MURAX P110 SHUTTERS

MURAX 110

FULL SHUTTER

MICROPERFORATED SHUTTER

"For maximum protection"

- **For industrial or commercial premises, or garages**
- **Simple, safe and effective closing mechanism**
- **Excellent value for money**
- **Manual or motorized operation**
- **Lacquered or galvanized steel slats**
- **Full or microperforated slats**
- **Slat pitch: 110 mm**
- **Slat thickness: 6, 8,10 or 12/10th**

In compliance with European standard ★ EN 13241 + A2

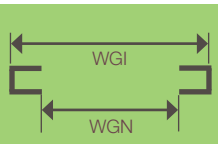
LA TOULOUSAINE

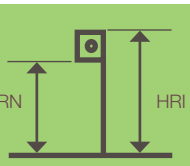
DESCRIPTION

Limits of use

	WIDTH (WGI) MM		HEIGHT (HRN) MM	WEIGHT (W) KG
MIN.	Manual 750	Motorised 810	800	17
MAX.	13,660		10,500*	1,200

* For Murax Microperforated Shutters: HRN max. = 7,000 mm
WGI max. = 12,160 mm





WGN = Width guiding rails not included
WGI = Width guiding rails included
HRN = Height rolling not included
HRI = Height rolling included

Installation layouts

The Murax 110 can be:
- wall-mounted
- installed between walls

The Murax 110 can be rolled:
- Inward : the shaft and the hollow part of the slats are facing the inside of the building.
- Outward : the shaft and the hollow part of the slats are facing the outside of the building.

Shutter

In top-quality galvanized steel

	SLATS (PROFILE REMOVED)	END SLAT
SLAT PITCH	110 mm	125 mm
STRUCTURE	Full or microperforated slats (33% gap)	Full slat
FINISH	• Galvanised (275 g/m²) • Prelacquered, similar to ral : 7016/ 8017/ 9005 / 9010 • Epoxy lacquer RAL of your choice (optional)	Same as the slats
THICKNESS	6, 8, 10 et 12/10th * depending on the dimensions and shutter type or the specific requirements of the site	• 20/10th in galvanized steel • 15/10th in prelaquered, galvanized steel similar to RAL: 7016 / 8017 / 9005 / 9010
LOCKING SYSTEM		All our Murax 110 shutters are equipped with a European cylinder lock and 2 anchor points**
CORNER PIECES		**1 corner piece 50 x 25:** • Galvanized Murex 110 if 4,000 mm ≤ WGN < 5,000 mm • Lacquered Murex 110 if 3,000 mm ≤ WGN < 5,000 mm **2 corner pieces 50 x 25:** • Galvanized Murax 110, if WGN ≥ 5,000 mm • Lacquered Murax 110, if WGN ≥ 5,000 mm

* For full slats only

** For shutters with WGN ≥ 6,000 mm, 2 locks are mounted on either side of the end slat with 2 micro switches (provided).

Guiding rails

Standard :
- U-shaped
- In galvanized steel
- Thickness 25/10th
- 60×30×60, 80×30×80 depending on the dimensions or specific requirements of the site.
  (40×30×40 upon request only)

"G80" for shutters exposed to the wind or for security shutter:
- G-shaped
  (with clamps depending on the dimensions)
- In galvanized steel
- Thickness 30/10th
- 80×50×80
- Shutter is keyed into the guiding rails with steel hooks

With the Vision mixing or noise reduction option, the minimum guiding rail dimensions are 60×30×60

Types of operation

TYPES OF OPERATION	SHAFTS	
DIRECT PULL (or with rod)	Spring-loaded	• Galvanized steel carrier tube Ø 60 mm • Galvanized steel spring spools Ø 220 mm • Galvanized steel curved profiles to ensure better rigidity of the shaft and better distribution of forces • "Stopchute"® depending on the shutter weight (EN 13241 + A2)
AXIAL OPERATOR (or central)		
TUBULAR OPERATOR	Hollow	• Steel tube of Ø 133 mm or Ø 168 mm depending on the width and weight of the shutter • Direct drive operator (non-balanced shaft) • Anti-fall guard on opposite side to operator
EXTERNAL OPERATOR	Hollow	• Steel tube of Ø 133 mm or Ø 273 mm depending on the width and weight of the shutter • Direct drive operator (non-balanced shaft) • Anti-fall guard integrated into operator

® Patented system

If the weight of the shutter is less than or equal to 120 kg, balancing is carried out without "Stopchute". Standard EN 13241 + A2 allows an imbalance of less than or equal to 20 kg. Therefore, our shafts have been recalibrated with springs whose force is less than or equal to 20 kg.

Winding plates

- Made of **galvanized steel**: the plates support the shaft.
- Their **dimensions and thicknesses** vary according to the shutter characteristics.

Operating modes

- **Sustained pressure operation:**
  Control device that requires continuous manual operation to function, within sight of the door: opening, closing.
- **Pulse operation for ascent and sustained pressure operation for descent:**
  This operation corresponds to what was formerly known as combined operation under French standard NFP 25362; it relates to pulse operation under current standard EN 13241 + A2.
- **Pulse operation:**
  Control device that requires a brief manual action to initiate movement: opening, stopping or closing.
- **Automatic operation:**
  The door can be operated without any manual effort (with a time delay system or a magnetic loop that triggers movement, for example).

Two additional factors must be taken into consideration:
- **The user:** trained or untrained
- **The installation site:** whether it is in a public area or not

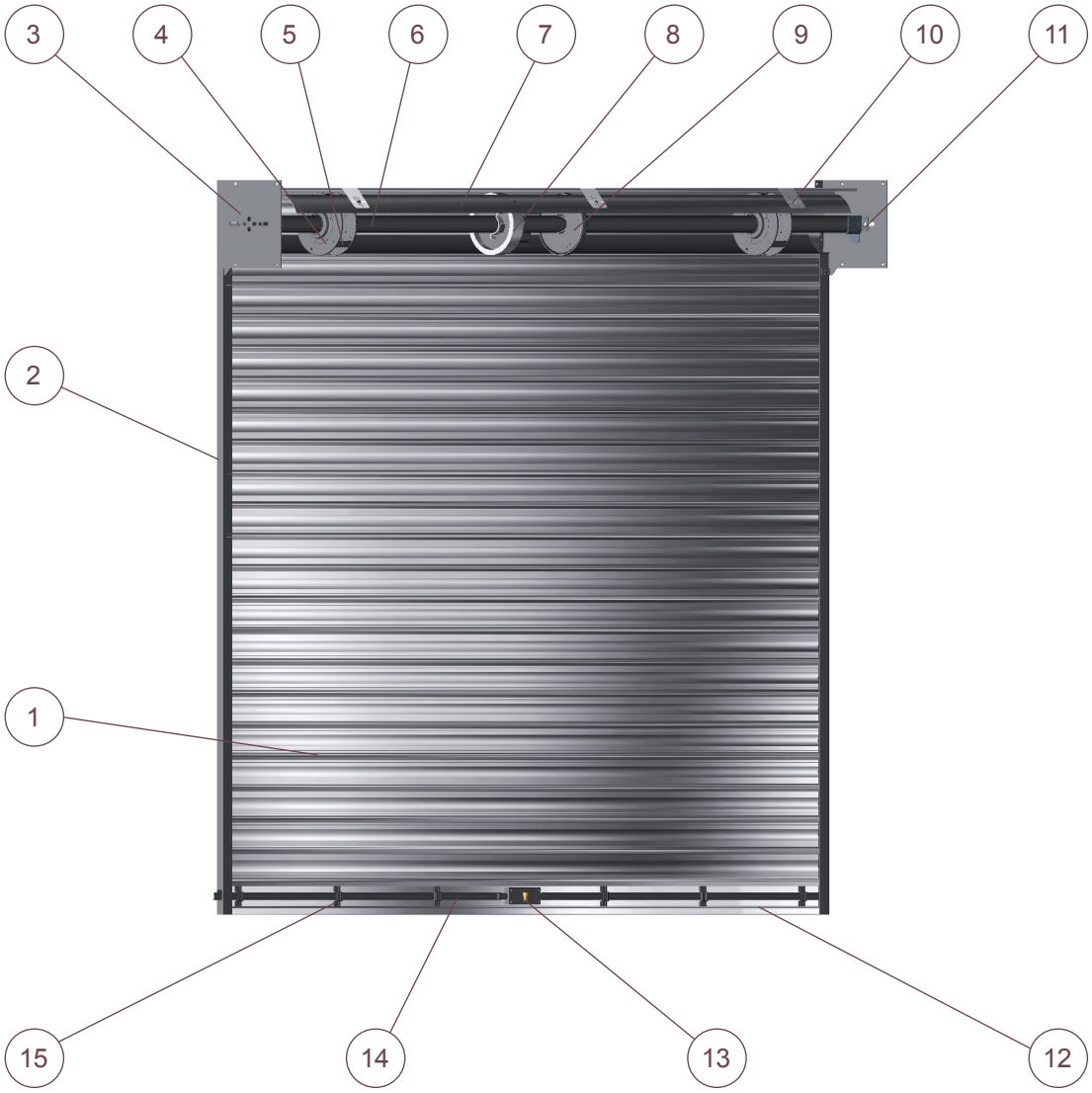
The two above points determine the safety protocol to be followed.

