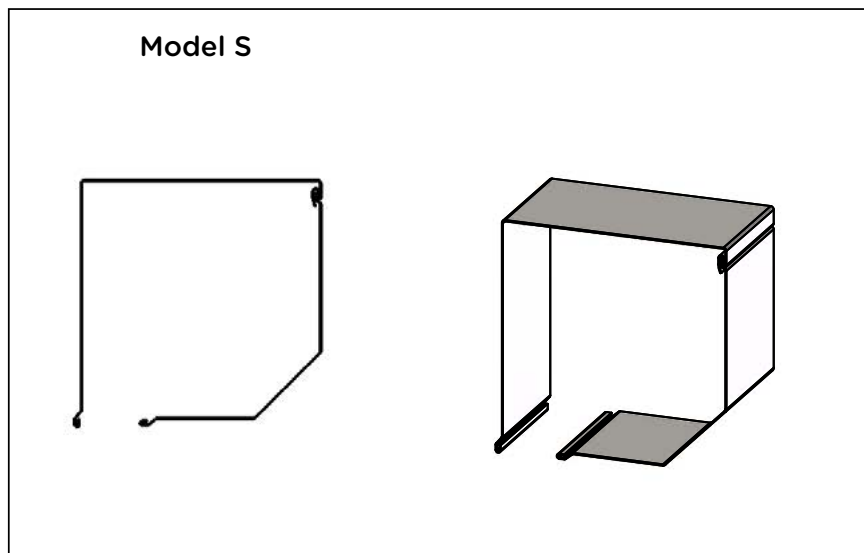


Figure 3:
Box models

Colours: see price list.

Minimum box size: see roll-up tables (larger box size possible at additional cost)..

4. THE ROLL-UP TABLES



Figure 4:
Switches

Table 1: Roll-up table: switches (Harol Pure)

SLAT TYPE	TYPE OF AXLE	PRIMO / SECURE / SOLAR PURE				
		137	150	165	180	205
ALU242	60	1100	1370	1870	2140	2500



Figure 5:
Solar roller shutter

Table 2: Roll-up table: SOLAR roller shutter

SLAT TYPE	TYPE OF AXLE	PRIMO / SECURE				
		137	150	165	180	205
ALU242	60	1100	1370	1870	2140	2500

5. THE CONSOLES

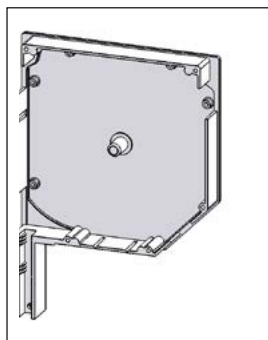


Figure 6:
Console S

Material: aluminium

Colours: always the same as the box colour.

Types:

- Console 'S' for boxes with bevelled inspection covers (model 'S')

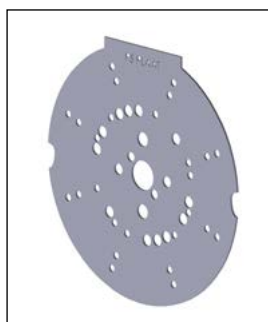


Figure 7:
The supporting plate

Supporting plate for mounting the motor, gearbox or coiled spring.

- Electrolytically galvanised.
- One plate per console size, applicable in both models S



Figure 8:
The entry guide

Entry guides:

- Provides quiet entry.
- In combination with the bottom lath stops, constitutes a fixed touch for the bottom lath in the upper position.
- Is anchored in the pivot for the console.
- (Has a low tape exit.)

6. THE CURTAIN

Slats:

- Type: ALU242

Material:

- ALU242 : double-walled, foam-insulated aluminium

	
	ALU242
slat thickness (A) (mm)	9,3
covering height (B) (mm)	42,0
total height (C) (mm)	48,8
number of slats per metre of height	23,8
net weight (kg/m ²)	2,85
gross weight (kg/m ²)	3,705
maximum width (mm)	3000
maximum height (mm)	2500
maximum area (m ²)	9
weerstandswaarde ΔR (m ² K/W)	0,16
weerstandswaarde R_{sh} (m ² K/W)	0,03

Colour table:

				STANDARD ALU-SLATS
STANDARD COLOURS		RAL	CODE	ALU242
	Weiß	±9016	01	x
	Braun	±8028	03	x
	Alu-Metallic	±9006	07	x
	Hellgrau	±7038	23	x
	Cremeweiß	±9001	27	x
	Anthrazitgrau	±7016	38	x
	Grauer Quarz	±7039	43	x
	grauer Aluminium	±9007	85	x
	Pechschwarz	±9005	90	x

