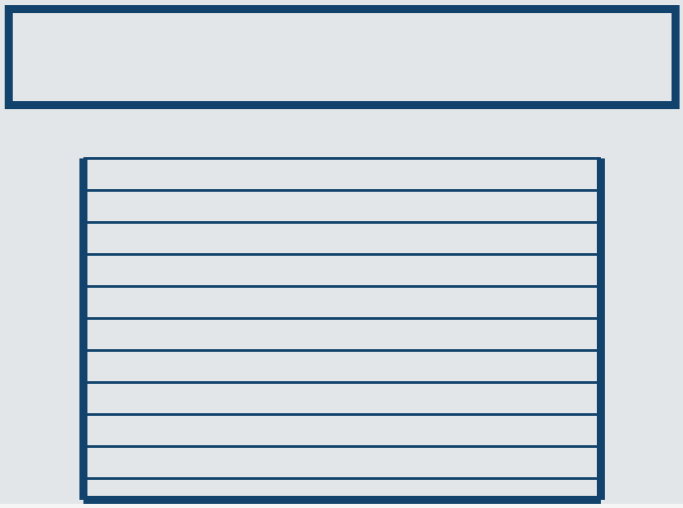
PARAGON SHADING

MADE TO MEASURE SHADING SOLUTIONS

Roller Shutters & Grilles

Measurement Guide

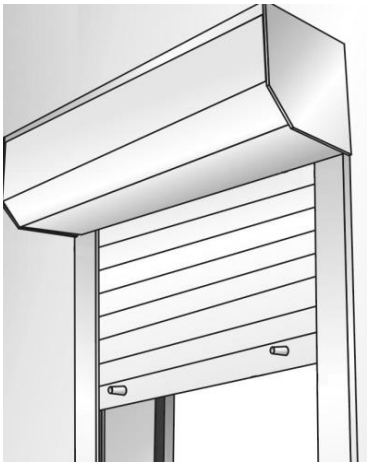
Measurement guidance based on the supplied technical manual. The original measurement diagrams, dimensional examples and source instructions have been retained while the document has been restyled for Paragon Shading.



Roller shutters and grilles

PRODUCT FEATURES:

- **Roller shutters** – it is a mechanical device used on the openings of windows and doors of various objects as:
  - additional protection of the premises from direct sunlight;
  - additional protection against premises overheating in the warm season;
  - additional indoor thermal insulation during the cold season;
  - additional indoor sound insulation;
  - an additional measure to extend the time of unauthorized burglary (by applying additional components);
- The main **construction components of roller shutters:**:
  - profile (aluminum rolled strip profiles filled with polystyrene foam filler);
  - shutter box;
  - guide rails;
  - end slat;
  - gear (manual or electric);
- Roller shutters comply with the company standard ĮST 3466567-001: 2000 "Roller shutter" requirements. The manufacturer performs regular control checks on the production of roller shutters



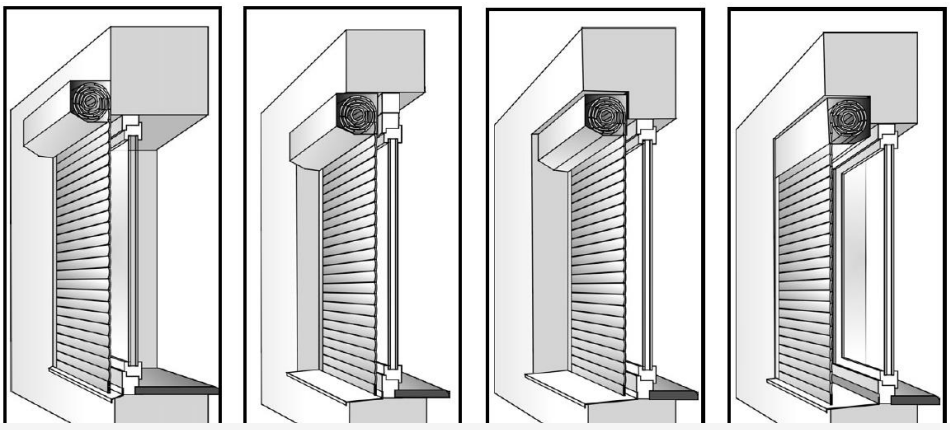
Roller shutter

CONTROL OF PRODUCT:

- Manual control:
  - Lifting rope, rope coiler with spring mechanism;
  - Lifting rope, rope coiler with handle and rotating mechanism;
  - Automatic lifting spring with lock;
- Electric motor control:
  - Control by motor and key switch;
  - Motor and key switch control;
  - Motor control and remote control panel with remote control;
  - Motor control and group (key / remote / timer) control;
- Blocking of the roller shutter profile lifting:
  - „Click-Stop" automatic fixation, used only for manual and mechanical controls;
  - The fixation is installed every 50-60 cm, used only for motor control (not used with Ø40 mm tube).

PRODUCT MOUNTING OPTIONS:

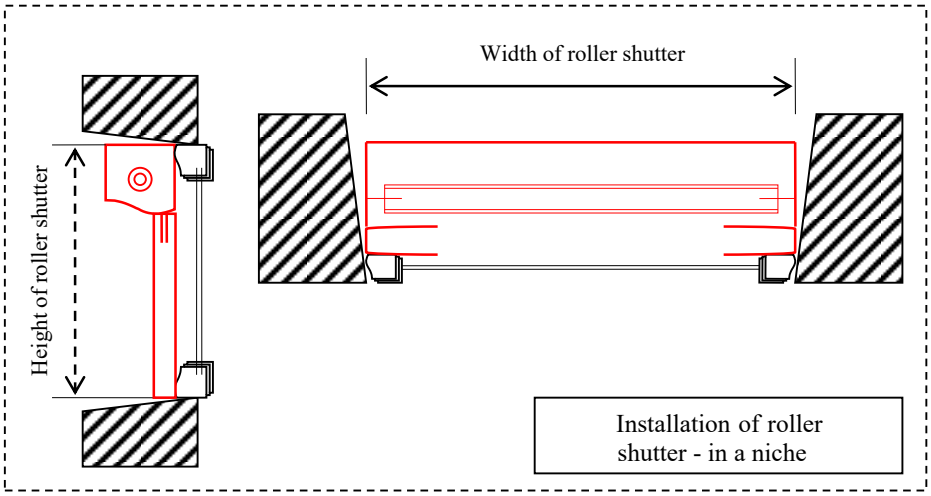
- Roller shutters can be installed both outside the building (the most common and efficient method of installation) and inside (when it is not possible to install outside). The box and guide rails can be mounted in the opening or on the opening.



Roller shutters and grilles

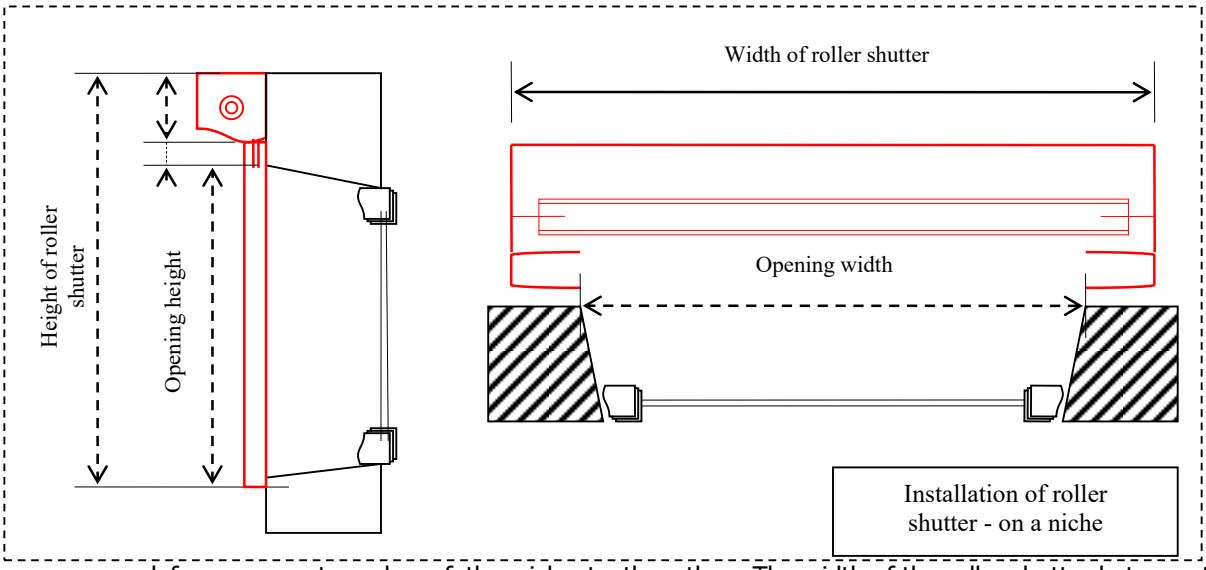
PRODUCT MEASUREMENT – IN A NICHE:

- **Width** – measured from one inner edge of the niche to the other. The distance between the inner edges of the opening is indicated on the order form. The width of the roller shutter must be measured between the edges of the opening in the several places and the smallest dimension should be chosen;
- **Height** – measured from one inner edge of the niche to the other. The distance between the inner edges of the opening is indicated on the order form. The height of the roller shutter must be measured between the edges of the opening in the several places and the smallest dimension should be chosen;
- **Attention!** When measuring, the extent to which the roller shutter box and the end slat of the rolled-up roller shutter will cover the light gap of the opening must be assessed (see table for dimensions).



PRODUCT MEASUREMENT – ON A NICHE:

- When measuring the roller shutters, it is necessary to assess the extent to which the roller shutter box and the end slat of the roller up roller shutter must be raised above the opening so as not to cover the light gap (see table).



- **Width** – measured from one outer edge of the niche to the other. The width of the roller shutter between the edges of the opening must be measured in several places – if the opening is not rectangular, in this case it is necessary to agree with the customer from which place to measure - from the narrowest or widest dimension of the

Roller shutters and grilles

- **AR/39N, PD/45N** profiles roller shutters = *Width + 53 mm x 2 = Width + 106 mm;*
- **AER/44S** profile roller shutters = *Width + 60 mm x 2 = Width + 120 mm;*
- **PD/55mN** profile roller shutters = *Width + 65 mm x 2 = Width + 130 mm;*
- **AEG/56** profile roller grills = *Width + 75 mm x 2 = Width + 150 mm;*
- **AEG/84** profile roller grills = *Width + 90 mm x 2 = Width + 180 mm*;
- In the order form is specified the total dimension of the opening and the two guide rails.

➢ **Height** – measured from the outer upper edge of the niche to the lower edge (window sill). The height of the roller shutter must be measured between the edges of the opening in several places - if the opening is not rectangular, then it is necessary to agree with the customer which place to measure - from the narrowest or widest dimension of the opening. The sum of the height of the mechanism box and the end slat (mm) must then be added to the height of the roller shutter.

PRODUCT TECHNICAL CHARACTERISTICS

Profile	AR/39N	PD/45N	PD/55mN	AER/44S	AEG/56	AEG/84
Thickness, mm	8,5	8,5	11,0	9,0	13,5	19,0
Height, mm	39	45	55	44	56	84
Weight, kg/m	0,096	0,091	0,141	0,276	0,348	0,598
Weight, kg/mÂ²	2,46	2,02	2,56	6,27	6,22	7,12
Qty, pcs/m (for height)	25,6	22,2	18,2	22,7	17,86	11,90
Width of the profile is smaller than the product width, m	0,075	0,075	0,08	0,075	0,095	0,105
Max. shutter width, m	2,9*	3,3*	4,0*	4,3*	3,0	5,5
Max. shutter surface m²	5,7*	6,6*	11,9*	12,8*	7,5	16,5
Colors	01, 03, 09, 13	01, 03, 09, 13	01, 03, 09, 13	01, 03, 09, 13	01, 03, 09, 13	01, 03, 09, 13

