

BUILT-ON ROLLER SHUTTER

OB910 Thermo

Art. no. 064077

TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

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Harol reserves the right to make any changes to the construction at all times without having to inform the client beforehand and therefore without having to adapt existing installations.

1. INTRODUCTION

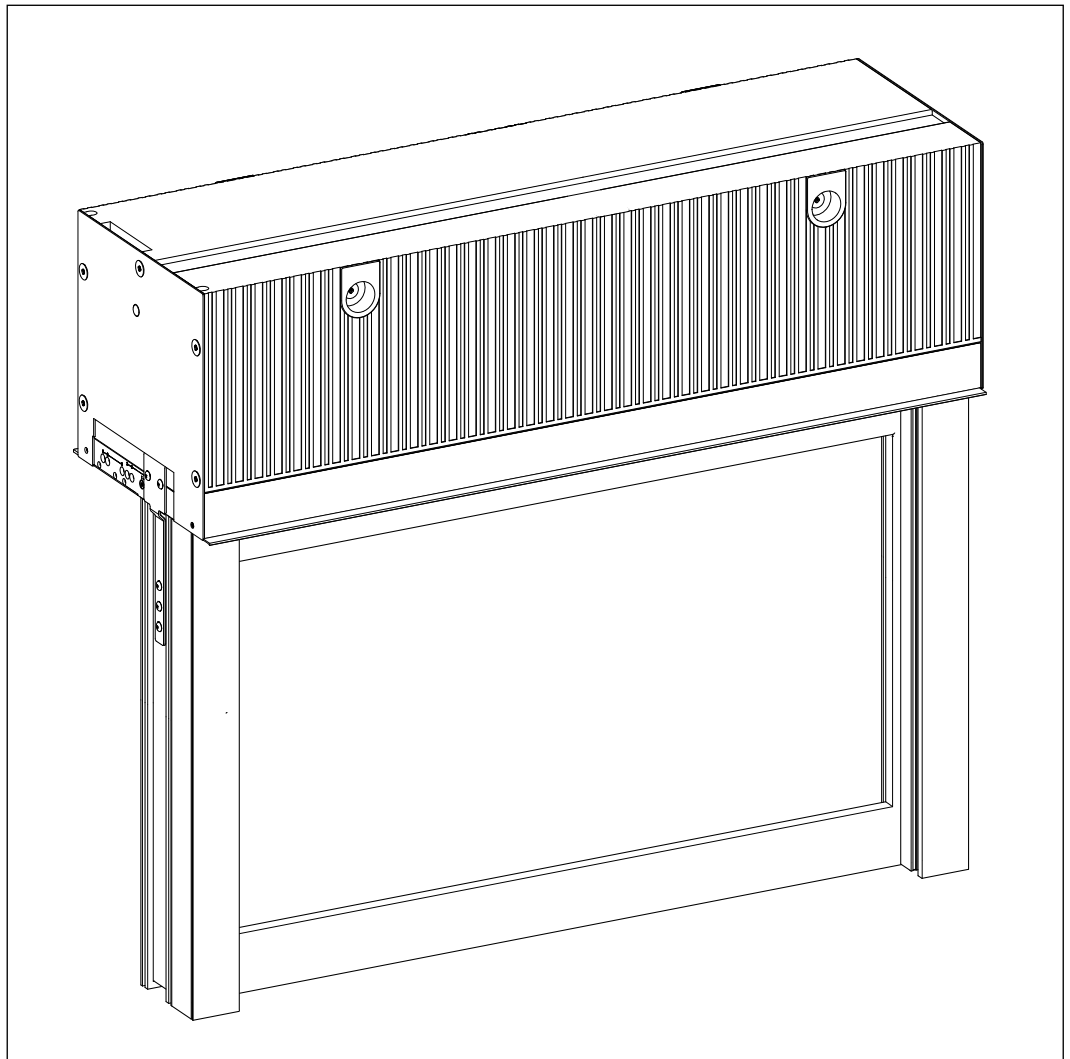


Figure 1:
OB910 Thermo

The OB910 Thermo is a very well insulated built-on roller shutter. Similar to other built-on roller shutters, it is fitted to the window frame and placed in the wall as one complete unit.

The OB910 Thermo is a built-on roller shutter with excellent insulation values. The built-on roller shutter consists of 2 types: one type with internal reveal and a second type with external reveal. Either of the two can be used in new constructions or major renovations.

The materials used guarantee future-proof energy-efficiency. The basic material, Neopor, is well-known for its high-grade insulating values. Because of the high-grade insulating values and the many options, this product can be used in all possible new-build situations. Even for passive houses.

2. BOX

2.1 Box construction

Box material:

- Neopor® was developed from polystyrene foam and is a BASF trademark.
- The raw material used for the distinctive black pearls consists of graphite grains. The graphite particles disperse the heat radiation by means of reflection and absorption. As a result, the transmission of thermal energy in the material is significantly reduced.

Properties:

- Density= 15kg/m³
- Heat conductivity = 0.032W/mK

Outer layer:

The outer layer of the OB910 varies depending on the façade of the house:

If the house has been rendered:

- For a rendered façade, the outer layer of the OB910 Thermo box must be a Sto layer. This Sto layer is an innovative building material.
- Its special composition offers the highest quality and excellent material properties.
- This layer is ideal for problem-free rendering.
- Typical colour = white.

A house built with facing bricks:

- A water-resistant layer is used for houses built with facing bricks.
- This layer protects the roll-up area from the facing bricks, dirt and water.
- The layer is 100% waterproof and has a constant material thickness.
- Typical colour = black.

2.2 Box types and sizes

There are two models available of the OB910 Thermo:

the OB910 Thermo IR (Fig. 2)

- Interior inspection cover
- 4 different sizes available: 240, 270, 278, 338
- Inside diameter Ø198 for 240 & 270 and Ø212 for 278 & 338
- Can be used both on facing brick or plasterwork
- Can be used on window profiles up to 90 mm

the OB910 Thermo ER (Fig. 3)

- External reveal
- Two box sizes available: 240 and 278
- Inside diameter 198 for box size 240 and 212 for box size 278
- Suitable both for brick and plasterwork

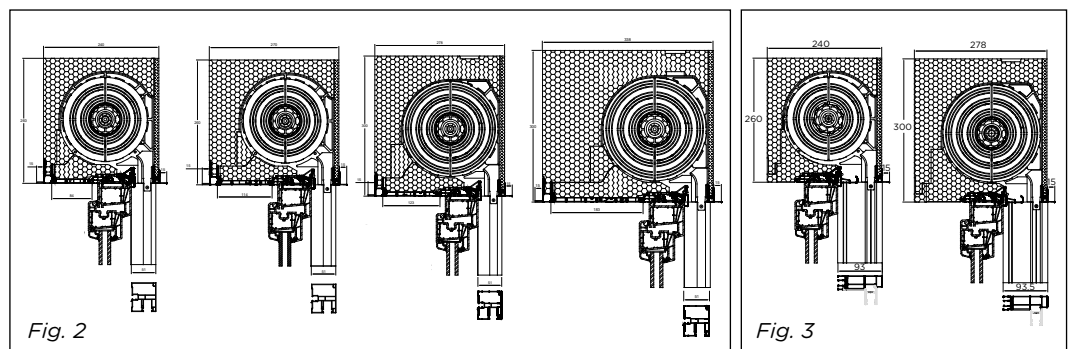


Figure 2:
box models IR

Figure 3:
box model ER

2.3 Finishing profile for the box

For both the IR and the ER models, there is the choice of a suitable finishing profile for either brick or plasterwork.