Table 4: ALU colour table

Light and ventilation slot options:

- Without light (code 0).
- 1/3 light (code 1).
- 1/2 light (code 2).
- 2/3 light (code 3).
- 1/1 light (code 4) (7 solid slats at the top, the remainder with light and ventilation slots). The slats with light and ventilation slots are always at the bottom.
- Reflection of small traces of light between closed light slats



Figure 10:
Rod shackle

Fixation to the axle:

- Electric operation with motor Primo / Secure / Solar Pure motor: Rod shackles.
 - The rod shackles standard equipped with a protective felt cover (function: reduces the marking of the shackles on the slats).

7. THE BOTTOM LATH

Material: extruded aluminium.

Colour: the bottom lath comes standard in the same colour as the box.

1 type: depending on the slat type.

Properties:

- Sound-insulating when closing.
- Wind and rain sealer.
- Always equipped with a rubber seal.

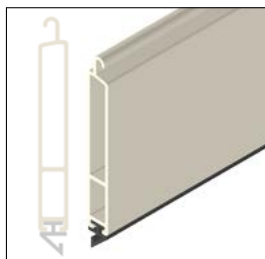


Figure 11:

Bottom lath with rubber

Standard:

- Bottom lath stops can be rotated:
 - Stops in the entry guide.



Figure 12:

Rotatable bottom lath stop

8. THE GUIDE RAILS

Material: extruded aluminium.

Colour: standard colour the same as the box.

Types: choice of several different types (see Figure 14)

Standard:

- Fitted with EPDM seals:
 - Low-noise operation.
 - Sound dampening under high-wind conditions.
 - Depending on the type of slat, a custom seal is run through the guide rail.

Optional:

- Cover caps for guide channel.
- Guide rails 127, 128 and 129: in aluminium.
- brushes (bv60) in the guides.
- Extra length of guide rail
- Pre drilling guide rails to the left / right or towards the back.

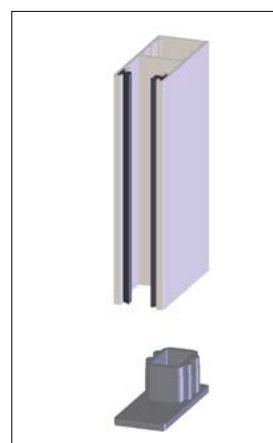
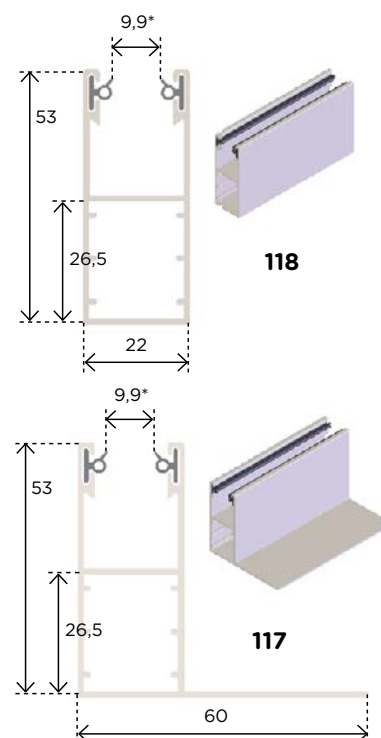


Figure 13:

Cover caps

Figure 14:

Guide rail types

9. OPERATION

The operating mechanisms are fitted blind (no screws visible):

- Motor operation: attached to a supporting plate (see page . 7: consoles).

The operating side is always stated as viewed from the inside.

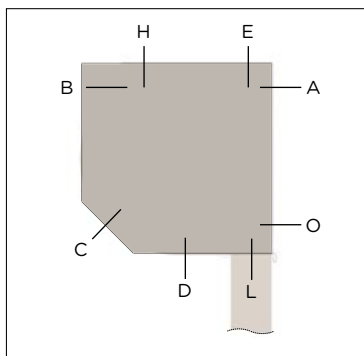


Figure 15:
Operating exits

9.1 Motor



Figure 16:
Tubular motor

	PRIMO	SECURE ¹	SOLAR PURE
AXLE	60	60	60
MINIMUM WIDTH	790	790	865
MAXIMUM TORQUE	30	30	20
OPERATION	switch	transmitter	transmitter
END POSITIONS	set.	transmitter	transmitter
HHO ²	x	x	x
HHN ³	x	x	x
CABLE LENGTH	2,5	2,5	2,5
TOUCH REQUIRED			
OPTIONAL CABLE 5 M	x	x	x
IP CLASS	IP65	IP65	IP65
RPM	17	17	12

Table 5: motor details

¹ Standard motor.