A user is considered to have been "trained" if the installer has given them instructions on how to use the product.
European standard EN 13241 + A2 requires that a user guide and a maintenance logbook be provided with each installation.

- **Standard:**
  All our shutters have been checked by a certified body and are CE labeled (EN 13241 + A2).

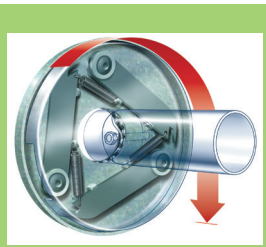
PARTS LIST

Shutter with spring-loaded shaft

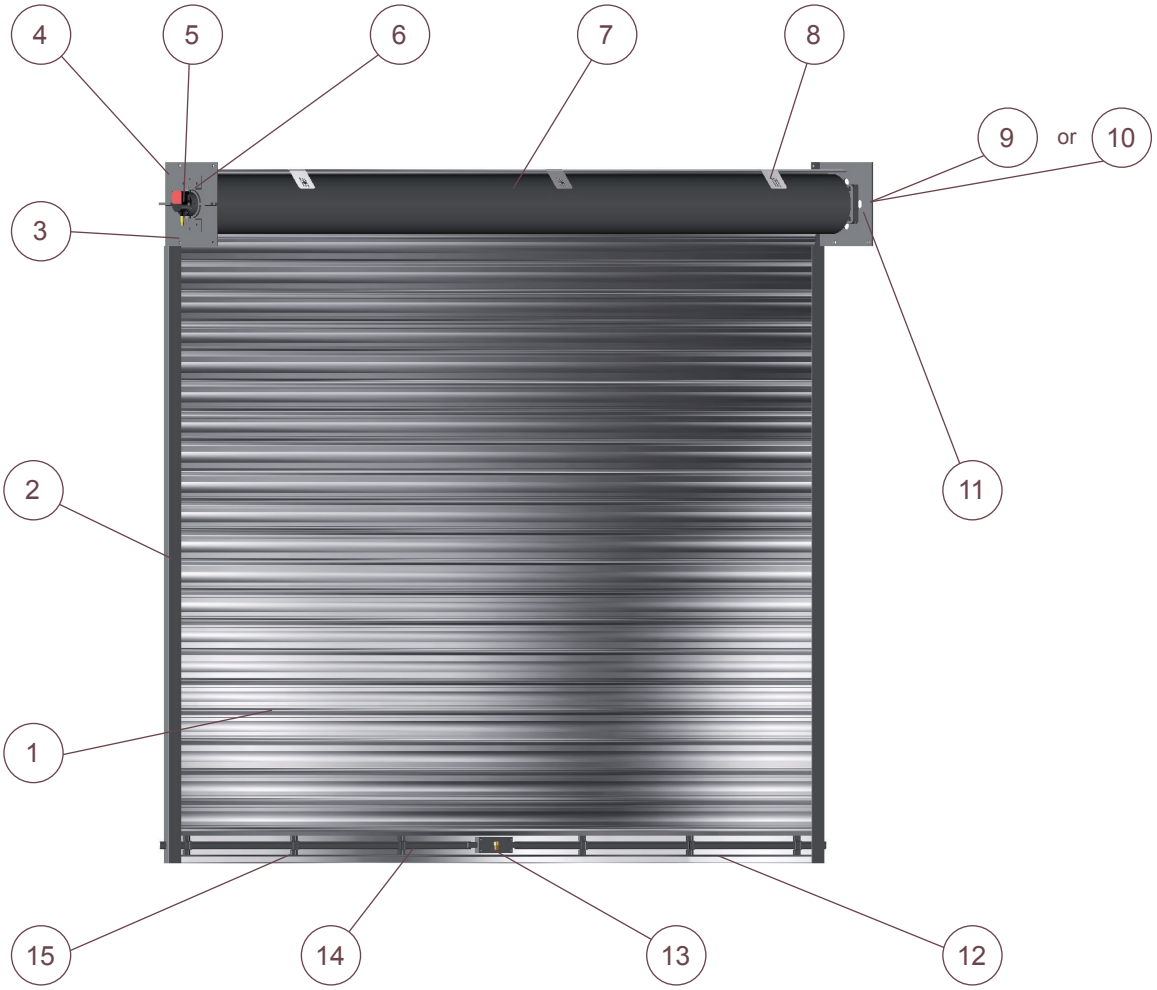


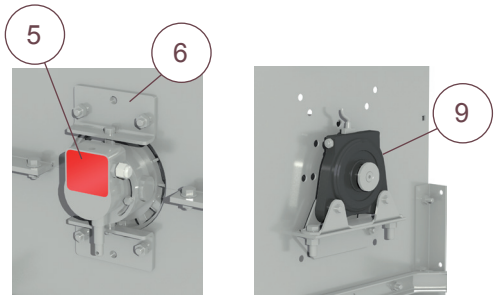
1. Shutter
2. Guiding rail
3. Winding plate
4. Spring spool
5. Spring
6. Tube
7. Curved profile
8. Axial operator
9. "Stopchute"®
10. Shutter clip
11. Shaft support bracket
12. End slat
13. European cylinder lock
14. Lock rod
15. Rod guide

All our spring-loaded shafts for shutters heavier than 120 kg are equipped with "Stopchute"® (EN 13241 + A2).