- AP/S = finishing profile for facing brick
- AP/P15 = finishing profile for plasterwork

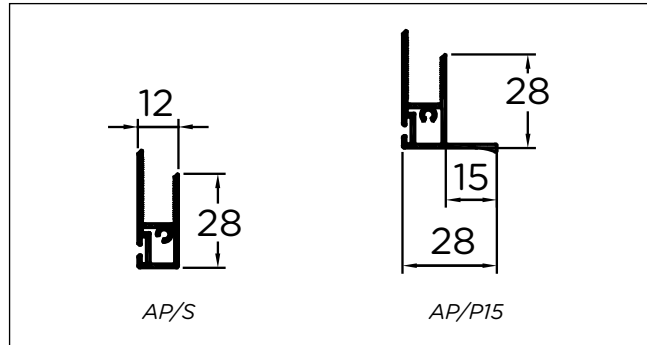


Figure 4:
finishing profiles

2.4 Insulation values of the boxes

thermal values

type	size	U (W/m²K)	f _{RSI} -Value	ψ-value
IR	260x240	0.74	0.73	0.18
	260x270	0.61	0.72	0.15
	300x278	0.60	0.70	0.10
	300x338	0.50	0.70	0.10
ER	260x240	0.66	0.80	0.18
	300x278	0.52	0.79	0.09

Table 1:
thermal values

acoustic values

type	size	Rw down/up(dB)
IR	260x240	41/37
	260x270	44/41
	300x278	42/43
	300x338	42/42
ER	260x240	48/47
	300x278	49/49

Table 2:
acoustic values

2.5 Fitting

Window frame anchors are supplied as standard as a connection between the head pieces and the window frame.

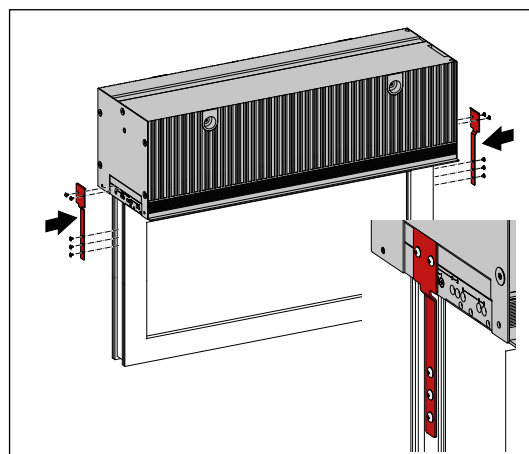


Figure 5:
galvanised window
frame anchors

3. MEASURING

3.1 Finished sizes

finished width = width of window frame = F

finished height = height including box = D (=E+A)

3.2 General sizes

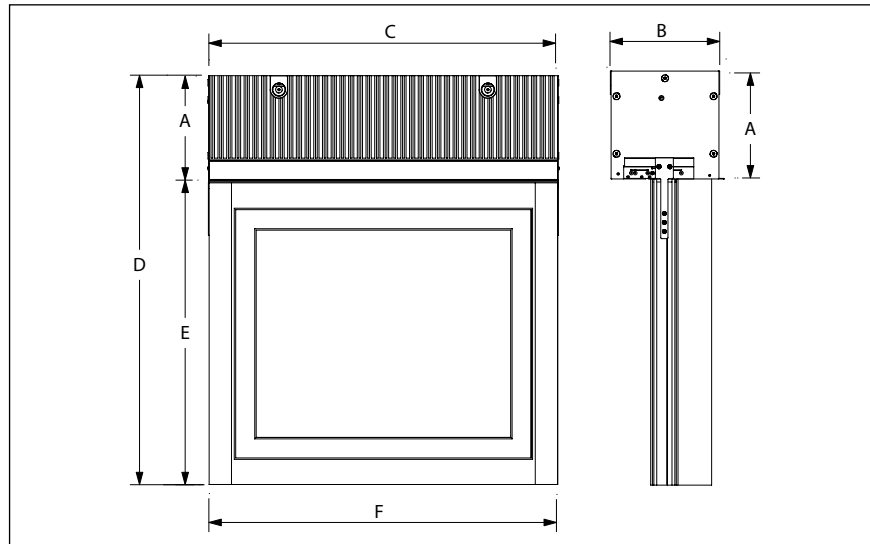


Figure 6:
dimensions

A	Box height
B	Box depth
C	Element width = window width + 10 mm or +50 mm when using the narrow guide rails
D	Element height = window height + box height
E	Window height
F	Window width

Table 3:
box sizes

box type	240	270	278	338
A	260	260	300	300
B	240	270	278	338



Please Note:

Always check that the selected box is suitable for the situation!

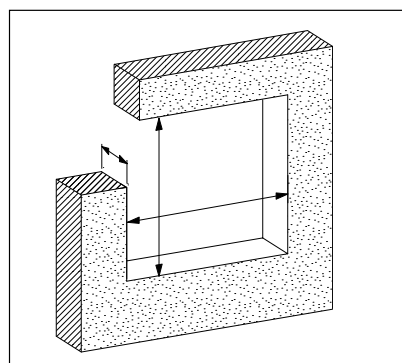


Figure 7:
build-in situation

4. GUIDE RAILS

4.1 General

Material:

extruded aluminium or extruded PVC

Colour:

aluminium: RAL colour range

PVC: 20 or more Renolit colours to choose from (see price list)

Clip fixings:

- the guide rails are fixed to the window frames with nipple screws
- the number required depends on the height of the guide rails (X)
- positioning distance (Y) to the rear of the window frame: see appendix page 14

size X	# nipple screws
<1200 mm	4
1210 - 1650 mm	5
1650 - 2100 mm	6
2100 - 2880 mm	7
2880 - 3400 mm	8

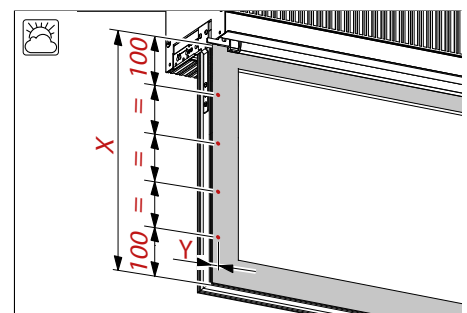


Figure 8:

nipple screws

Figure 9:

position of nipple screws

Fig. 8

Fig. 9

Seals:

the guide rails are fitted with brushes with a membrane in-between

- sound dampening for high-wind conditions
- the membrane offers better sealing of the space between the curtain and window

Types:

There are two types of guide rail. The guide rails for the IR system, and the guide rails for the ER system

4.2. The IR guide rails

- the ALU guide rails: AGI35, AGI60 & AGIm
- the PVC guide rails: PGI35, PGI60 & PGIm

ALU		
AGI60	AGIm	AGI35

Figure 10:

ALU IR guide rails

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Figure 11:
PVC IR-guide rails

PVC		
PGI60	PGIm	PGI35

Optional:

cover caps for the PVC guide rails in white or brown



Note:

If the 35 guide rails are used, the position of the back of the box is offset 25 mm in relation to the back of guide rail and back of the window frame. see appendix: Guide rail position for OB910 IR page 15.

4.3 The ER guide rails

There are two types of guide rail. The guide rails for the IR system, and the guide rails for the ER system

- the ALU guide rails: AGE60 & AGEm
- the PVC guide rails: PGE60 & PGE m

Figure 12:
ER guide rails

ALU		PVC	
AGE60	AGEm	PGE60	PGE m



Note:

The ER guide rails are separable. When the motor or curtain needs to be replaced, or if repairs need to be carried out, it must be possible to remove the clippable part of the guide rail in order to carry out the repairs.

4.4 L-finishing profile for guide rails

Option number: A1628.

Dimensions: 10x10 mm.

Function:

to seal the opening between the guide rail and the facing brick.

Can be used for:

- IR: all types of guide rails
- ER: only the PVC guide rails (the ALU do not have an opening)

5. SHUTTER CURTAIN

5.1 Slats

		
	ALU39	ALU42
slat thickness (A) (mm)	8,3	9.0
covering height (B) (mm)	39	42
total height (C) (mm)	44,4	49,15
number of slats per metre of height	25,6	23.8
net weight (kg/m ²)	2,44	2.94
gross weight (kg/m ²)	3,17	3.82
maximum width (mm)	3000	3500
maximum height (mm)	3000	3000
maximum area (m ²)	7	8.5
resistance value ΔR (m ² K/W)	0,15	0.16
resistance value R_{SH} (m ² K/W)	0,0065	0.0077

Table 4:
technical information

Types:

3 types of slats available: ALU39 and ALU42.