*in winds of less than class 1 (10.6 m / s), according to EN13659 classification

Product wind resistance class according to EN13659

Profile	AD/39N		PD/45N		PD/55mN		AER/44S	
Wind resistance class according to EN13659	**Max. shutter width, m**	**Max. shutter surface, m²**	**Max. shutter. width, m**	**Max. shutter surface, m²**	**Max. shutter width, m**	**Max. shutter surface, m²**	**Max. shutter width, m**	**Max. shutter surface, m²**
1 (10,6 m/s)	3,04	9,12	3,3	6,6	4	11,9	4,3	12,8
2 (13,6 m/s)	2,82	8,46	3,0	6,0	3,6	10,8	4,0	11,9
3 (16,9 m/s)	2,43	7,29	2,5	5,0	3,1	9,3	3,4	10,1
4 (20,5 m/s)	2,09	6,26	2,2	4,3	2,7	8,2	2,8	8,4
5 (24,4 m/s)	1,82	5,46	1,8	3,7	2,3	7,0	2,5	7,4
6 (32,5 m/s)	1,59	4,76	1,6	3,3	2,0	6,1	2,3	6,8

PRODUCT COLORS (box, guides, end slat, profile)

Name	Color code	Close color equivalent by RAL
White	01	9016
Grey	03	7038
Brown	09	8014
Anthracite	13	7016



Roller shutters and grilles

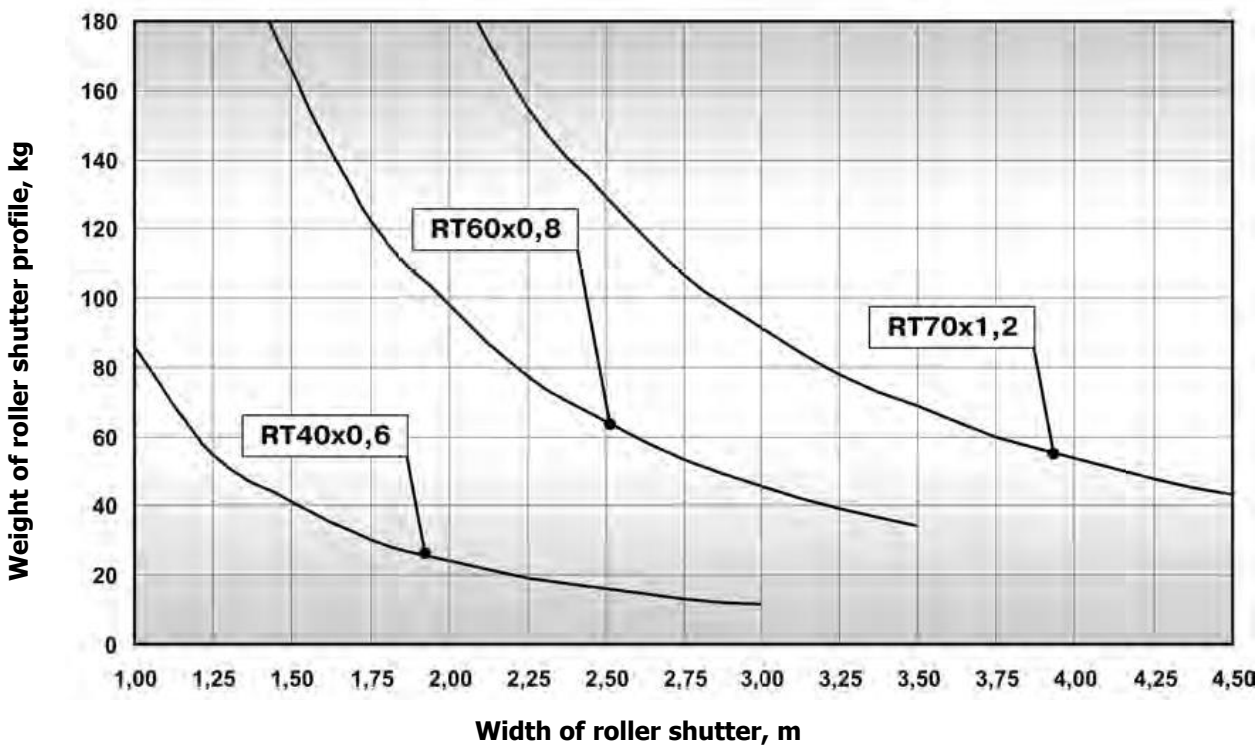
ROLLER SHUTTERS TUBE SELECTION:

- According to the different dimensions of each roller shutter, the technical conditions require to select the appropriate type of roller shutter profile, tube, guide rails and box during the manufacturing process. The tube is selected according to the weight of the roller shutter profiles (total profiles):

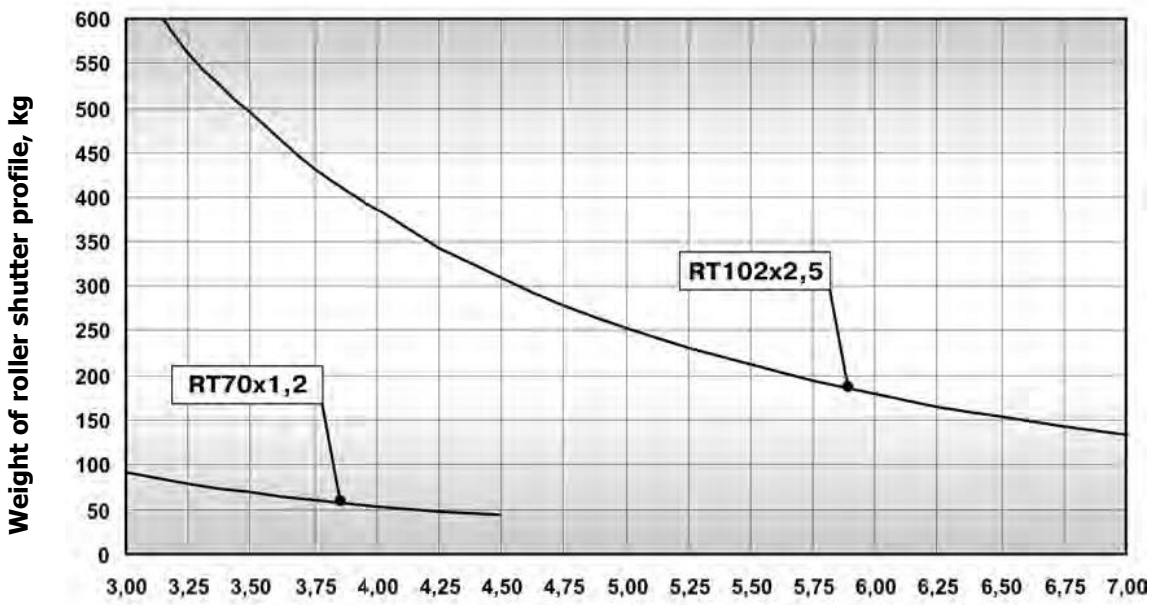
  S = P x A x M, *where*

  S *– profile weight, kg*
  P *– width of roller shutter, m*
  A *– height of roller shutter, m*
  M *– 1 m² profile weight, kg/m².*

- The result is compared with the tube selection diagram. The diagram shows the point of intersection of the lines corresponding to the width of the roller shutter and the weight of the profile of the roller shutter.
- From the obtained point, the nearest tube must be selected, always looking at the top (right) nearest line.
- **Attention!** The tube that is below (to the left) the corresponding point of the roller shutter in the diagram cannot be selected!
- **The following tube types are available:**
  - RT 40 x 0,6
  - RT 60 x 0,8
  - RT 70 x 1,2
  - RT 102 x 2,5



Roller shutters and grilles



MAXIMUM HEIGHTS OF ROLLER SHUTTERS AND GRILLES ACCORDING TO BOXES AND TUBES

AR/39N aluminum profile		
	Tube Ø**40** mm (RT40x0.6)	Tube Ø**60** mm (RT60x0.8)
Box	Retainer spring with rings RD40	Retainer spring with rings RD60
SB45/137	1560	1131
SB45/150	1989	1872
SB45/165	2418	2301
SB45/180	2964	2808
SB45/205	4017	3861