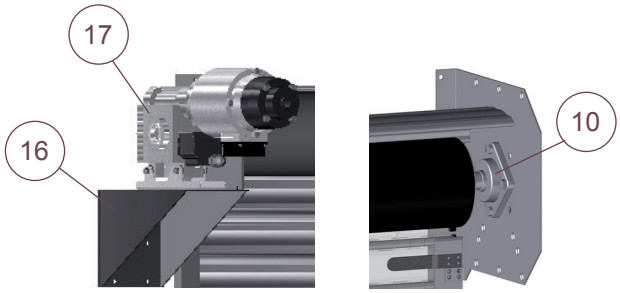


Shutter with hollow shaft





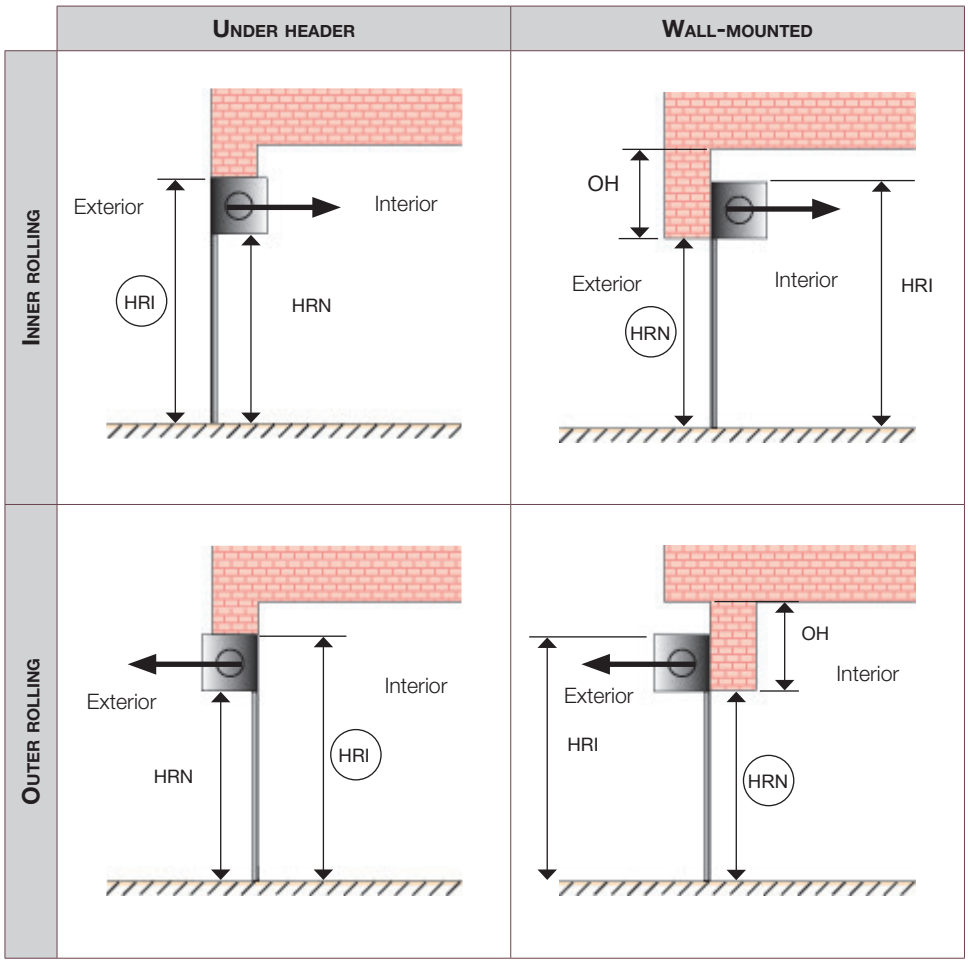
Tubular operator
(T15M / T20M / T25M / T30M / T35M / T45M)
Ringed tubular operator
(TB20M / TB25M / TB30M / TB35M / TB45M)

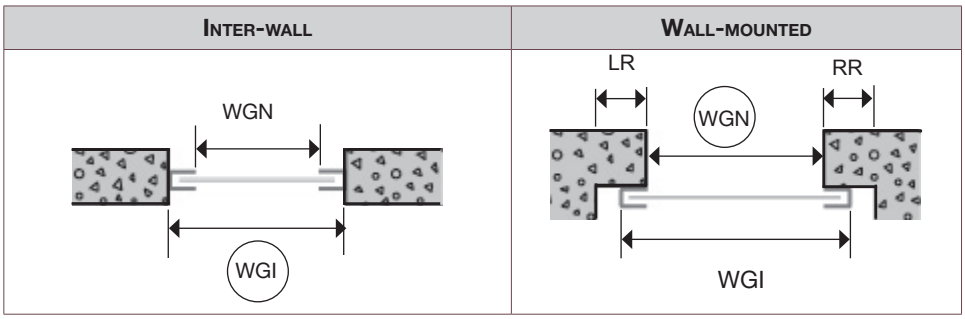


Gear operator
(E400 / E750 / S100 / S140 / S2000)

1. Shutter
2. Guiding rail
3. Lower half winding plate on operator side (OS)
4. Upper half winding plate on operator side (OS)
5. Tubular operator
6. Tubular operator support
7. Hollow shaft
8. Shutter clip
9. Anti-fall guard with support for tubular operator.
10. Bearing opposite side to gear operator
11. Winding plate opposite side to operator (OO)
12. End slat
13. European cylinder lock
14. Lock rod
15. Rod guide
16. Gear operator support
17. Gear operator

SHUTTER INSTALLATION LAYOUTS





WGN = Width guiding rails not included
WGI = Width guiding rails included
HRN = Height rolling not included
HRI = Height rolling included
OH = Overhead height
LR = Left reservation
RR = Right reservation

For inter-wall installations, be mindful of the operator reservations or anti-fall guards.

The installation layouts are always provided from the interior view.

You must provide us with the encircled dimensions according to the layout.

SHUTTER

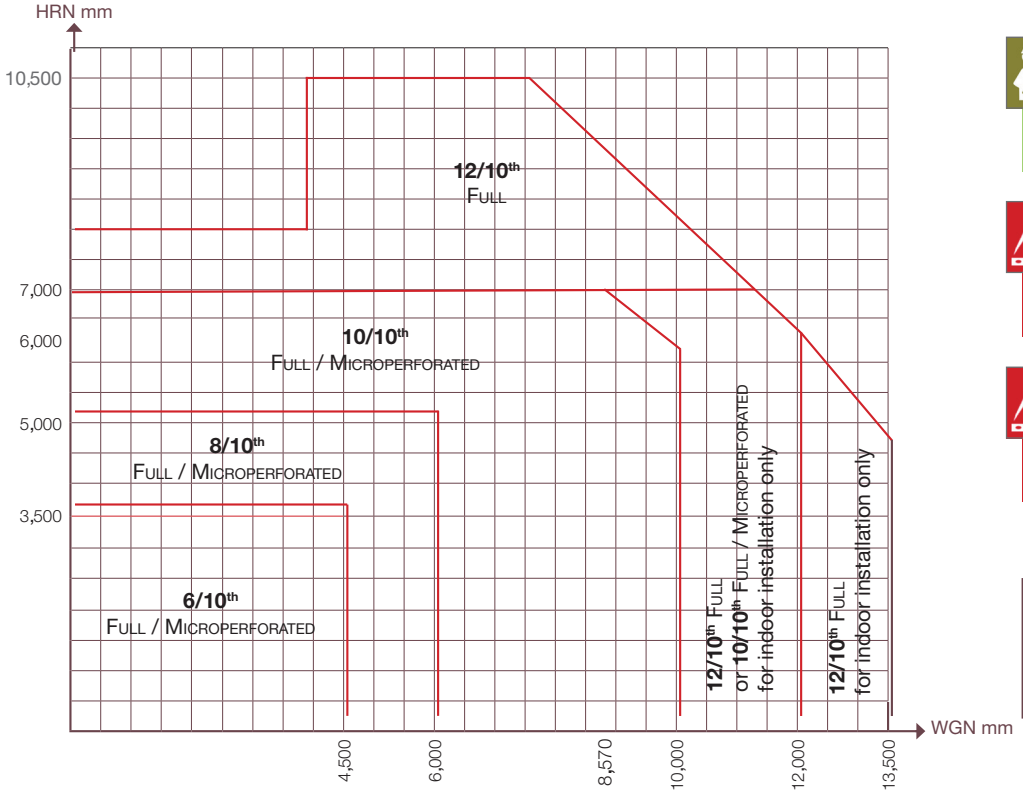
Slat thickness

- **Available slat thicknesses according to shutter type**

SHUTTER	6/10th	8/10th	10/10th	12/10th
GALVANIZED, FULL	x	x	x	x
PRELACQUERED, WHITE, FULL (SIMILAR TO RAL 9010)	x	x	x	
PRELACQUERED, FULL (SIMILAR TO) RAL: 7016 / 8017 / 9005		x		
GALVANIZED, MICROPERFORATED OR PRELACQUERED, WHITE SIMILAR TO RAL 9010	x*	x*	x	
PRELACQUERED, MICROPERFORATED (SIMILAR TO) RAL: 7016 / 8017 / 9005		x*		