² HHO = obstacle detection in the upward direction.

³ HHN = obstacle detection in the downward direction

Other options:

- Option A1695: Without wall-mounted transmitter 1 channel - Pure (Standard).
- Option A1690: cable 3 veins - 5 meters
- Option A1691: cable 4 veins - 5 meters

Motor cable exit: (zie figure 17)

- Motor: A, B, C, D, E, H, L, O.

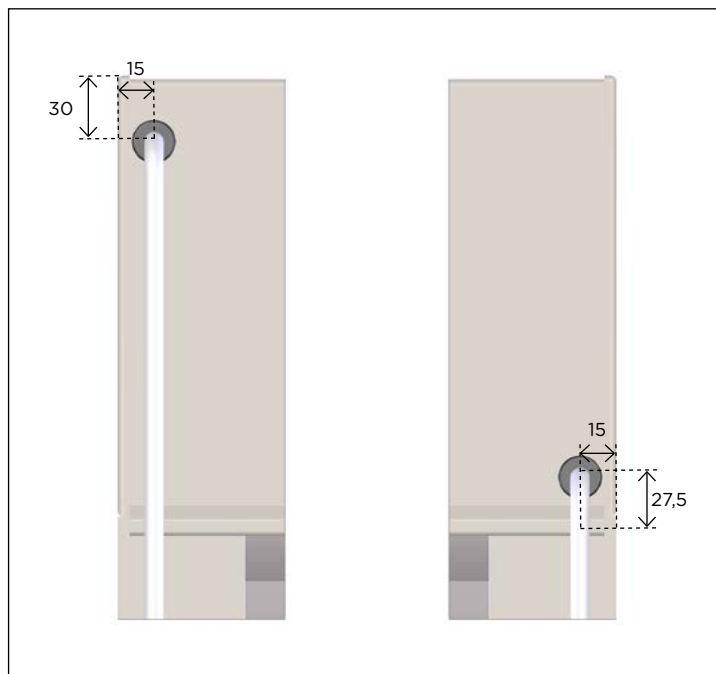


Figure 17:
Motorkabeluitgang

9.2 Solar

This is a self-contained solar-powered system

- The solar panel is fitted onto the type S box.
- The panel is always mounted on the side of the motor.
- 1 panel is always installed, irrespective of the shutter orientation..
- The battery is built into the motor.



Figure 18:
Solar shutters

Tabel 6: main characteristics of SOLAR components

		SOLAR PURE
MOTOR		
	type of motor	Solar Pure
	motor power	10-20 Nm
	diameter	Ø50 mm
	speed	12 rpm
	battery	built-in battery
	battery type	Li-ion
	capacity	5000 mAh
	cable length	20 cm
SOLAR PANEL		
	panel type	monocrystalline
	power	4,7W
	dimensions	600x62mm
	life time	7 years

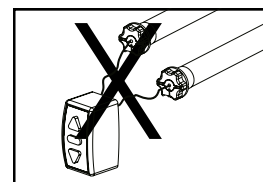
Note:

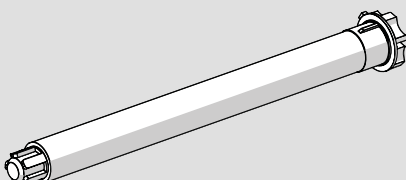
- 5-year warranty on motor, solar panel and battery
- after purchase, the roller shutter must be installed within one month, otherwise the battery must be recharged
- the motor is activated by on /off switch

9.3 Electric motor connection

Motor:

- All electrical connections have to be made by a qualified fitter/electrician. Electrical fitting- and connection diagrams have to be applied in a correct way and have to be conform the local norms and/or demands in vigor. All the motors are supplied with the necessary diagram's and manuals for the chosen type of motor and/or domotical accessories.
- NEVER CONNECT 2 MOTORS TO 1 END SWITCH.
If you want to connect several motors to one or more end switches, always use relay boxes.



see assembly instructions Harol

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10. COLOUR CHART
"PURE COLOURS"