PD/45N aluminum profile		
	Tube Ø**40** mm (RT40x0.6)	Tube Ø**60** mm (RT60x0.8)
Box	Retainer spring with rings RD40	Retainer spring with rings RD60
SB45/150	1755	1575
SB45/165	2610	2070
SB45/180	3105	2925
SB45/205	4140	4005

PD/55mN aluminum profile		
	Tube Ø**60** mm (RT60x0.8)	Tube Ø**70** mm (RT70x1.2)
Box	Retainer spring with rings RD60	Retainer spring with rings RD70
SB45/165	1045	1045
SB45/180	1815	1485
SB45/205	2365	2695

Roller shutters and grilles

AER/44S extruded aluminum profile							
	Tube Ø**40** mm (RT40x0.6)	Tube Ø**60** mm (RT60x0.8)		Tube Ø**70** mm (RT70x1.2)		Tube Ø**102** mm (RT102x2,5)	
Box	Retainer spring with rings RD40	Retainer spring with rings RD60	Retainer profile with rings RD60	Retainer spring with rings RD70	Retainer profile with rings RD70	Retainer spring with rings RD102	Retainer profile with rings RD102
SB45/137	1150	---	---	---	---	---	---
SB45/150	1240	1020	1328	---	---	---	---
SB45/165	1590	1410	1718	---	---	---	---
SB45/180	2120	2200	2332	2200	2288	1452	1628
SB45/205	3440	3260	3260	2860	2860	2508	2728
SB45/250	---	5240	5240	4710	5326	4268	4796

AEG/56 extruded aluminum profile (Grilles)		
	Tube Ø**70** mm (RT70x1.2)	Tube Ø**102** mm (RT102x2,5)
Box	Retainer profile	Retainer profile
SB45/250	4648	4032
SB45/300	6496	5992

AEG/84 extruded aluminum profile (Grilles)	
	Tube Ø**102** mm (RT102x2.50)
Box	Retainer profile with rings RD102
SB45/250	2436
SB45/300	4536
SB45/360	6384

Roller shutters and grilles

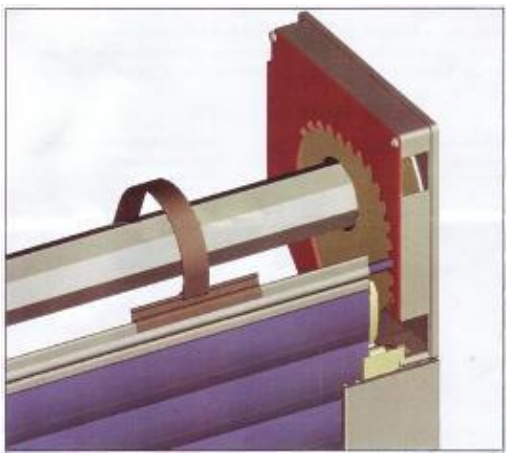
SELECTION OF ROLLER SHUTTERS AND GRILLES MOTOR POWER ACCORDING TO PROFILE WEIGHT

Motor torque	Maximum permissible load with Ø40 tube, when shutter height is			Maximum permissible load with Ø60 tube, when shutter height is		
	1,5 m	2,5 m	3 m	2 m	3 m	4 m
10 Nm	21 kg	19 kg	18 kg	18 kg	16 kg	15 kg
30 Nm	-	-	-	54 kg	49 kg	46 kg
40 Nm	-	-	-	72 kg	65 kg	59 kg
50 Nm	-	-	-	87 kg	82 kg	75 kg

Motor torque	Maximum permissible load with Ø70 tube, when shutter height is			Maximum permissible load with Ø102 tube, when shutter height is		
	3 m	4 m	5 m	3 m	4 m	5 m
10 Nm	14 kg	12 kg	10 kg	-	-	-
30 Nm	40 kg	36 kg	32 kg	-	-	-
40 Nm	52 kg	48 kg	44 kg	-	-	-
50 Nm	66 kg	60 kg	54 kg	-	-	-
80 Nm	104 kg	96 kg	90 kg	95 kg	89 kg	83 kg
100 Nm	-	-	-	117 kg	110 kg	104 kg
140 Nm	-	-	-	133 kg	123 kg	112 kg

CLICK-STOP BLOCKING OF ROLLER SHUTTERS AND GRILLES

Click-Stop – it is an automatic protection of the shutters against lifting the shutter profiles. The shutter profiles are locked at the top when the blind is closed and it is not possible to lift them.