* Not to be used on Ø 133 mm shaft (option for thicker shafts or those wider in diameter)

- **Minimum slat thicknesses according to shutter height (HRN) and width (WGN)**



WGN = Width guiding rails not included
HRN = Height rolling not included

Dentel mixing not compatible if HRN ≥ 8,000 mm

Noise reduction clips not compatible if HRN > 7,000 mm

If the dimensions fall exactly on the limits provided, our quote will be based on the smaller thickness.
For example:
Shutter WGN 4,500 mm x HRN 2,500 mm → Thickness 6/10th

Shutter weight

The shutter weight can be calculated approximately using the formula:
W (kg) = WGI (m) × HRI (m) × Weight (kg/m²) (see table below)

THICKNESS	WEIGHT (KG/M²)		MAX. SURFACE AREA (M²)
	FULL	MICROPERFORATED	
6/10th	10	8	15.75
8/10th	12	10	30
10/10th	14	12	60 *
12/10th	16		84

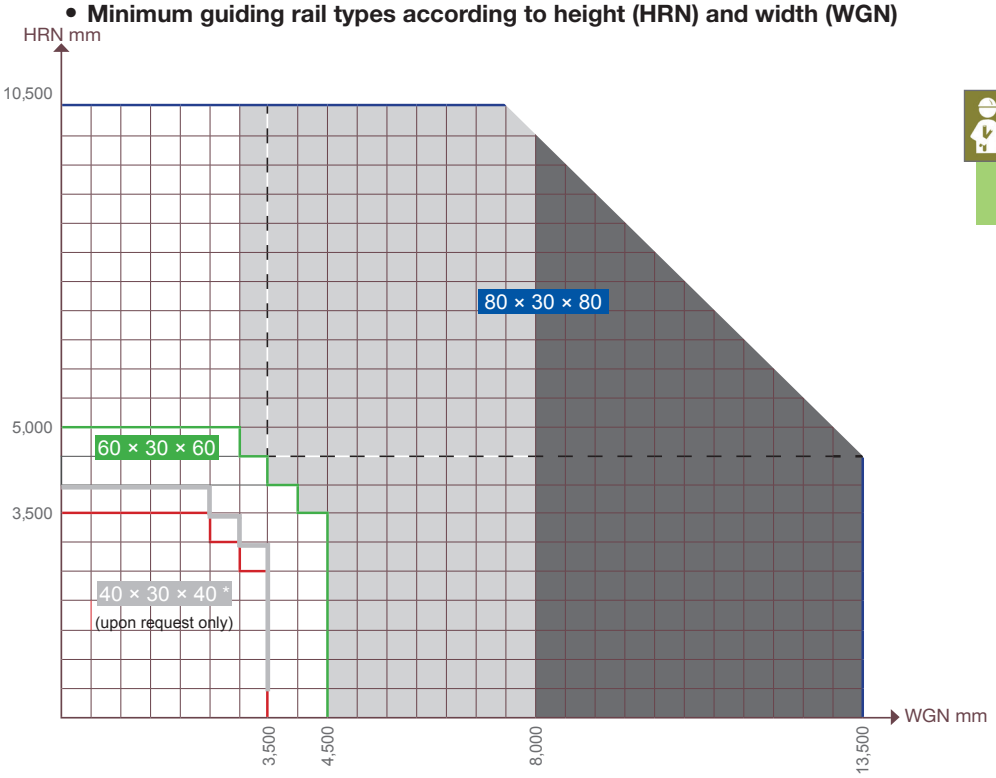
* 84 m² max. if indoors (not exposed to wind)

WGI = Width guiding rails included
HRI = Height rolling included
W = Shutter weight

The formula must not be used for the operator.
Contact our quotation service.

GUIDING RAILS
Types of guiding rail

- **Minimum guiding rail types according to height (HRN) and width (WGN)**



WGN = Width guiding rails not included
HRN = Height rolling not included

If the dimensions fall exactly on the limits provided, our quote will be based on the larger guiding rail dimensions.
Ex : Shutter WGN 4,500 mm x HRN 2,500 mm
→ Guiding rails of 80x30x80

In the area ▬, the shutters provided with "G80" 80×50×80 guiding rails are also equipped with clamps.
In the area ⬚ (WGN ≥ 3,500 mm and HRN ≥ 4,500 mm) we provide an offset post and a caulking corner piece to limit "sagging" of the shutter under the header (If using a spring-loaded shaft, no post is needed).

* With the Vision mixing or noise-reduction option, the guiding rail dimensions must be

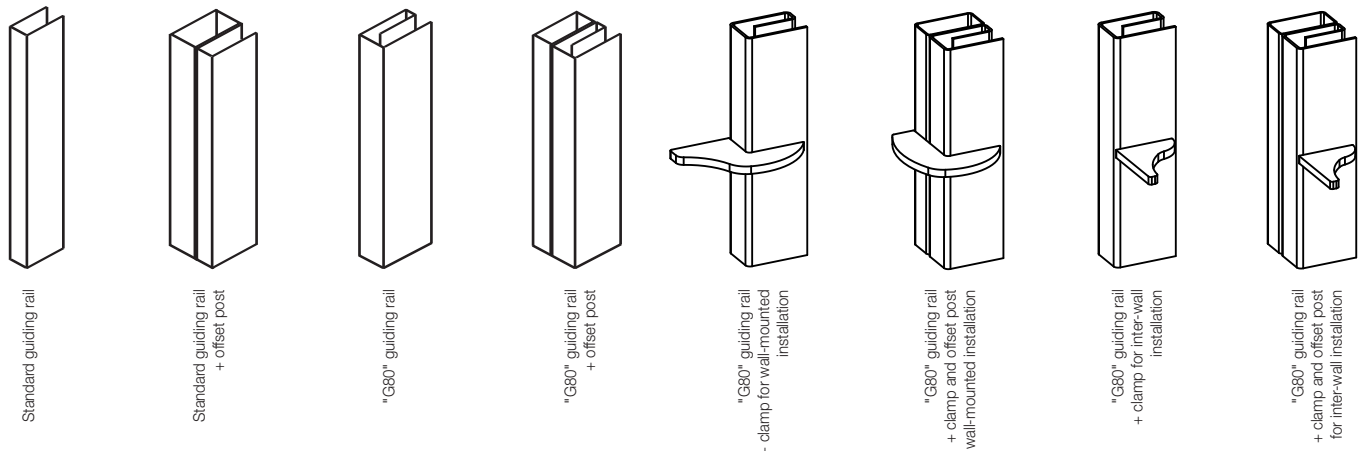
Types of guiding rail		Area	Resistance to wind load class (thicknesses determined according to the dimensions of the shutter and the MG8 chart)			
			Microperforated 6, 8 and 10/10th	6/10th	8/10th	10/10th and 12/10th **
	Standard*** 60x30x60 80x30x80		**PND***	2	3	4
			PND*	-	3	3
			PND*	-	-	2
	G80 80x50x80		**PND***	3	4	4
			PND*	-	4	4
			PND*	-	-	4

** 10/10th in class 2, if surface area > 70m².
12/10th in class 2, if WGN > 12,000 mm or HRN > 8,000 mm.

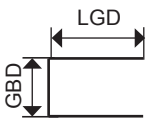
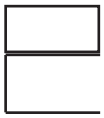
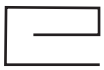
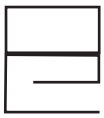
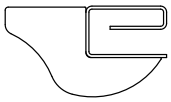
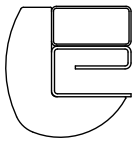
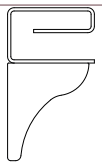
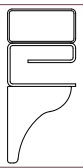
*** 40x30x40 (upon request only)

Class 1: 300 Pa max.
Class 2: 450 Pa max.
Class 3: 700 Pa max.
Class 4: 1,000 Pa max.
Class 5: (resistance to wind load > 1,000 Pa), special requirements subject to agreement between the manufacturer and the buyer: contact us to check if the plans are feasible.