Material:

double-walled foam-insulated aluminium.

Technical information: see table above.

Light and ventilation slot options:

- Without light slots (code 0).
 - 1/3 light (code 1).
 - 1/2 light slots (code 2).
 - 2/3 light slots (code 3).
 - Full daylight slots (code 4)
- (With full daylight slots the top 7 slats are fixed).

The slats with light slots are always at the bottom.

Colours

	RAL	ALU39	ALU42
traffic white (A29)	± 9016	x	
white (A01)	± 9010	x	x
light grey (A02)	± 7038	x	x
brown(A03)	± 8014	x	x
alu-metallic (A04)	± 9006	x	x
bronze (A07)			x
cream (A08)	± 1015	x	x
beige (A09)		x	x
dark brown (A10)	± 8019		x
light beige (A11)		x	x
moss green (A12)	± 6005	x	
purple red (A16)	± 3004	x	
black gray (A23)	± 7021	x	
jet black (A28)	± 9005	x	
pine green (A31)	± 6009		x
creamy white (A32)	± 9001	x	
grey aluminium (A35)	± 9007	x	x
soft grey (A39)	± 7035	x	x
anthracite metal gloss (A73)	± 9009	x	x
steel blue (A79)	±5011		x
anthracite grey (A80)	± 7016	x	x
golden oak (A83)		x	x
quartz grey (A883)	±7039		x
black metal gloss (A921)		x	x
grey metal gloss (A929)			x

Table 5:
slat colours

Fixation to the shaft:

connected to the shaft by rigid suspension links.

5.2 Curtain roll-up table

OB910IR				
TYPE OF SLAT	BOX SIZE			
	240	270	278	338
ALU39	3000			
ALU42	2800		3000	

OB910ER		
TYPE OF SLAT	BOX SIZE	
	240	278
ALU39	3000	
ALU42	2600	3000

Table 6:
roll-up table

5.3 Bottom lath

Material:

Extruded aluminium fitted with a rubber seal & invisible stops

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6. OPERATION

The operating side is always stated as viewed from the inside.
The OB910 thermo are all motor-controlled

	ILMO	ILMO S	OXIMO RTS	OXIMO RTS S	OXIMO IO (1)	OXIMO IO S	RS100 IO	NHB
minimum width	700	415	800	415	800	415	800	900
maximum torque (Nm)	35	6	40	6	40	6	20	20
controls	switch	switch	transmitter	transmitter	transmitter	transmitter	transmitter	switch
end positions	automatic	automatic	transmitter	transmitter	transmitter	transmitter	transmitter	automatic
HHO (2)	X	X	X	X	X	X	X	X
HHN (3)	X	X	X	X	X	X	X	X
cable length (m)	3	3	3	3	3	3	3	3
lug required	X	X	0	X	0	X	0	X

Table 7:
motor data

1. Standard motor
2. HHO = Obstacle detection in upward direction.
3. HHN = Obstacle detection in downward direction.

Outlet: cable outlet is always through side console
outlet of the NHB is always along the base, at an angle of 45°



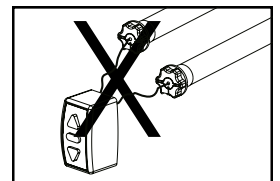
Please Note:

widths starting from 476 to 519 not available.

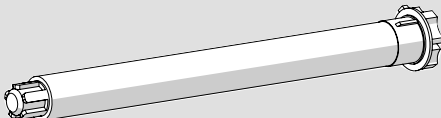
6.1 Electric motor connection

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 instruction manual Somfy (included)

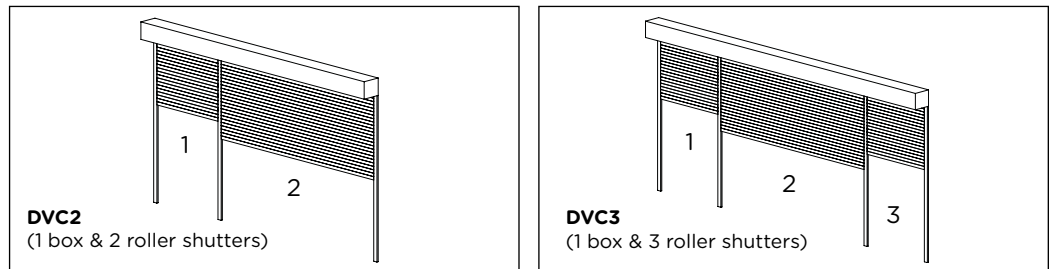
www.somfy.com



7. DOOR-WINDOW COMBINATION

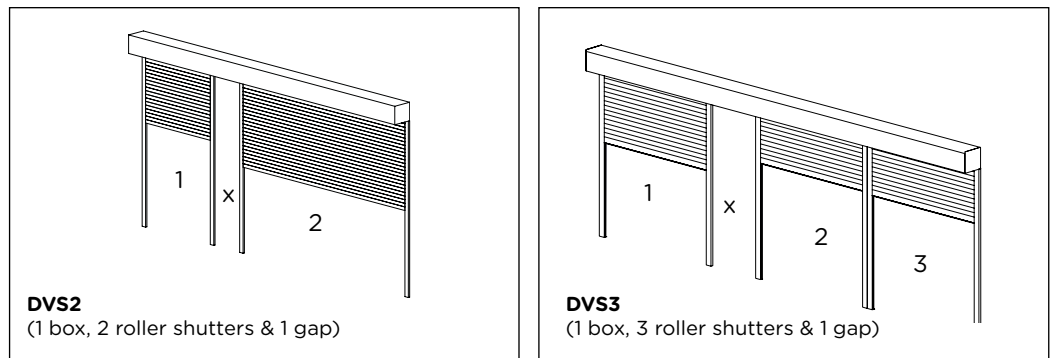
- 1 continuous box for 2 or 3 roller shutters
- individual or collective operation is possible
- maximum box width = 5000 mm
- choice of "real" central guide rails, or central guide rail as a combination of back-to-back lateral guide rails
- 2 options:
 - DVC: directly adjoining roller shutters.
 - DVS: small gap between individual roller shutters (max. gap = 700mm)
- motors can only be fitted to the outer consoles
- the centre section must always be connected to the left or right

Figure 13:
DVC (inside view)



- A central console is used for DVC

Figure 14:
central console for
separate controls



8. SUPPLEMENTS

Brackets

- area of application: see appendix

Ceiling anchors

- required for $b > 1500$ mm
- see appendix: ceiling anchors

Neopor box widening IR

- inside: widening possible from min 15 mm to max 135 mm provided with a white base PVC profile
- outside: widening possible from min 15 mm to max 55 mm
- upper: widening possible max 135 mm

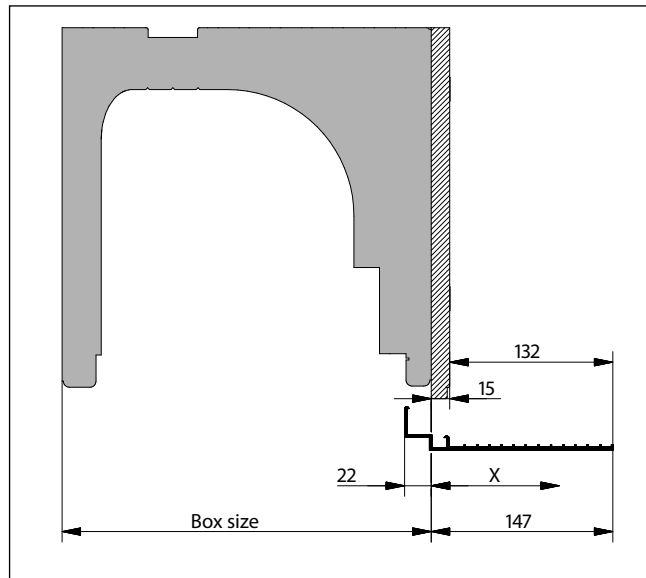


Figure 15:
IR box widening inside

Neopor box widening ER inside/outside/ above

- inside: widening possible from min 15 mm to max 135 mm without a white base PVC profile
- outside: widening possible from min 15 mm to max 55 mm
- upper: widening possible max 135 mm