Click-Stop system applicability:

Roller shutters profiles:

- AR/39N, PD/45N, PD/55mN ir AER/44S;

Roller shutters control:

- Manual gear;
- Mechanical gear;

Roller shutters boxes:

- SB45/137, SB45/150, SB45/165, SB45/180, SB45/205;

The blocking system consists of:

- a set of side plates screwed to the side covers of roller shutter;
- a blockade profile inserted into the upper profile of a roller shutter;
- blockade nozzles inserted into the blockade profile and performing a locking function when the shutter is lowered;
- Retainer springs of roller shutter, which extends the profiles from the center (tube);

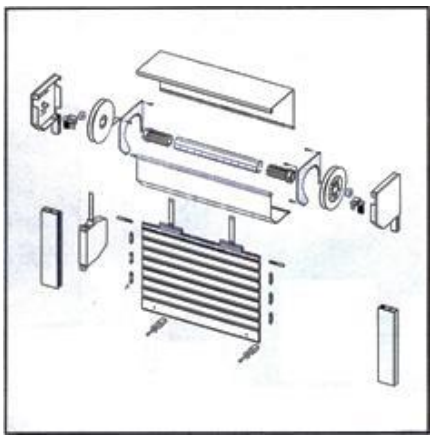
Advantages of the new Click-Stop system:

- **Click-Stop** is more modern than the old systems - "manual (hand latch lock) and automatic locking devices";

Roller shutters and grilles

- **Click-Stop** blockade can be applied to all roller shutters control options.

Click-Stop blockage for shutters with manual and mechanical control



ROLLER SHUTTERS MARKING IN THE ORDER FORM

a) „Seq. No."
- it is recommended to order no more than 6 roller shutters in one order (where possible, roller shutters for different rooms should be ordered separately to make it easier to know which blinds are intended for which room);
- it is recommended to record the sequence numbers according to the order of measurement - for example, starting from the left side of the room and measuring all the roller shutters in sequence;

b) „Width, m."
- each roller shutter must be measured to the nearest millimeter and the exact width of the roller shutter in meters must be indicated on the order form (three decimal places) - from one edge (external dimension of the product) to the other edge;

c) „Height, m."
- each roller shutter must be measured to the nearest millimeter and the exact width of the roller shutter in meters must be indicated on the order form (three decimal places) – from the upper edge of the box (outer dimension of the product) to the lower edge of the guide rails of the roller shutter;

d) „Area, m^2"
- the total area of one roller shutter (width x height) is calculated;

e) „Type – profile"
- one selected type of profile is indicated (its height in millimeters) from which the roller shutter will be made (variants are indicated in the tables above);

f) „Type – box"
- selected type of box is indicated (its height in millimeters). When selecting the box, it is necessary to take into account the the profile, weight and tube types of the roller shutter (the calculation method is given in the tables above);

g) „Type – guide rails"
- the type of guides (their width in millimeters) is indicated, the selection of which is important when installing the shutter on the wall opening, when the internal dimension of the guides matches to the width of the opening (calculation methods are given in the tables above, and types are listed in additional suppliers components catalogs);

h) „Color"
- the required color of the components of the blind is specified;
- different colors of the profiles, box, end slat, guides can be combined as needed, but it is recommended to choose the same color for the box and end slat, as the end slat does not rolls up inside the box and the end slat is visible from the outside;
- the standard color codes are given in the table above;

i) „Gear – manual"
- control of the roller shutter with a lifting rope with a coiler box with a spring mechanism;

j) „Gear – mechanical"
- control of the roller shutter with a lifting rope with a coiler box with a lifting handle attached to it;