* Performance Not Determined (Microperforated model usually installed on the inside, behind the window)



Réservations

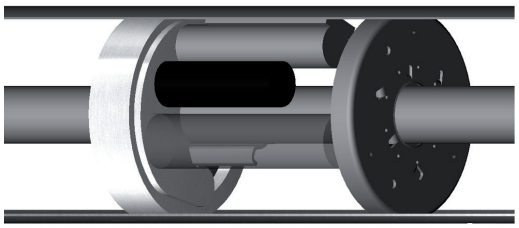
TYPES OF GUIDING RAIL		LATERAL DIMENSION (LGD) IN MM	BASE DIMENSION (GBD) IN MM
	Guiding rail 40×30×40 Upon request only	40	30
	Guiding rail 60×30×60	60	30
	Guiding rail 80×30×80	80	30
	Guiding rail 80×30×80 + offset post 80×50	80	80
	"G80" Guiding rail 80×50×80	80	50
	"G80" Guiding rail 80×50×80 + offset post 80×40	80	90
	"G80" Guiding rail + clamp for wall-mounted installation	160	90
	"G80" Guiding rail + clamp + offset post 80×40 for wall-mounted installation	130	130
	"G80" guiding rail + clamp for inter-wall installation	80	140
	"G80" guiding rail + clamp + offset post 80×40 for inter-wall installation	80	180

Depending on the space available and in accordance with the rolling diameter that the height allows, the shutter may "sag" in the upper section (between the shaft and the header).

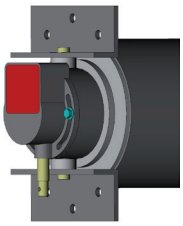
This "sagging" can be reduced at the header by lifting the shaft by a minimum of 500 mm if the overhead height allows.

The noise-reduction option is not compatible with "G80" guiding rails.

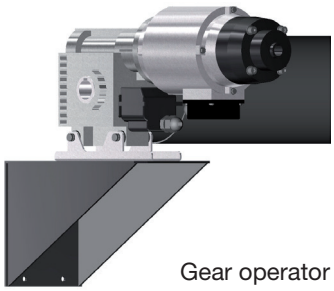
TYPES OF OPERATION



Axial operator + “Stopchute”®



Tubular operator



Gear operator

TYPES OF OPERATION	RECOMMENDED OPERATORS	TYPE OF SHAFT	LIMITS OF USE
DIRECT PULL (OR WITH ROD)	• None	Spring-loaded with curved support profiles and "Stopchute" if necessary	WGN ≤ 4,000 mm HRN ≤ 3,500 mm W ≤ 120 Kg Operator recommended for W ≥ 80 Kg
AXIAL OPERATOR / VEOHZ (OR CENTRAL)	• Positioned in the center of the shaft • Repair maneuver using the release mechanism handle and direct pull operation		WGI ≤ 6,000 mm HRN ≤ 5,300 mm W ≤ 240 Kg Repair maneuver difficult using direct pull for W ≥ 120 Kg
TUBULAR OPERATOR	• Positioned at the end of the shaft • Direct drive • Repair maneuver operated by detachable oscillating rod (width 3,000 mm max.) • Anti-fall guard on opposite side to operator	Hollow Ø 133 mm or Ø 168 mm	WGN ≤ 8,000 mm (Ø133) WGN ≤10,000 mm (Ø168) WGI ≥ 1,500 mm HRN ≤ 6,000 W ≤ 450 Kg
GEAR OPERATOR E400	• Positioned at the end of the shaft • Direct drive • Repair maneuver: - operated using short crank - optional hoist • Anti-fall guard integrated into operator	Hollow 133 mm ≤ Ø ≤ 244 mm	WGI ≥ 1,000 mm P ≤ 530 Kg
GEAR OPERATOR E750	• Positioned at the end of the shaft • Direct drive • Repair maneuver: - operated using short crank - optional hoist • Anti-fall guard integrated into operator	Hollow 168 mm ≤ Ø ≤ 244 mm	WGI ≥ 1,000 mm W ≤ 670 Kg
GEAR OPERATOR S100 AND S140			WGI ≥ 1,000 mm W ≤ 1,200 Kg
GEAR OPERATOR S2000	• Positioned at the end of the shaft • Direct drive • Repair maneuver: - operated using short crank - optional hoist • Anti-fall guard integrated into operator	Hollow Ø 244 mm or Ø 273 mm	WGI ≥ 1,000 mm W ≤ 1200 Kg

OPERATORS

Types of operator

Maximum number of cycles/day for Murax microperforated shutter: 15

As all of our products are custom-made, our quotation team will determine the most suitable operator, according to the shutter characteristics, the layout and the types of operation.

- **Technical characteristics of operators**

TYPE OF OPERATOR	VOLTAGE (V)	POWER (W)	CURRENT (A)	POWER SUPPLY	PROTECTION CLASS	ROTATIONAL SPEED (No RT/MIN)	No. OF CYCLES* PER DAY	TORQUE (Nm)
Axial II red	230 mono	300	1.3	3 x 2.5	IPX4	10	15	75
Axial III yellow	230 mono	360	1.6	3 x 2.5	IPX4	10	15	100
Axial III gray	230 mono	450	2	3 x 2.5	IPX4	10	15	140
T15M	230 mono	450	2	3 x 2.5	IP44	8	25	150
T20M, TB20M	230 mono	550	2.4	3 x 2.5	IP44	8	25	200
T25M, TB25M	230 mono	710	3.2	3 x 2.5	IP44	8	25	250
T30M, TB30M	230 mono	855	3.9	3 x 2.5	IP44	8	25	300
T35M, TB35M	230 mono	990	4.4	3 x 2.5	IP44	8	25	350
T45M, TB45M	230 mono	1,200	5.3	3 x 2.5	IP44	8	25	450
E400	230 tri	1,100	8.83	5 x 2.5	IP54 ***	12	100	400
	400 tri **	1,100	5.1	5 x 2.5	IP54 ***	12	100	
E750	400 tri **	1,400	3.9	5 x 2.5	IP54 ***	10	50	750
S100	400 tri	1,300	6.5	5 x 2.5	IP54	10	100	1,000
S140	400 tri	1,100	4.1	5 x 2.5	IP54	7	100	1,400
S2000	400 tri + N	2,500	8.1	5 x 2.5	IP54 ***	8	100	2,000

*1 cycle = 1 ascent + 1 descent - Non-consecutive cycles / ** 400 tri + N if using flashing or illumination lights / *** Protection class 65 on request

Reservations

TYPE OF OPERATOR		OPERATOR SIDE DIMENSION (OSD)	OPPSOSITE SIDE TO OPERATOR DIMENSIOS (ODD)	OPERATOR DEPTH (OD)	UPPER DIMENSIONS OF OPERATOR (UDO)	LOWER DIMENSIONS OF OPERATOR (LDO)	
						WITHOUT SUPPORT	WITH SUPPORT
Axial		0	0	0	0	0	
Tubular		100	70	0	0	0	
E400	Alone	180	100	1/2 plate + 390	160	145	470
	Crank	390	100	1/2 plate + 600	380	220	470
	Hoist	210	100	1/2 plate + 480	190	145	470
E750	Alone	180	100	1/2 plate + 420	190	145	460
	Crank	390	100	1/2 plate + 630	380	220	460
	Hoist	240	100	1/2 plate + 500	190	145	460
S100	Alone	210	100	1/2 plate + 500	210	135	590
	Hoist	410	100	1/2 plate + 760	420	190	590
	Treuil	210	100	1/2 plate + 590	210	135	590
S140	Alone	210	100	1/2 plate + 570	250	135	590
	Hoist	410	100	1/2 plate + 840	480	135	590
	Treuil	210	100	1/2 plate + 660	250	135	590
S2000	Alone	240	180 ****	1/2 plate + 590	310	200	510
	Crank	540	180 ****	1/2 plate + 800	520	290	510
	Hoist	280	180 ****	1/2 plate + 700	310	200	510

**** Lower dimension = 370 mm in relation to the winding shaft

Note: Reservations provided in mm.