Widening at end face

- supplied individually
- up to a maximum of 60 mm

Clip profile with positioning tab

- instead of the standard clip profile, there is the optional choice of a clip profile with positioning cam.
- function: is the same as the standard clip profile, i.e. to click the box onto the window

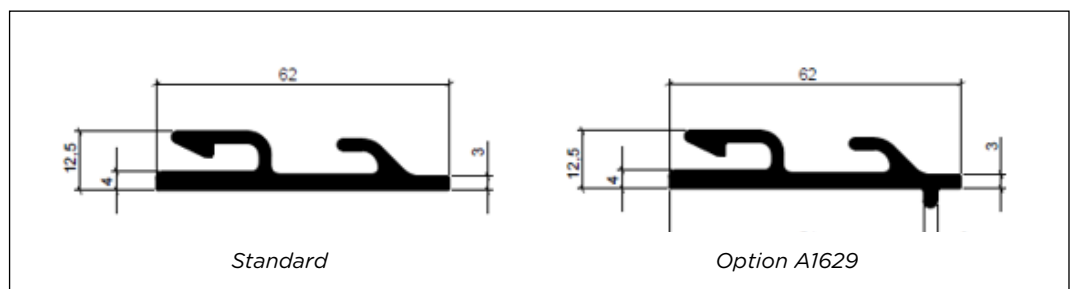


Figure 16:
possible clip profiles

9. GENERAL REMARKS

- The surfaces of the slats can become slightly marked due to friction between the slats during rolling up and rolling down. 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.
Note: a roller shutter never darkens 100%
- 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 shutter curtains that detach as a result of windy or stormy conditions. The installer must take into consideration all precautionary measures necessary to order a product suitable for the installation site.
- Under no condition should the built-on roller shutter be viewed as a structural component that contributes to the reinforcement of the window, regardless of the way the built-on roller shutter is fitted.
- The built-on roller shutter must only be mounted on self-supporting structures that have a sufficient degree of strength to carry a built-on roller shutter.
- 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.
- A roller shutter with a width bordering on the maximum dimensions of the selected slat type increases the risk of bending and a less rigid panel. However, this does not affect the quality of the product.
- In order to obtain a good adhesion between the shutter box and the plaster, the box must be supplied with plaster mesh.
- For non-standard/new window profiles, the first step is to examine how the clip profile should be positioned: with or without a spacer. This may affect the usual delivery time.
- The OB910 box should not be left unfinished in the facade for longer than 3 months after installation.

10. ORDER FORM OB910

Click on the link below:

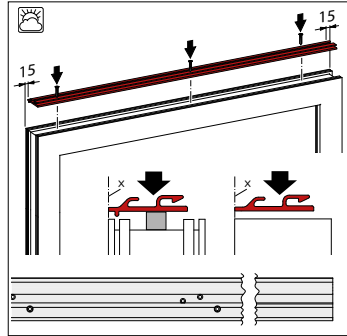
[Order form OB910](#)

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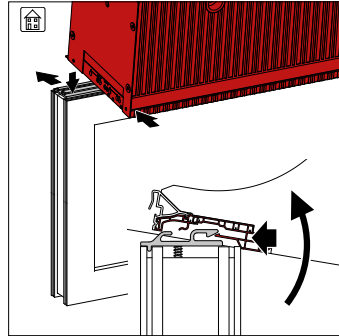
APPENDIX: FITTING THE BOX TO THE WINDOW

The box is fitted to the window in 3 steps:

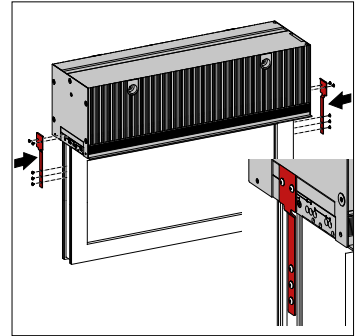
1. screw the fibreglass-reinforced profile onto the window
2. "click" the box onto this profile
3. position the window anchors



Step 1



Step 2



Step 3

APPENDIX: POSITIONING DISTANCE OF NIPPLES RELATIVE TO THE REAR OF THE WINDOW FRAME

The position of the nipple screws depends on the type of guide rail selected.

1. OB910 IR

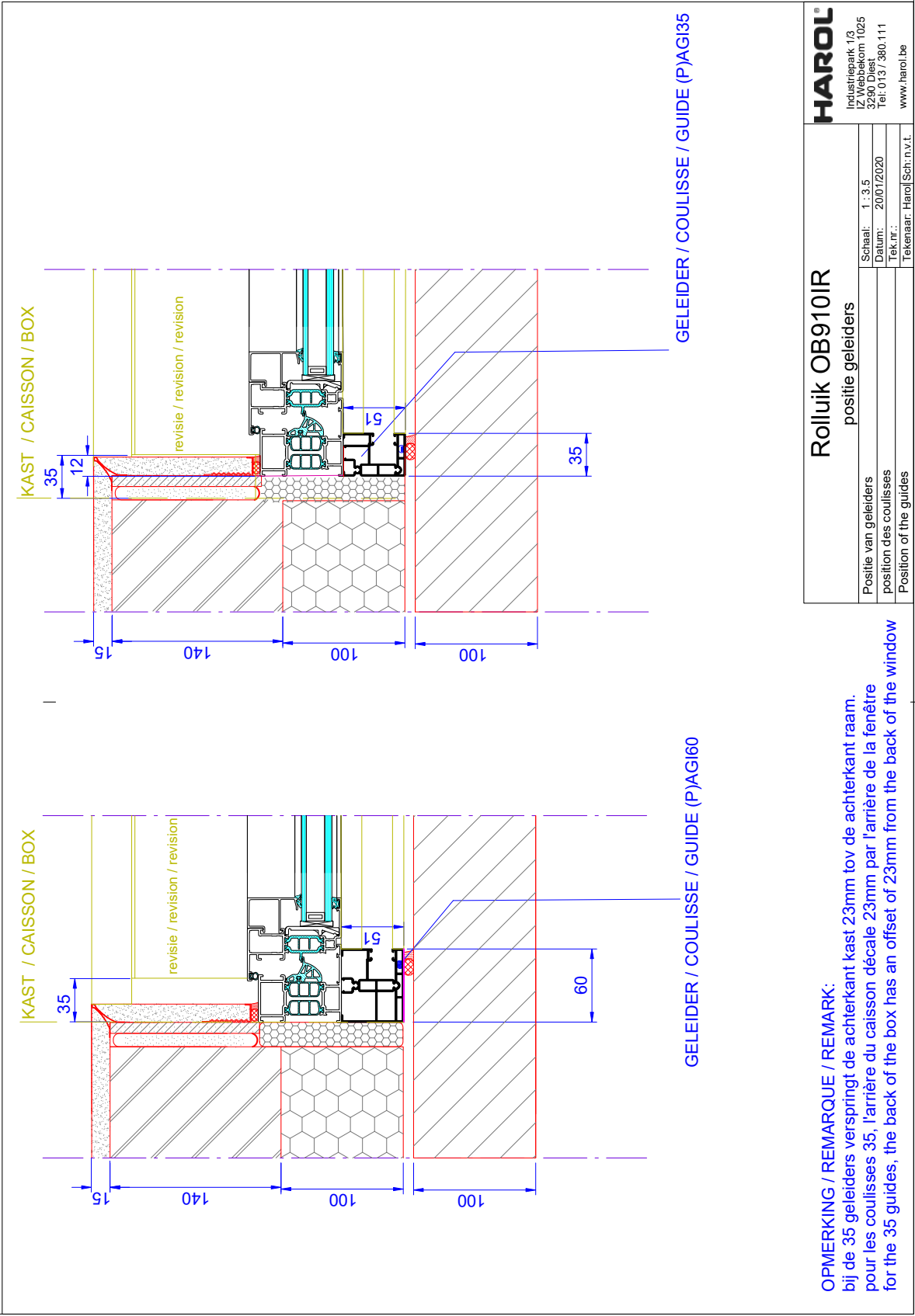
PVC GUIDE RAILS	
PGI60	PGI35
ALU GUIDE RAILS	
AGI60	AGI35