Roller shutters and grilles

k) „Gear – motor"

- type of the engine and the amount of torque is indicated;
- the motor can be standard and with an integrated internal remote unit, so when selecting the motor type, the control option for the roller shutters (key, remote control or groups) must also be considered;

l) „Control – relay"

- relays are electrical contact devices. The relay contacts connects and switches off when they receive an electrical impulse from another electrical device (normal switch, key switch, etc.);
- the relay contacts turns the electrical circuits on and off. The relays control the motors according to the principle: "on - stop - off".
- the relay must be selected with the following devices - pulse switch, key switch or when controlling two motors (switches) with one key switch;

m) „Switch"

- the pulse switch works on the principle that when the key is pressed, the switch circuit connects the relay contacts and the motor rotates in the opposite direction than before. Pressing the key again stops the motor. When pressed again, the motor rotates again in the opposite direction, than before, to its end position. In this way, the pulse is sent in a circle according to this course - "up" "stop" "down" "stop", etc.;
- the normal switch operates on the principle that as long as the corresponding direction button is pressed, the motor rotates in the corresponding direction. When the button is released, the engine stops. A separate button is required for each of the required directions of rotation of the motor. When the end position is reached, the motor switches off automatically (even if the power switch button is pressed);
- the key switch operates on the same pulse switch principle (a relay must be selected at the same time);

n) „Locking device"

- Hand latch lock (**H**) is fixed mechanically (manually) and fixes the end slat to the guide edges. In order to raise the profile of the roller shutter, it is necessary to open the window and unlock the shutter by hand again;
- Automatic lock (**A**) with the help of the spring, the end slat is locked in the guides when the profile is lowered, thus the bottom of the profile is locked at the edges;
- „Click-stop" (**CS**) – This is an automatic protection of the roller shutters against lifting the shutter profiles. The profiles of the roller shutter are locked at the top when the shutter is lowered and it is not possible to lift them. It is a more modern system than other locking devices;

o) „Spring"

- this type of control is selected together with the key lock when the end slat is locked when the profile is lowered and the profiles are strained by the springs. When the lock is unlocked, the profiles are rolled up onto the tube by means of a spring. Furniture handles are added to the spring mechanism, which are installed to the end slat to make it easier for the customer to pull the shutter down;

p) „Lock"

- the lock is placed in the center of the end slat and the lock cylinder is facing outwards depending on the selected mounting option (A, B or C);

r) „Accessories at the bottom"

- Guide rail at the bottom (**GB - guide bottom**) used to form the overall frame of the product and the end slat to rest in its end position, falling into the horizontal guide cavity, thus reducing the possibility of lifting the end slat from the outside;
- End angle at the bottom (**EB - end angle bottom**) used to allow the end slat to rest in its end position, to slip behind the end angle, thus reducing the possibility of lifting the end slat from the outside;

s) „Control side"

- the control side is always indicated when viewed from inside the room - left (**L**) or right (**R**);
- if the desired control side is selected, the control devices - the rope, the gear shaft or the motor wiring - will be routed on that side;

t) „Mounting option and hole position"

- **A**x – for wall mounting, on the window opening with the front of the box facing the outside and the guides installed directly into the wall;
- **B**x – for installation in the opening, at the window frame, when the front of the box is facing the outside, and the guides can be installed to the window frame or to the edge of the opening, depending on the situation;
- **C**x – for mounting in the opening, at the edges of the opening, with the back of the box facing the outside and the guides screwed to the edge of the opening;
- x**1** – the controls are routed to the back of the box, at the bottom of the box, to the guide edge;
- x**2** – the controls are routed to the front of the box, at the bottom of the box;
- x**3** – the controls are routed to the front of the box, at the top of the box;

u) „Notes"

- all other features of the installation location, roller shutter, control are indicated here;
- In the notes the diameter of the tube selected for the roller shutter must be specified, also the type of spring and the wiring diagram for the remote controls (supplier);
- it is recommended to indicate the installation features (rack height, etc.).