WINDING PLATES

In the case of mixing on shutters larger than 1/3 of the HRN, please contact us.

Standard slats

Ø (mm)	Operation	Winding plate (WP) dimensions in mm
220	Rod	310 / 340 / 370
220	Axial II / III	310 / 340 / 370 / 400
133	Tubular	280 / 310 / 340 / 370
133	E400	* / 340 / 370
168	Tubular	340 / 370
168	E400 / E750	340 / 370 / 400 / 440 / 480
168	S100 / S140	400 / 440 / 480
193	E400 / E750	340 / 370 / 400 / 440
193	S100 / S140	400 / 440
244	E400 / E750	340 / 370 / 400 / 440 / 480
244	S100 / S140	400 / 440 / 480
244	S2000	440 / 480
273	S2000	440 / 480 / 520 / 550

800 | 2,000 | 2,500 | 2,750 | 3,500 | 4,000 | 4,500 | 5,000 | 5,300 | 5,750 | 6,000 | 6,500 | 7,500 | 8,250 | 8,500 | 9,900 | 10,100 | 10,500

Rolling height not included HRN (mm)

Slats with optional "G80 guiding rails"

Ø (mm)	Operation	Winding plate (WP) dimensions in mm
220	Rod	370 / 400 / 440
220	Axial II / III	370 / 400 / 440 / 480
133	Tubular	* / 340 / 370 / 400 / 440
133	E400	* / 340 / 370 / 400 / 440
168	Tubular	340 / 400 / 440
168	E400 / E750	340 / 400 / 440 / 480 / 520
168	S100 / S140	400 / 440 / 480 / 520
193	E400 / E750	340 / 370 / 400 / 440 / 480 / 520
193	S100 / S140	400 / 440 / 480 / 520
244	E400 / E750	400 / 440 / 480 / 520 / 550
244	S100 / S140	400 / 440 / 480 / 520 / 550
244	S2000	440 / 480 / 520 / 550
273	S2000	440 / 480 / 520 / 550

800 | 1,750 | 2,000 | 2,250 | 3,000 | 3,500 | 4,000 | 4,250 | 4,750 | 5,000 | 5,300 | 5,750 | 6,000 | 6,500 | 7,000 | 7,750 | 8,500 | 9,250 | 9,360 | 10,240 | 10,500

Rolling height not included HRN (mm)

Slats with optional "Noise reduction clips"

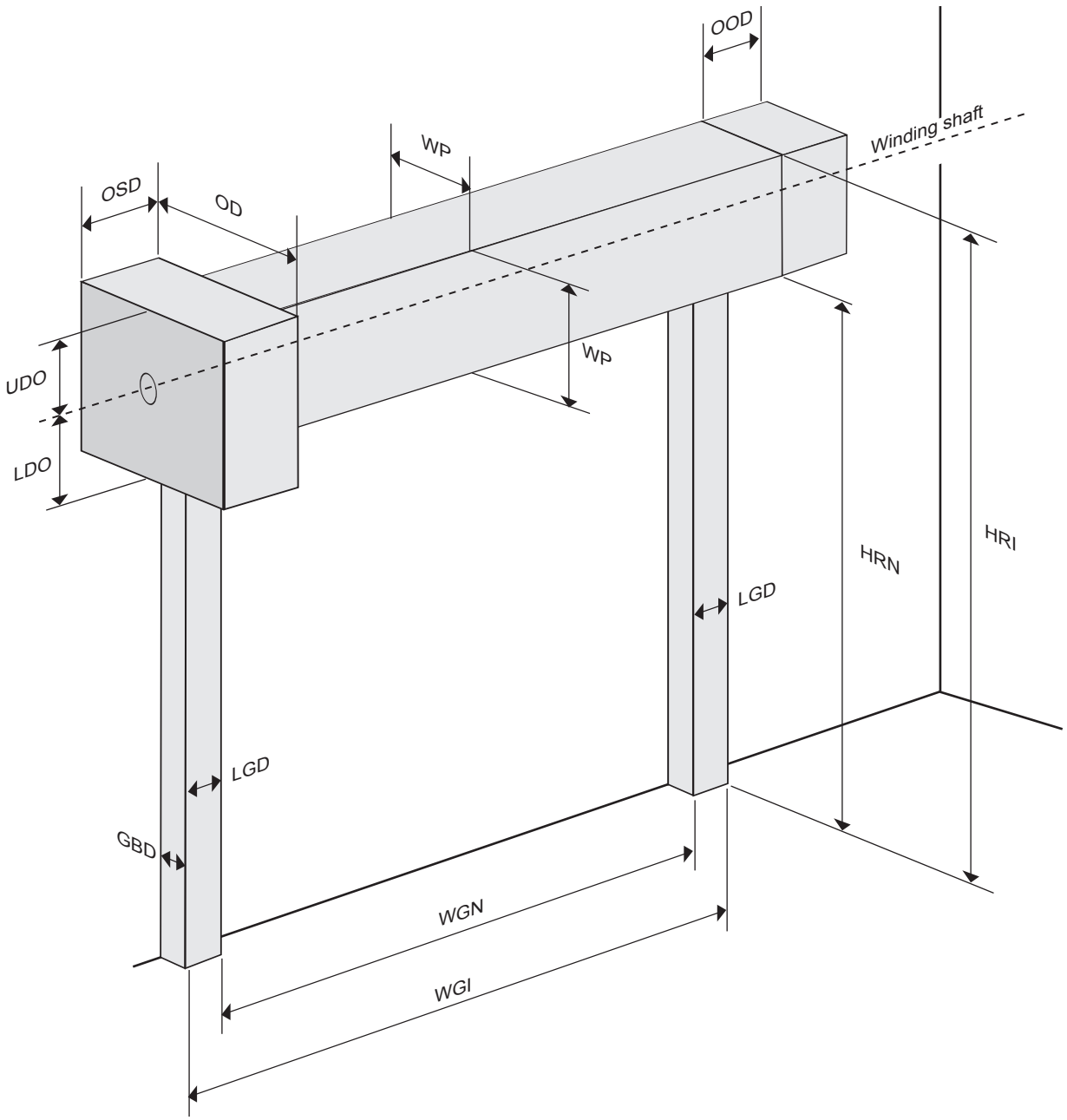
Ø (mm)	Operation	Winding plate (WP) dimensions in mm
220	Rod	310 / 340 / 370 / 400
220	Axial II / III	310 / 341 / 370 / 400 / 440
133	Tubular	280 / 310 / 340 / 370 / 400
133	E400	* / 340 / 370 / 400 / 440
168	Tubular	340 / 370 / 400
168	E400 / E750	340 / 370 / 400 / 440
168	S100 / S140	400 / 440
193	E400 / E750	340 / 370 / 400 / 440
193	S100 / S140	400 / 440
244	E400 / E750	370 / 400 / 440 / 480
244	S100 / S140	400 / 440 / 480
244	S2000	440 / 480
273	S2000	440 / 480

800 | 1,750 | 2,250 | 2,500 | 3,000 | 3,500 | 3,750 | 4,000 | 4,250 | 4,750 | 5,000 | 5,250 | 5,300 | 5,500 | 6,000 | 6,250 | 6,500 | 7,000

Rolling height not included HRN (mm)

* In this area, to limit sagging of the shutter, our shafts are made with tubes with a diameter of 168 mm.