2. OB910 ER

PVC GUIDE RAIL PGE60	ALU GUIDE RAIL AGE60

TECHNICAL SPECIFICATIONS FOR
BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: GUIDE RAIL POSITION FOR OB910 IR



APPENDIX: CEILING ANCHORS

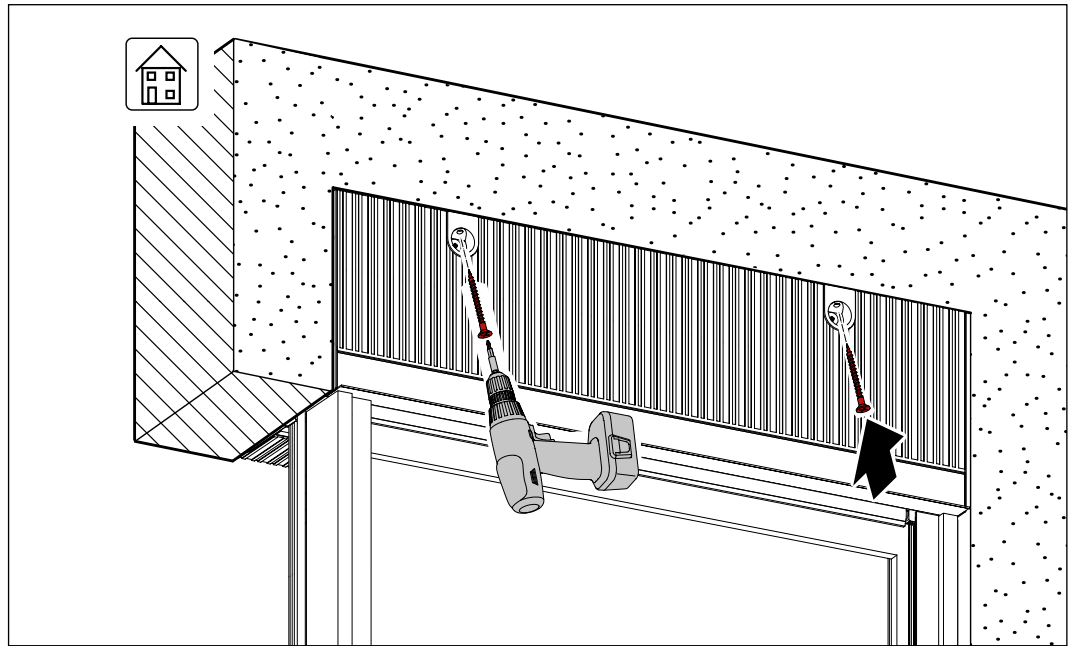


Figure 17:
fitting the
ceiling anchors

- screw the ceiling anchors (optional) against the lintel or ceiling

APPENDIX: GUIDE RAIL STOPS

- the guide rail stops act as a stop if a window sill has not yet been fitted
- after fitting a window sill, the stops must be removed

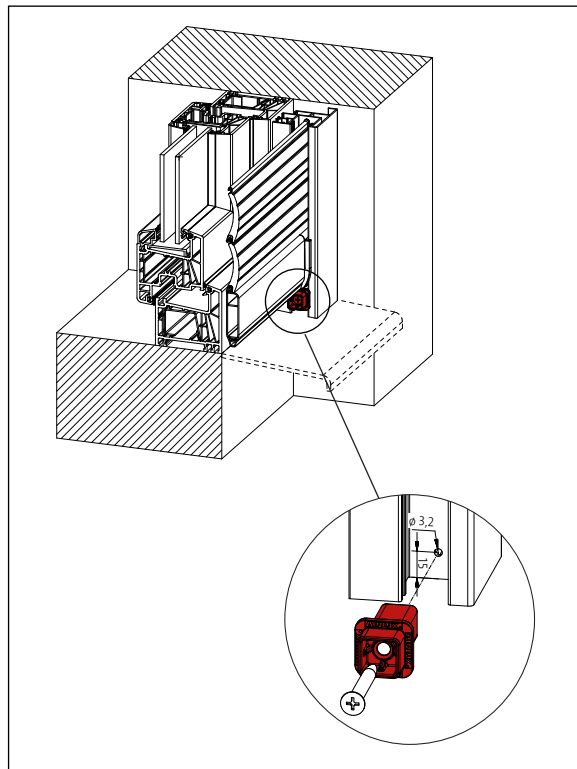


Figure 19:
guide rail stops

APPENDIX: SPRING-LOADED SHAFT END PLUG

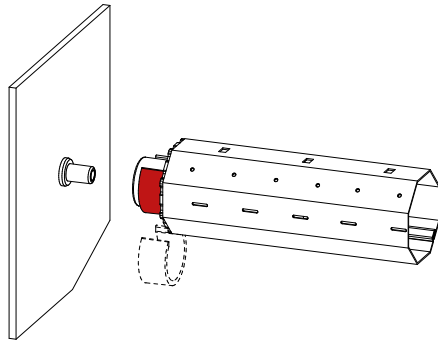


Figure 20:
*spring-loaded shaft end
with locking washer*

- the spring-loaded shaft end plug makes it easier to assemble and disassemble the shaft
- the safety ring prevents the shaft from slipping during transport, for example
- before disassembling the shaft, this ring must first be removed

TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: TABLE FOR THE USE OF BRACKETS

Box size 240-270

H \ W	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420
60	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
100	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
110	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
120	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
130	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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160	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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250	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
260	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
270	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3
280	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4
290	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4
300	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4

Table 9: reinforcements with box 240-270

green	1
beige	2
blue	3
grey	4

TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: TABLE FOR THE USE OF BRACKETS

Box size 278-338

H \ W	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420
60	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
100	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
110	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2
120	0	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	0	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	0	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
150	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3
160	0	0	0	0	0	0	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
170	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
180	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
190	0	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
200	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3
210	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
220	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4
230	0	0	0	0	0	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4
240	0	0	0	0	0	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	4
250	0	0	0	0	0	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4
260	0	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4
270	0	0	0	0	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4
280	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4
290	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4
300	0	0	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4

Table 10: reinforcements with box 278-338

green	1
beige	2
blue	3
grey	4

APPENDIX: GLOSSARY

Lambda value

- symbol λ
- unit W/mK
- name thermal conductivity coefficient
- definition The lambda value represents the heat conductivity of a material.
The higher the value, the better the heat is conducted and therefore the less the material insulates.

R-value

- symbol R
- unit $\text{m}^2 \text{K/W}$
- name for thermal resistance
- definition The R value expresses the thermal resistance of an insulation material, or how the insulating material keeps the heat out. The higher the R-value, the more heat the insulation material retains, and therefore the better it insulates. To determine the R-value of insulation materials, the thickness of the insulation material is divided by the lambda value of the material.

U-value

- symbol U
- unit $\text{W/m}^2\text{K}$
- name thermal transmittance coefficient
- definition The U-value indicates how much heat is lost per m^2 and per time unit at one degree of temperature difference. The U-value is therefore also expressed as $\text{W/m}^2\text{K}$ and should be as low as possible. A low U-value means that very little heat is lost.