	COLOUR	GLOSS*			ORDER CODE	POWDER CODE
		R	M	S		
7016	Anthracite grey	•			7016, HLGR	AE70017620225
	Anthracite grey matt		•		7016M	DS542A8304
	Aliplast 7016 St metallic			•	A7016, S7016	029/71334
	Pierret 7M16ST / Aliplast 7016 Ic			•	7m16st, 7T16, F716, G7016, L7016, MADGR, R7016, TC7016	029/71289 AE03057701620
7021	Black grey	•			7021	DS311A8260
	Black grey matt		•		7021M	DS542A8305 (P52TRM7021HR/30/200)
	Pierret 7M21ST			•	7m21st, G7021	029/71263
	Reynaers coatex 7S21			•	7S21, 7T21, R7021	AE03057702120
7039	Quartz grey	•			7039	AE70017580225
	Quartz grey matt		•		7039M	AE30017703920
	Reynaers coatex 7T39			•	7T39, F739, R7039	AE03057703920
8019	Grey brown	•			8019	QG710121SG
	Grey brown matt		•		8019M	PE52/ TRM8019HR/30/20
	Reynaers coatex 8T19			•	8T19	AE03058801920
9001	White cream	•			9001	DS312W8061
	White cream matt		•		9001M	DS542W8221
	Aliplast 9001 fine-structure fine matt not metallic			•	A9001, S9001	029/10933
9004	Signal black	•			9004	AE70014902425
	Signal black matte		•		9004M	AE300C4900420
	Aliplast 9004 Ic			•	L9004	029/80271
	Reynaers coatex 9T04			•	9T04, D1921	AE03054900420
9005	Jet black Oxyplast	•			9005	DS311N8206
	Jet black matt		•		9005M, 9005Mv1, MAZW, P905EM	AE30014900520
	Fine-textured 9005			•	9005s	029/80303
	Reynaers coatex 9T05			•	9T05, P905 RM, R9005, RIV9005	NBT1E0001 (AE03054900520)
9006	Blank aluminium	•			9006	NSL8E0001-C20
	Blank aluminium matt		•		9006M	AE30217900620
	Reynaers coatex 9T06			•	9T06	AE03257900620
9010	Pure white	•			9010	AE70019100125
	Pure white matt		•		9010M	PE52/ TRM9010/30/200
	Reynaers coatex 9T10			•	9T10	AE03059901020
9016	Traffic white	•			9016, 9016P, HLWI, MAWI, PR9010	AE70019101525
	Traffic white matt		•		9016M	AE300C9901620
	Pierret 9M61ST			•	9m16st, A9016, S9016, TC9016	029/10246

* R = Standard RAL, M = Matt, S = Structured paint

11. GENERAL REMARKS

- The surfaces of the slats can become slightly marked due to friction between the slats during rolling and unrolling. This is a natural consequence of normal use of the product and is thus not covered by the warranty.
- Reflection of small traces of light between closed light slats or between curtain and guide rail are typical properties of the product and cannot be excluded. If the roller shutter must darken as optimally as possible, it is best not to choose light slats. When slats with small roll-up diameter are chosen (ALU35, ALU237, PVC37), it is possible, because of the reflection, that small traces of light are visible when the roller shutter is down in comparison with bigger slats (ALU242, ALU242S et MIDI).

Note: a roller shutter never darkens 100%

- When choosing dark-coloured slats please pay attention to the following: mutual friction can cause scratches on all types of slats. These scratches are more visible on dark colours than on light-coloured slats. Dark-coloured slats are also more susceptible to influences from high temperatures. When heated, these slats will expand more strongly than their lighter counterparts and, when used for the first time after shutting down, there may be a creaking noise as a result of mutual adhesion of the slats due to these high temperatures. And because of the greater absorption value of dark colours, the thermal value of the darker slats will consequently be less good than that of light-coloured slats. Please take the above points into account when choosing the most suitable slat for the desired situation.
- In case of a shutter with almost max. width of the chosen slat type, the risk of bending will rise. This has no effect on the quality of the product.
- It is typical of boxes made from tape materials that internal tensions (in the muffling kiln) cause a slight deflection in the box.
- All electrical connections must be made according to the statutory provisions of the relevant country. Electrical connections and proper operation are the responsibility of the installer.
- Harol does not accept any liability whatsoever for tearing loose of shutter curtains due to wind or storm. The installer must take into consideration all precautionary measures necessary to order a product suitable for the installation site.
- All information in this brochure is provided in good faith and is for informational purposes only. It reflects the present state of our knowledge and abilities and cannot be used against us.
- Harol reserves the right to make alterations to the product without prior notice.