RESERVATION AREAS



WGN	:	Width guiding rails not included
WGI	:	Width guiding rails included
HRN	:	Height rolling not included
HRI	:	Height rolling included
LGD	:	Lateral guiding rail dimensions
GBD	:	Guiding rail base dimensions
OSD	:	Operator side dimensions
OD	:	Operator depth
UDO	:	Upper dimensions of operator
LDO	:	Lower dimensions of operator
OOD	:	Opposite side to operator dimensions
WP	:	Winding plate dimensions

OPERATING MODES

Sustained pressure (trained users)

This operating mode can be used for all shutter locations. It requires a controller that allows constant user control (continuous action on the control device and within sight of closing).

Caution: In public areas, the controller must be personalized, e.g. a key switch box.

- **Safety devices required**

	OUTSIDE PUBLIC AREA / IN PUBLIC AREA WITHIN SIGHT OF DOOR
INDUSTRIAL OR COMMERCIAL PREMISES, OR GARAGES	• No safety device required

CONTROLLER		IN AREA	OUTSIDE AREA
BBA1	Wall-mounted toggle-switch box		x
BBE1	Flush-mounted toggle-switch box		x
BBA2	Wall-mounted 2-button box		x
Transmitter	Remote control (for the "Easy" control box)	x	x
Key pad	Wall-mounted, wireless key pad (for the "Easy" control box)	x	x
BCA	Wall-mounted key switch box	x	x
BCE	Flush-mounted key switch box	x	x
BCDA	Wall-mounted key switch and release box	x	x
BCDE	Flush-mounted key switch and release box	x	x
BCBA	Wall-mounted bipolar key switch box	x	x
BCBE	Flush-mounted bipolar key switch box	x	x
Sécurinox	Sécurinox release box with tubular cylinder	x	x
	Sécurinox release box with European cylinder		
BDD	Junction box with double release mechanism	x	x
BBAR	Wall-mounted 2-button radio box (for the "Easy" control box)		x
Transmitter veoHz	3-button portable transmitter veoHz	x	x
Wall-mounted Transmitter veoHz	Wall-mounted 3-button transmitter veoHz		x
BCDA veoHz	Wall-mounted key switch and release box veoHz (with European cylinder)	x	x

For more technical information, refer to the "Operators & Accessories" chapter and the "Control Accessories" section.

Pulse operation for ascent / Sustained pressure for descent (trained users)

This operating mode allows opening by pulse operation and closing by sustained pressure (previously combined operation under French Standard NFP 25362). This operating mode is associated with the pulse operation mode in the Standard EN 13241 + A2.

Caution: In public areas, the controller must be personalized, e.g. a key switch box.

- **Safety devices required**

	OUTSIDE PUBLIC AREAS	IN PUBLIC AREAS
INDUSTRIAL OR COMMERCIAL PREMISES, OR GARAGES	• Box adapted according to operator • 1 safety micro switch with lock	• Box adapted according to operator • 1 safety micro switch with lock • DENTEL mixing must be situated over 2,500 mm from the floor

CONTROLLER		IN AREA	OUTSIDE OF AREA
BBA3	Wall-mounted 3-button box		x
BBAS	Wall-mounted switch box with stop button	x	x
BCBA	Wall-mounted bipolar key switch box	x	x
BCBE	Flush-mounted bipolar key switch box	x	x
BCA	Wall-mounted key switch box	x	x
BCE	Flush-mounted key switch box	x	x
BCDA	Wall-mounted key switch and release box	x	x
BCDE	Flush-mounted key switch and release box	x	x
Key pad	Wall-mounted, wireless key pad (for the "Easy" control box)	x	x
Transmitter	Remote control	x	x
Sécurinox	Sécurinox release box with tubular cylinder	x	x
	Sécurinox release box with European cylinder		
BDD	Junction box with double release mechanism	x	x
BBAR	Wall-mounted 2-button radio box (for the "Easy" control box)		x
Transmitter veoHz	3-button portable transmitter veoHz	x	x
Wall-mounted transmitter veoHz	Wall-mounted 3-button transmitter veoHz		x
BCDA veoHz	Wall-mounted key switch and release box veoHz (with European cylinder)	x	x

For more technical information, refer to the "Operators & Accessories" chapter and the "Control Accessories" section.

Pulse operation (trained users)

In pulse operation mode, the user is required to perform a brief action on the controller which triggers the movement of the shutter: open, stop or close.

Caution in the workplace: 2 flashing spots + markings on the ground are now legally required according to the decree of 21 December 1993.

- **Safety devices required**

	Outside public areas within or out of sight of door	In public areas	
		Within sight of door	Out of sight of door
Industrial or commercial premises, or garages	• Box adapted according to operator • Bottom safety edge • 1 safety micro switch with lock	• Box adapted according to operator • Bottom safety edge • 1 safety micro switch with lock • DENTEL mixing must be situated over 2,500 mm from the floor	• Box adapted according to operator • Bottom safety edge • 1 safety micro switch with lock • 2 sets of bottom cells • DENTEL mixing must be situated over 2,500 mm from the floor
Residential Place of residence with HRN ≤ 3,500 and WGN ≤ 7,000 and surface area ≤ 12m²	• Murax VILLA box • Bottom safety edge • 1 safety micro switch with lock		

Controller		In area	Outside area
BBAI	Wall-mounted pulse button box	x	
BCBA	Wall-mounted bipolar key switch box	x	
BCBE	Flush-mounted bipolar key switch box	x	
BCA	Wall-mounted key switch box	x	
BCE	Flush-mounted key switch box	x	
BCDA	Wall-mounted key switch and release box	x	
BCDE	Flush-mounted key switch and release box	x	
CCA	Wall-mounted radio code key pad	x	
Receiver	Separate 2-function receiver	x	
Transmitter	4-function transmitter (Commerce and Industry)	x	
Sécurinox	Sécurinox release box with tubular cylinder	x	
	Sécurinox release box with European cylinder		
BDD	Junction box with double release mechanism	x	

For more technical information, refer to the "Operators & Accessories" chapter and the "Control Accessories" section.

Automatic operation (trained or untrained users)

In automatic operation, the shutter moves without the need for manual operation by the user (for example, closing with time delay, opening by magnetic loop, etc.). This operating mode can be used for commercial and industrial premises and garages but is not suitable for houses.

Caution in the workplace: 2 flashing spots + markings on the ground are now legally required according to the decree of 21 December 1993.

Caution should be taken if installing automatically operated shutters in places of residence:
Collective residential buildings must meet specific requirements (acoustics/traffic, etc.) not covered by the European Standard EN 13241 + A2. These specific requirements are not included in our quotes.
In the case of a collective residence, signage and lighting (area lighting + flashing lights with 2 seconds warning + ground marking) are legally required (Decree of 09 August 2006 relating to the application of Article R.125-3-1 of the Construction and Housing Code).