Psi-value

- symbol ψ
- unit W/mK
- name linear thermal transmittance coefficient
- definition The Psi value expresses the heat loss that occurs during the transition from structural components of the building envelope. This is the heat that disappears from the inside to the outside at the connections of the structural components. The lower the Psi value, the better the insulation.

fRsi-value

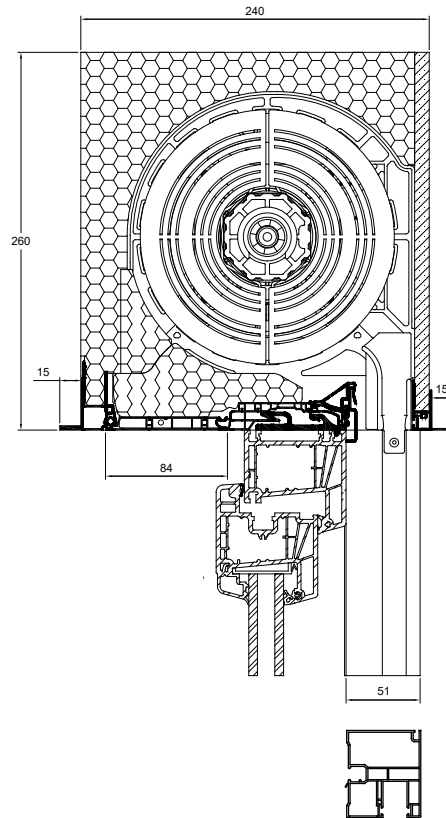
- symbol f_{rsi}
- unit /
- name the surface temperature factor
- definition The f-factor characterises the thermal quality of a construction.
The higher this value, the better the insulation.

Rw-value

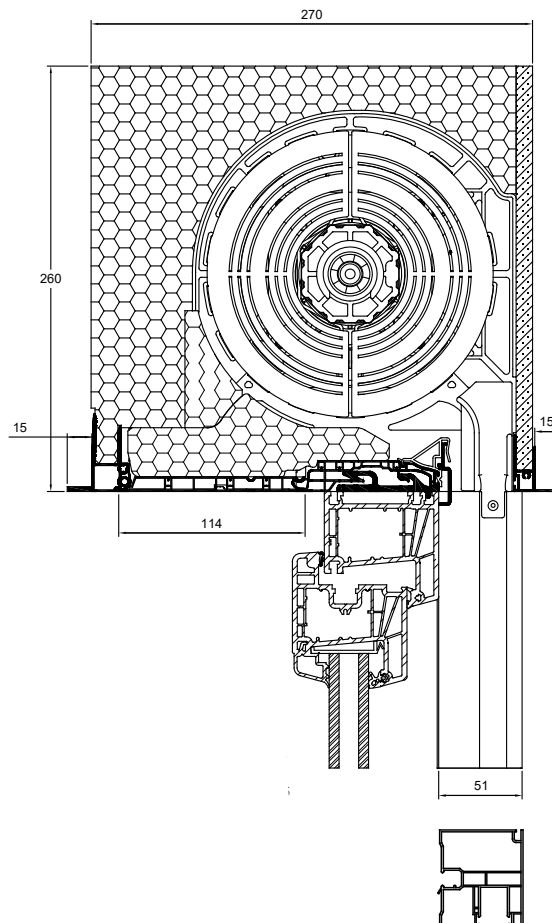
- symbol R_w
- unit db
- name the noise reduction factor
- definition This expresses the insulating ability of a material or of a construction. The higher the R_w -value, the better the sound insulation of the material or construction.

TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 240 IR

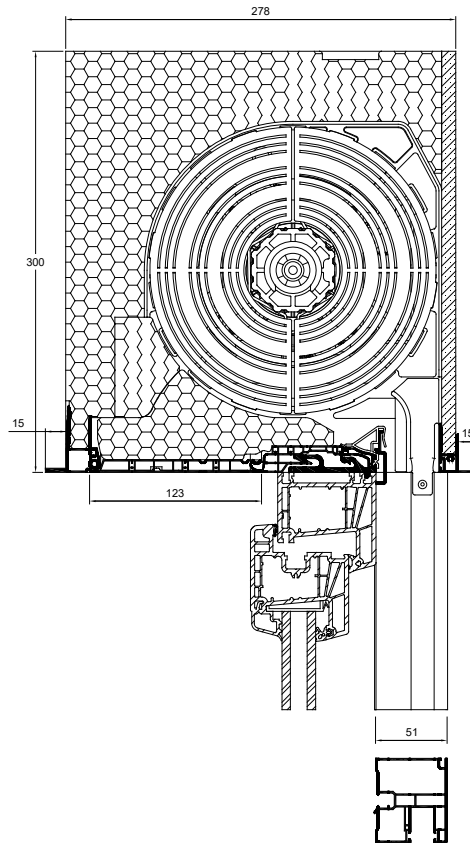


APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 270 IR

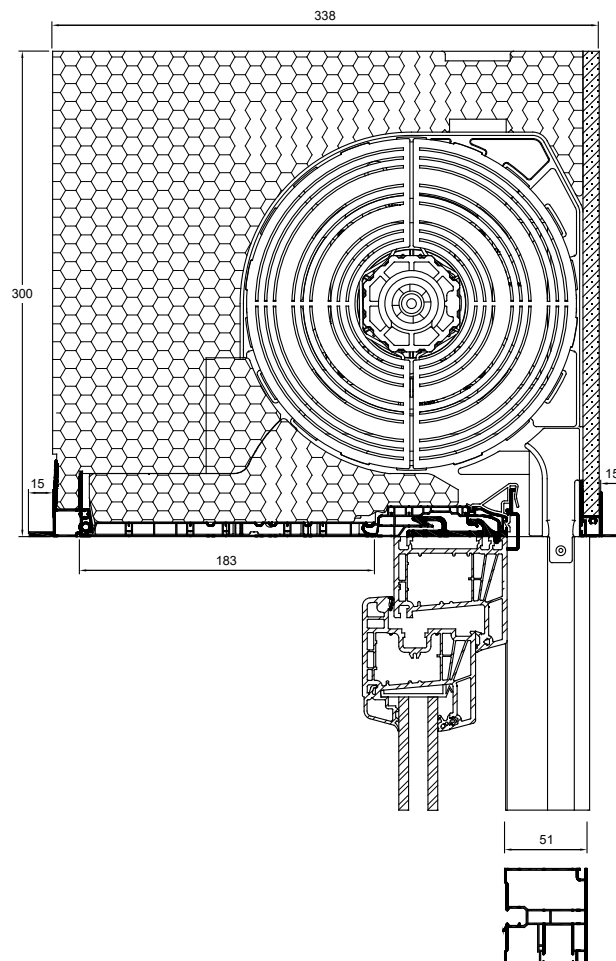


TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 278 IR

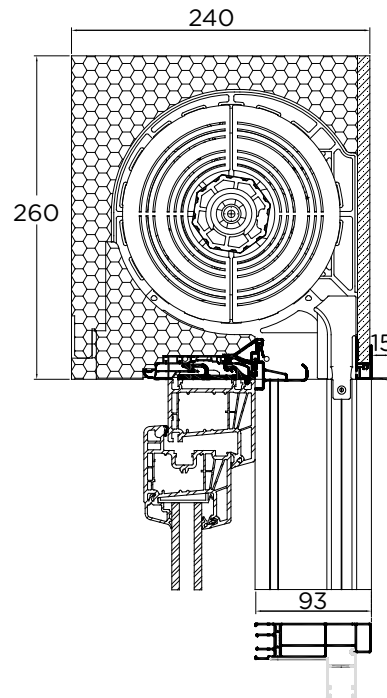


APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 338 IR

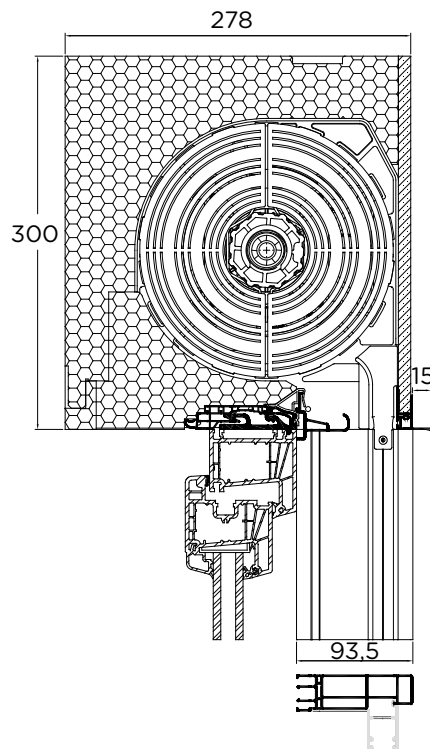


TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 240 ER

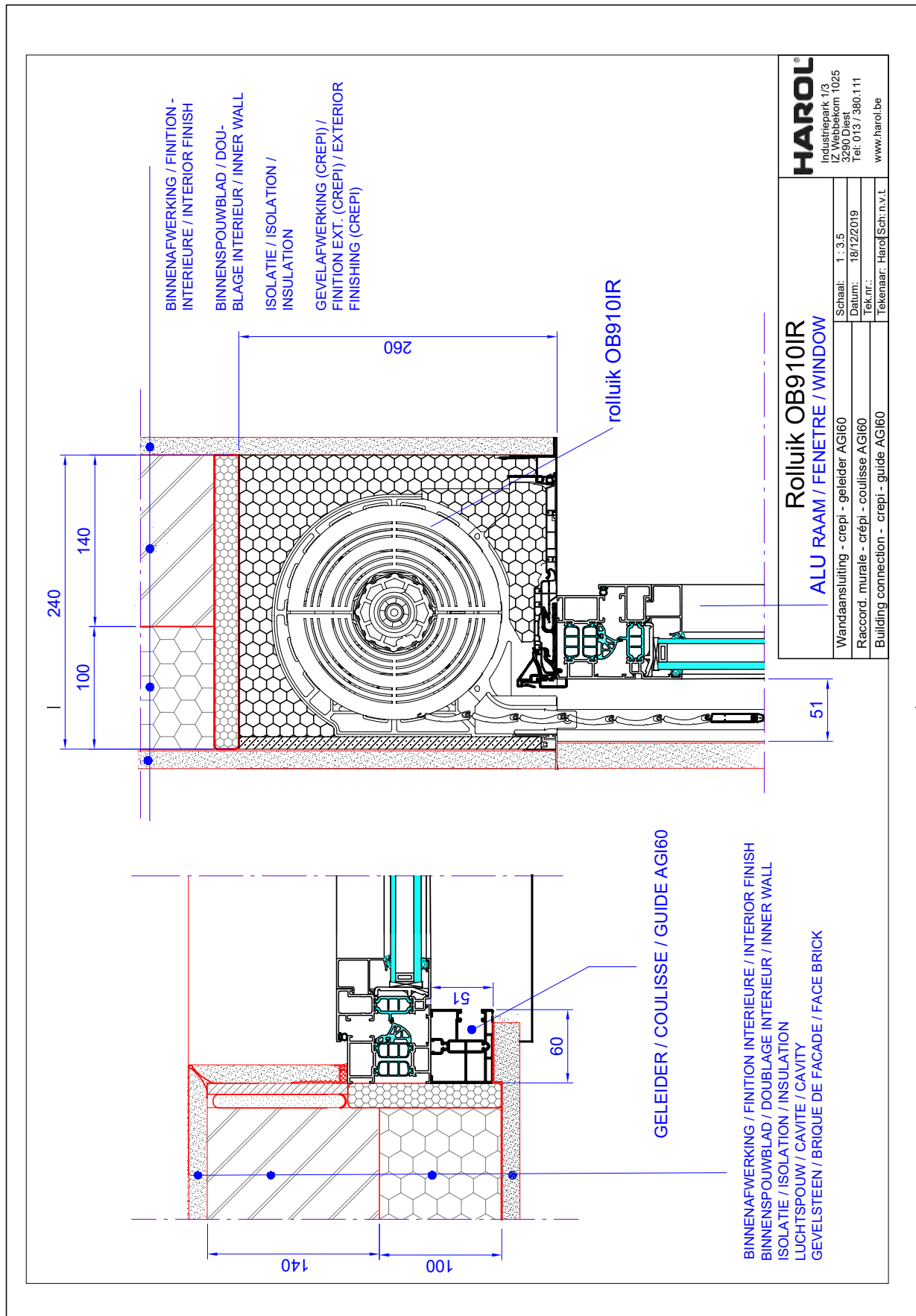


APPENDIX: CROSS-SECTION OF BOX - BOX SIZE 278 ER



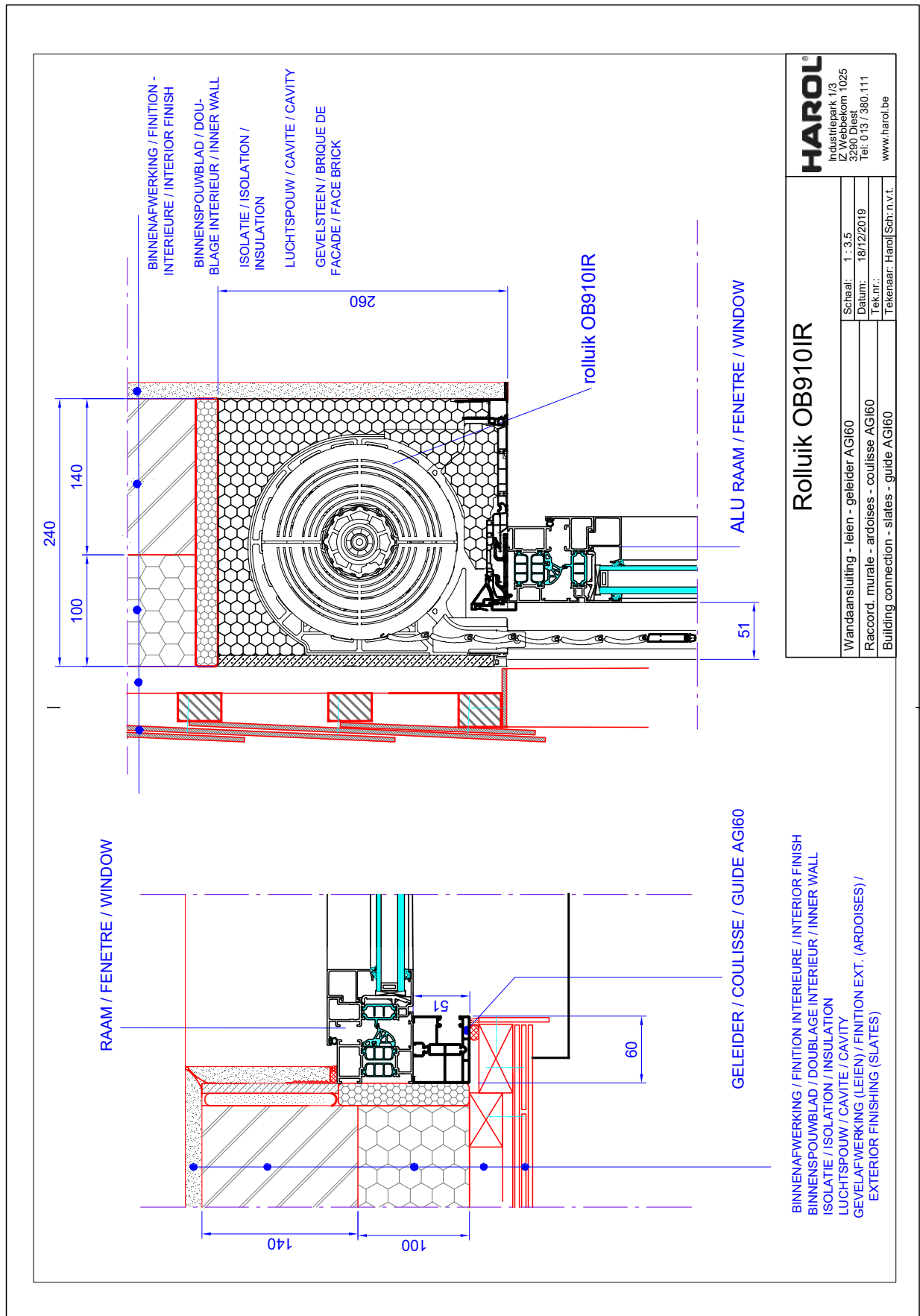
TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