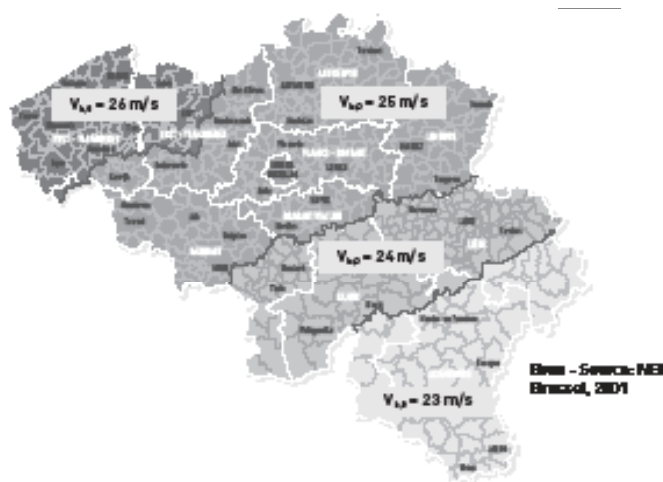
12. WIND RESISTANCE AND OPERATING CLASSES IN ACCORDANCE WITH NBN EN 13659

12.1 Compulsory application since 1 April 2006

The new NBN EN 13659 standard has been in force since 1 April 2006. In accordance with this standard, from that date onwards roller shutters must carry a CE mark that also shows the wind resistance class. There are standards and guidelines for different countries in order to define which wind resistance class is necessary for which application. For Germany, the German "Bundesverband Rolladen und Sonnenschutz" commissioned the development of an IFT guideline entitled "Application advice for external closures". This guideline (DIN 1055-4:2005-3) divides the territory of Germany into wind speed or wind load zones and terrain categories. In this way, the applicable wind speed zone and terrain category can be derived from the location of the building. The installation height of the closures indicates the third necessary reference measurement. For Belgium, everything is shown in standard NBN EN 1991-1-4 and the territory is divided into four wind speed zones. The Netherlands is divided into three wind speed zones in accordance with standard NEN-EN 1991-1-4: 2005/NB:2007 and France has four wind speed zones in accordance with standard DTU 34.2. For other countries, ask the local meteorological services for the values!

12.2 Détermination des zones de vitesses de vent ou zones de charges de vent

Belgium



- I speed zone 1 with 23,0 m/s
- I speed zone 2 with 24,0 m/s
- I speed zone 3 with 25,0 m/s
- I speed zone 4 with 26,0 m/s

The Netherlands



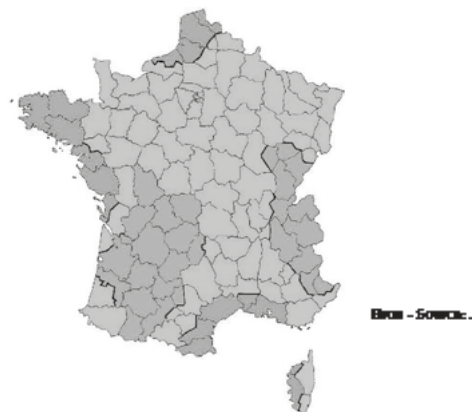
- Zone I with 30,0 m/s :** Markermeer, IJsselmeer, Waddenzee, les îles Wadden et la province de Noord-Holland au nord des communes de Heemskerk, Uitgeest, Wormerland, Purmerend et Edam-Volendam.
- Zone II with 27,5 m/s :** The rest of the province of North Holland, the mainland of the provinces of Groningen and Friesland and the provinces of Flevoland, South Holland and Zeeland.
- Zone III with 25,0 m/s :** The rest of the Netherlands.

Germany



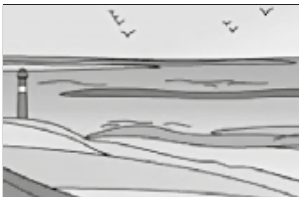
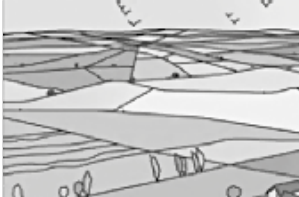
-  Wind load zone 1 with 22,5 m/s
-  Wind load zone 2 with 25,0 m/s
-  Wind load zone 3 with 27,5 m/s
-  Wind load zone 4 with 30,0 m/s

France



-  Wind load zone 1 with 22,0 m/s
-  Wind load zone 2 with 24,0 m/s
-  Wind load zone 3 with 26,0 m/s
-  Wind load zone 4 with 28,0 m/s

12.3 Definition of the terrain or roughness category

	Terrain category 0 (The most stringent) Sea or coastal area with wind flowing over the open sea.
	Terrain category I Lakes or flat and horizontal area with negligible vegetation and no obstacles.
	Terrain category II Area with low vegetation such as grass, with or without a few free-standing obstacles (trees, buildings) with a distance between them of at least 20 times their height (= gap of at least 20 obstacle heights).
	Terrain category III Area with regular overgrowth or buildings or isolated obstacles with a gap of no more than 20 obstacle heights (e.g. villages, peri-urban areas, sustainable forests etc.)
	Terrain category IV (The least stringent) Urban areas where at least 15% of the surface area is covered with buildings with an average height of over 15 metres.