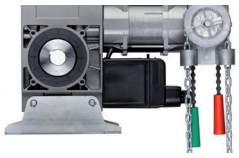
- **Safety devices required**

	OUTSIDE PUBLIC AREAS	IN PUBLIC AREAS WITHIN OR OUT OF SIGHT OF DOOR
INDUSTRIAL OR COMMERCIAL PREMISES, OR GARAGES	• Box adapted according to operator • Bottom safety edge • 1 safety micro switch with lock • 2 sets of bottom cells	• Box adapted according to operator • Bottom safety edge • 1 safety micro switch with lock • 2 sets of bottom cells • DENTEL mixing must be situated over 2,500 mm from the floor

CONTROLLER		IN AREA	OUTSIDE OF AREA
BBAI	Wall-mounted pulse button box	x	
BCBA	Wall-mounted bipolar key switch box	x	
BCBE	Flush-mounted bipolar key switch box	x	
BCA	Wall-mounted key switch box	x	
BCE	Flush-mounted key switch box	x	
BCDA	Wall-mounted key switch and release box	x	
BCDE	Flush-mounted key switch and release box	x	
CCA	Wall-mounted radio code key pad	x	
TR	Road tube	x	
BM	Magnetic Loop	x	
Receiver	Separate 2-function receiver	x	
Transmitter	4-function transmitter (Commerce and Industry)	x	
Sécurinox	Sécurinox release box with tubular cylinder	x	
	Sécurinox release box with European cylinder		
BDD	Junction box with double release mechanism	x	

For more technical information, refer to the "Operators & Accessories" chapter and the "Control Accessories" section.

OPTIONS

OPTIONS	
• **"G80" guiding rails and steel hooks** (see table MG - 9), not compatible with noise reduction clips.	
• **Noise reduction clips** clipped to ends of every other slat, not compatible with G80 steel hooks.	
• **Seal** under end slat.	
• **Mixing** is possible with **corrugated tubes** or vision or **microperforated** shutters. Corrugated tube mixing is incompatible with G80 guiding rail options, noise reduction clips and microperforated slats. Mixing of corrugated tubes and lacquered slats is NOT POSSIBLE because the staples mark the slats during rolling.	
• **Latch** instead of a lock.	
• **Lock offset** to the left or right of the end slat	
• **Safety micro switch** on lock: recommended with tubular operators or gear operators.	
• **Housing (galvanized or optional 180 RAL of your choice):** If you select the "Housing" option, you can order your shutter with a suitable housing that will conceal or protect the shutter shaft.	
• **Polyurethane lacquer** with RAL of your choice: • guiding rails • housing	
• **Epoxy lacquer** with RAL of your choice: WGI max ≤ 10,500 mm • shutter or end slat only • guiding rails • housing Lacquering is not recommended for shutters with outer rolling because the slats are marked on the outside of the shaft during rolling.	
• **Emergency chain hoist** allowing repair operations to be performed from the ground: • E400 operator • E750 operator • S100 operator • S140 operator • S2000 operator	
• **Installation accessories - Hardware** For guiding rails to be pinned - screws, sleeper screws, washers, pins, nuts and stop pins	
• **Electrical connection accessories** Disconnect switch, junction box, insulating screw joints, cable ties + threaded pins, 6m of 3-core cable 0.75mm², 1m of 5-core cable 1.5mm², 7m of 5-core cable 0.75mm², 4 x 3m IRO tubes	
• **Floor anchor lock** not compatible with seal and safety edge	
• **VAK safety pump lock**	
• **LED flashing spot** Operating modes: Pulse, Automatic	
• **LED illumination spot** 10W power = 930 lumen Operating modes: Pulse, Automatic	

Murax Protect 1627

Our Murax Protect 1627 shutter fully complies with standard EN 1627, class CR3. This standard demonstrates that our product is burglar resistant through static, dynamic and manual tests. The shutter provides effective protection against break-ins and disturbances.

Tests conducted on shutters
- Width : 6,260 mm
- Height : 4,500 mm

Shutter
- 110 mm full slats with exclusive profile 275g/m2 in galvanized steel
- Slat thickness 12/10th
- Tamper-proof clips

End slat
- 125 mm reinforced full slat in 275 g/m2 galvanized steel with the same finish as the shutter
- Support corner piece of 50 x 25 mm in 28/10th in galvanized steel 275 g/m2
- Thickness 20/10th

"G80" guiding rails
- Safety guiding rail of 80 X 50 mm in galvanized steel, thickness: 3 mm
- Galvanized steel clamps welded on to guiding rails, thickness: 10 mm

Locking system
- VAK pump lock, with 2 anchor points on end slat
- Reinforced rods and rod guides
- Option: Single-unit floor anchor bracket

Wind resistance classification
- Class 4 (contact us for class 5)

Operation
- Manual (depending on dimensions)
- Motorized with optional sustained contact, combined, pulse or automatic operation

What is Standard EN 1627 Class CR3?

It certifies compliance with certain security requirements.

The Murax Protect 1627 shutter has successfully been granted class CR3 of European standard EN 1627, following tests carried out in an accredited laboratory, the CNPP. This standard demonstrates that our product is burglar resistant through static, dynamic and manual tests.

➤ EN 1628: Static tests
The static test consists of applying a load at different points on the product using a hydraulic cylinder. The test loads, the duration of the test and the maximum permissible deformations depend on the resistance class concerned.

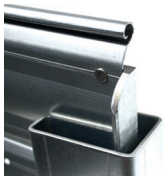
➤ EN 1629: Dynamic tests
Test performed after successful completion of static tests. It involves dropping a weight onto different predefined areas of the product (center and corners). The height and weight are dependent on the class concerned.

➤ EN 1630: Resistance to manual break-in attempts
Test performed after successful completion of static and dynamic tests. The test makes it possible to identify the product's weakest and most vulnerable areas, as well as the most effective tools available. The tool kits for a given resistance class include tools specific to that class, and those of the classes below.

The effective total length of the test is determined according to the class concerned.

For optimal resistance

Slat 12/10th



"G80" guiding rail

Clamps

Tamper-proof locking system

Safety lock

- Lock equipped with VAK pump
  Picard Serrures, A2P certified, high-security locks
- Smooth operation
- Locks with one turn of the key
- Precision mechanics

SHUTTER FINISH

Galvanized

OPTIONAL

Powder coated

Available in over 180 RAL colors

Ridobox

Latch for double exterior padlock (not provided)

Murax Ridobox with optional lacquering RAL 8017

Murax Ridobox with optional lacquering RAL 8017

SHUTTER FINISH

Galvanized

OPTIONAL

Prelacquered

White | 7016 | 8017

9005

Powder coated

Available in over 180 Ral colors

The Murax Ridobox is ideal for closing storage units located in a secure enclosure. In addition to being good value, the double exterior lock with padlock allows the operator to control access.

4 dimensions
- WGN 1,000 mm x HRN 2,000 mm
- WGN 1,500 mm x HRN 2,000 mm
- WGN 2,000 mm x HRN 2,000 mm
- WGN 2,500 mm x HRN 3,000 mm

Shutter
- 110 mm full slats with exclusive profile 275g/m2 in galvanized steel
- 2 different slat thicknesses available (6/10th and 8/10th) depending on dimensions, shutter type or specific requirements
- Options: noise reduction clips

End slat
- 125 mm reinforced full slat in 275 g/m2 galvanized steel with the same finish as the shutter
- Thickness 20/10th in galvanized steel, 15/10th with prelacquering
- 2 stops reinforced with galvanized steel 40/10th
- Chrome-plated steel pull handle

Locking system
- 2 Box latches
- Locked with padlocks (2 per latch)

Wind resistance classification
- Up to class 3 depending on dimensions

Operation
- Manual

SOME OF OUR PROJECTS

Murax 110 with optional RAL of your choice

Microperforated Murax 110 with optional RAL of your choice

Microperforated Murax 110 with optional RAL of your choice

Murax 110 with optional Dentel mixing

Microperforated Murax 110 with RAL of your choice

Microperforated Murax 110 with optional RAL of your choice