– OB910 IR wall connection for plasterwork



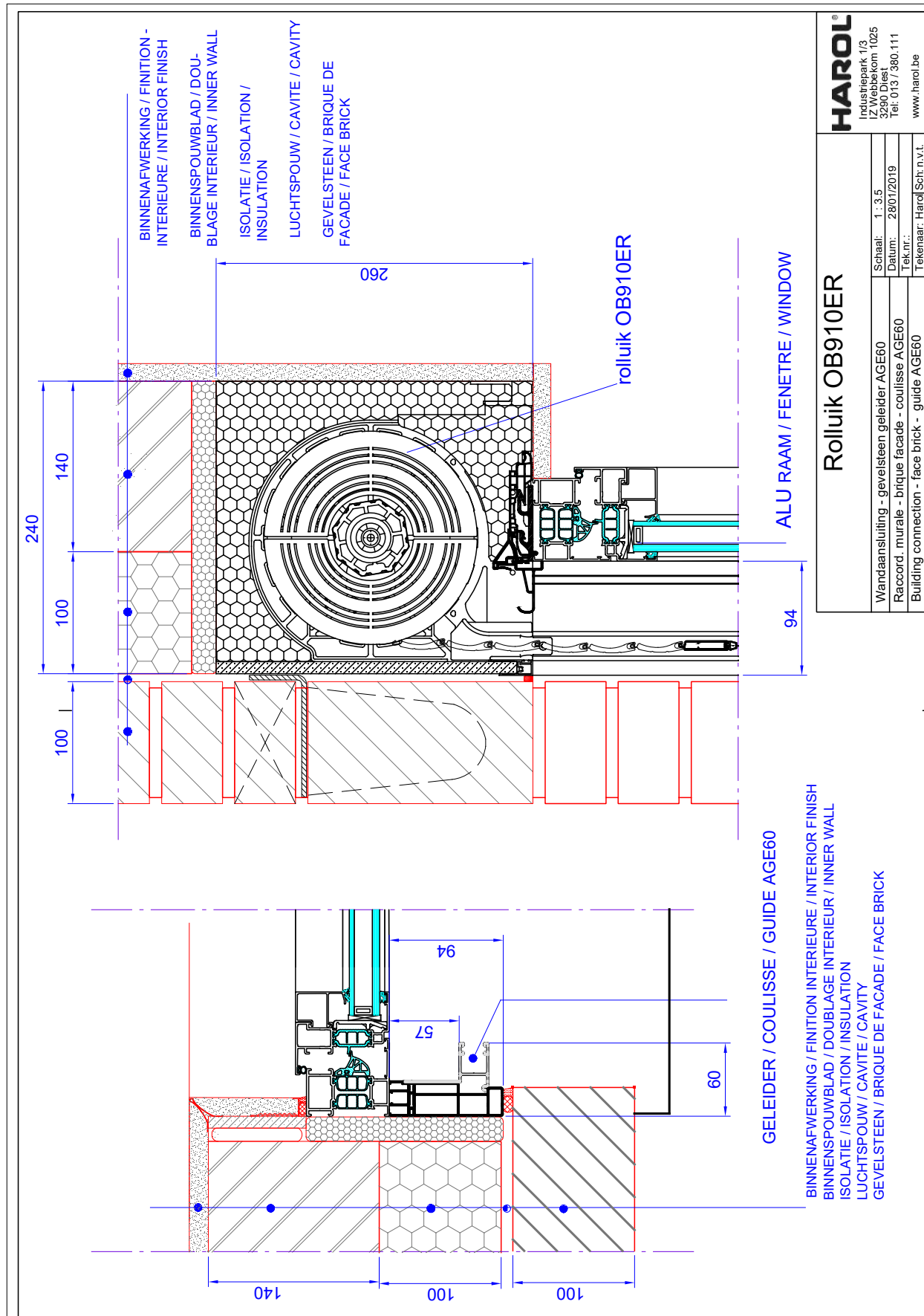
TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

– OB910 IR wall connection for slates



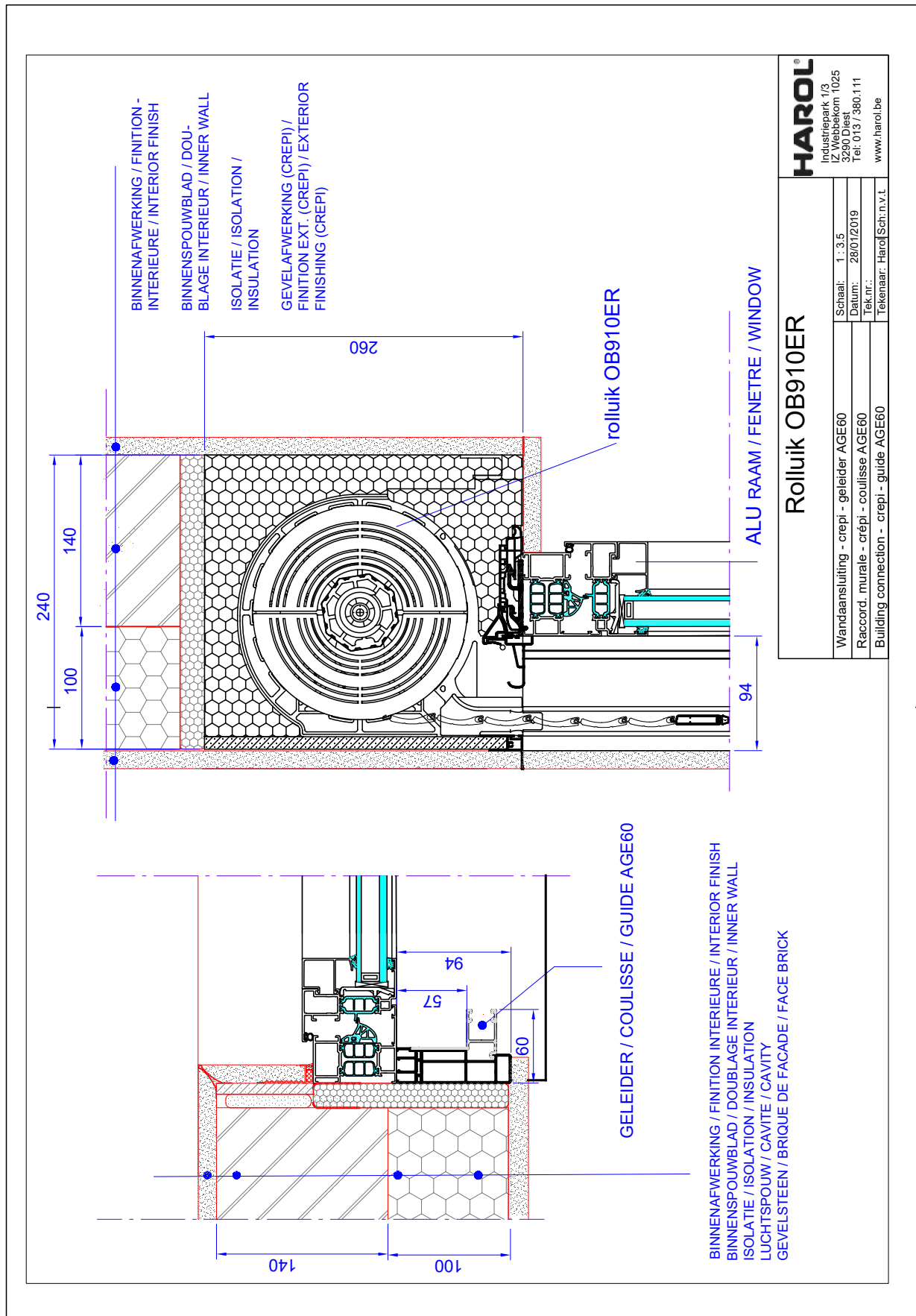
TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

– OB910 ER wall connection for brickwork



TECHNICAL SPECIFICATIONS FOR BUILT-ON ROLLER SHUTTER OB910 THERMO

– OB910 ER wall connection for plasterwork



TECHNICAL SPECIFICATIONS FOR
BUILT-ON ROLLER SHUTTER OB910 THERMO

- OB910 ER wall connection for slates