12.4 Installation height

In addition to the wind speed zone and the terrain category, the installation height also plays a role in defining the wind resistance classes. The table below shows the recommended wind resistance class depending on the installation height in accordance with the applicable standards in each country.

The minimum class in the application advice notes is wind resistance class 2. That does not mean that class 0 or class 1 products must not be used. However, a product with the relevant wind resistance class is recommended to define a particular quality level.

BELGIUM	Terrain category	Installation heights > 0 - 8 metres				Installation heights > 8 - 20 metres				Installation heights > 20 - 100 metres			
		Wind speed zone				Wind speed zone				Wind speed zone			
		1 23 m/s	2 24 m/s	3 25 m/s	4 26 m/s	1 23 m/s	2 24 m/s	3 25 m/s	4 26 m/s	1 23 m/s	2 24 m/s	3 25 m/s	4 26 m/s
	0	3	4	4	4	4	4	4	5	4	5	5	5
	I	3	4	4	4	4	4	4	5	4	5	5	5
	II	3	3	3	4	3	4	4	4	4	5	5	5
	III	2	3	3	3	3	3	3	4	4	5	5	5
	IV	2	3	3	3	3	3	3	3	4	4	4	4

THE NETHERLANDS	Terrain category	Installation heights > 0 - 8 metres			Installation heights > 8 - 20 metres			Installation heights > 20 - 100 metres		
		Wind speed zone			Wind speed zone			Wind speed zone		
		1 30 m/s	2 27,5 m/s	3 25 m/s	1 30 m/s	2 27,5 m/s	3 25 m/s	1 30 m/s	2 27,5 m/s	3 25 m/s
	0	4	4	4	5	5	4	6	5	5
	I	4	4	4	5	5	4	6	5	5
	II	4	4	3	5	4	4	5	5	5
	III	4	3	3	4	4	3	5	5	5
	IV	3	3	3	4	3	3	5	4	4

FRANCE	Terrain category	Installation heights > 0 - 8 metres				Installation heights > 8 - 20 metres				Installation heights > 20 - 100 metres			
		Wind speed zone				Wind speed zone				Wind speed zone			
		1 22 m/s	2 24 m/s	3 26 m/s	4 28 m/s	1 22 m/s	2 24 m/s	3 26 m/s	4 28 m/s	1 22 m/s	2 24 m/s	3 26 m/s	4 28 m/s
	0	3	4	4	4	4	4	5	5	4	5	5	5
	I	3	4	4	4	4	4	5	5	4	5	5	5
	II	3	3	4	4	3	4	4	4	4	5	5	5
	III	2	3	3	3	3	3	4	4	4	5	5	5
	IV	2	3	3	3	3	3	3	3	4	4	4	4

GERMANY	Terrain category	Installation heights > 0 - 8 metres				Installation heights > 8 - 20 metres				Installation heights > 20 - 100 metres			
		Wind speed zone				Wind speed zone				Wind speed zone			
		1 22,5 m/s	2 25,0 m/s	3 27,5 m/s	4 30,0 m/s	1 22,5 m/s	2 25,0 m/s	3 27,5 m/s	4 30,0 m/s	1 22,5 m/s	2 25,0 m/s	3 27,5 m/s	4 30,0 m/s
	0	3	4	4	4	4	4	5	5	4	5	5	6
	I	3	4	4	4	4	4	5	5	4	5	5	6
	II	3	3	4	4	3	4	4	5	4	5	5	5
	III	2	3	3	4	3	3	4	4	4	5	5	5
	IV	2	3	3	3	3	3	3	4	4	4	4	5

12.5 Wind resistance depending on slat and guide

ALU242

guide	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000	3100	3200	3300	3400	3500	3600	3700	3800	3900	4000
117/118	6												5	4	3			2	1												

13. ORDER FORM

Click on the link below:

[Order form VR150 Pure](#)