

# DENTEL/DELIAL GRILLES

## DENTEL

CORRUGATED GRILLE

*"Protect in style"*

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- For industrial or commercial premises, or garages
- Simple, safe and effective closing mechanism
- Excellent value for money
- Manual or motorized operation
- Corrugated tubes in galvanized steel
- Special steel staples with double reinforcement



## DELIAL

EXTENDABLE, SLIDING GRILLE

*"Adaptable and high-security"*

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- Expandable winding floor grille for store fronts, various premises or private buildings
- Robust and practical closing mechanism
- Reduced dimensions
- Extendable grille in galvanized steel, composed of vertical bars connected with cross-braces.

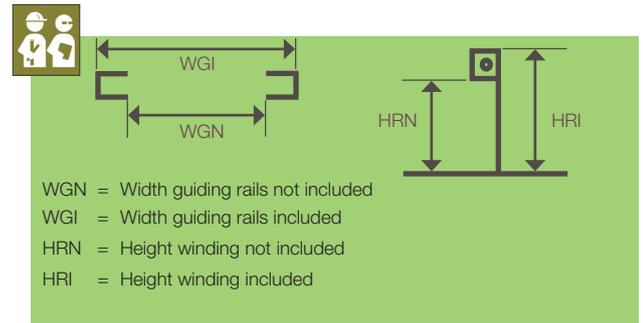




DESCRIPTION

Limits of use

	WIDTH (WGI) MM		HEIGHT (HRN) MM	WEIGHT (W) KG
	MIN.	Manual 750	Motorised 810	800
MAX.	12,100		8,000	1,200



Installation layouts

The Dentel can be:

- wall-mounted
- installed between walls

The Dentel 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.

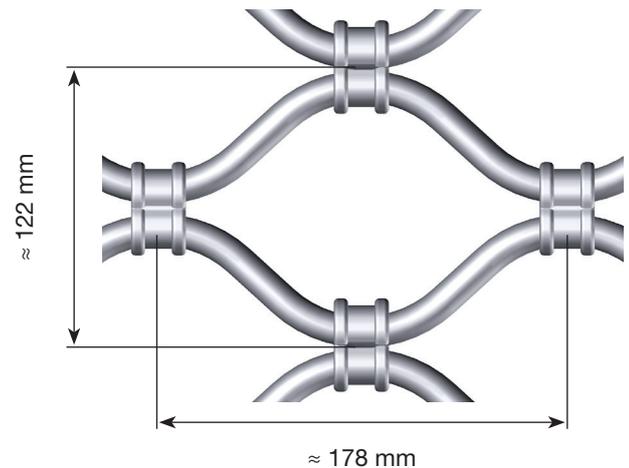
Shutter

The shutter is composed of corrugated tubes in top-quality galvanized steel with a diameter of 14 mm. The tubes are connected together with special galvanized steel staples with double reinforcement.

CORRUGATED TUBE	
TUBE Ø	14 mm
STRUCTURE	Corrugated galvanized steel tubes connected by high-strength staples (the shutter is started with 3 x 110 mm galvanized steel slats for winding)
FINISH	Galvanized (275 g/m <sup>2</sup> )

By default, Dentel shutters are configured with a mix of two full slats in the lower section above the end slat.

END SLAT	
SLAT PITCH	125 mm
STRUCTURE	Full slat
FINISH	Galvanized (275 g/m <sup>2</sup> )
THICKNESS	20/10 <sup>th</sup>
SECURITY LOCK	All our Dentel models are equipped with a lock with 2 anchor points* with European cylinder and rod covers



Air flow section = 70% of shutter surface.

Corner pieces 50 x 25 for the end slats if WGN ≥ 5,000 mm

\* For grilles 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: 25/10<sup>th</sup>
- 60x30x60, 80x30x80 depending on the dimensions or specific requirements of the site.

(40x30x40 upon request only)



## Types of operation

TYPES OF OPERATION	SHAFTS	
DIRECT PULL (OR WITH ROD)	Spring-loaded	<ul style="list-style-type: none"> <li>Galvanized steel carrier tube Ø 60 mm</li> <li>Galvanized steel spring spools Ø 220 mm</li> <li>Galvanized steel curved profiles to ensure better rigidity of the shaft and better distribution of forces</li> <li>"Stopchute"® depending on the shutter weight (EN 13241 + A2)</li> </ul>
AXIAL OPERATOR (OR CENTRAL)		
TUBULAR OPERATOR	Hollow	<ul style="list-style-type: none"> <li>Steel tube of Ø 133 mm or Ø 168 mm depending on the width and weight of the shutter</li> <li>Direct drive operator (non-balanced shaft)</li> <li>Anti-fall guard on opposite side to operator</li> </ul>
EXTERNAL OPERATOR	Hollow	<ul style="list-style-type: none"> <li>Steel tube from Ø 133 mm to Ø 273 mm depending on the width and weight of the shutter</li> <li>Direct drive operator (non-balanced shaft)</li> <li>Anti-fall guard integrated into operator</li> </ul>



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

- Hold to run operation:**  
Control device that requires continuous manual operation to function, within sight of the door: open or close.
- Impulse operation for ascent and hold to run operation for descent:**  
This operation corresponds to what was previously combined operation under French standard NFP 25362; it relates to impulse operation under current standard EN 13241 + A2.
- Impulse operation:**  
Control device that requires a brief manual action to initiate movement: open, stop or close.
- 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.



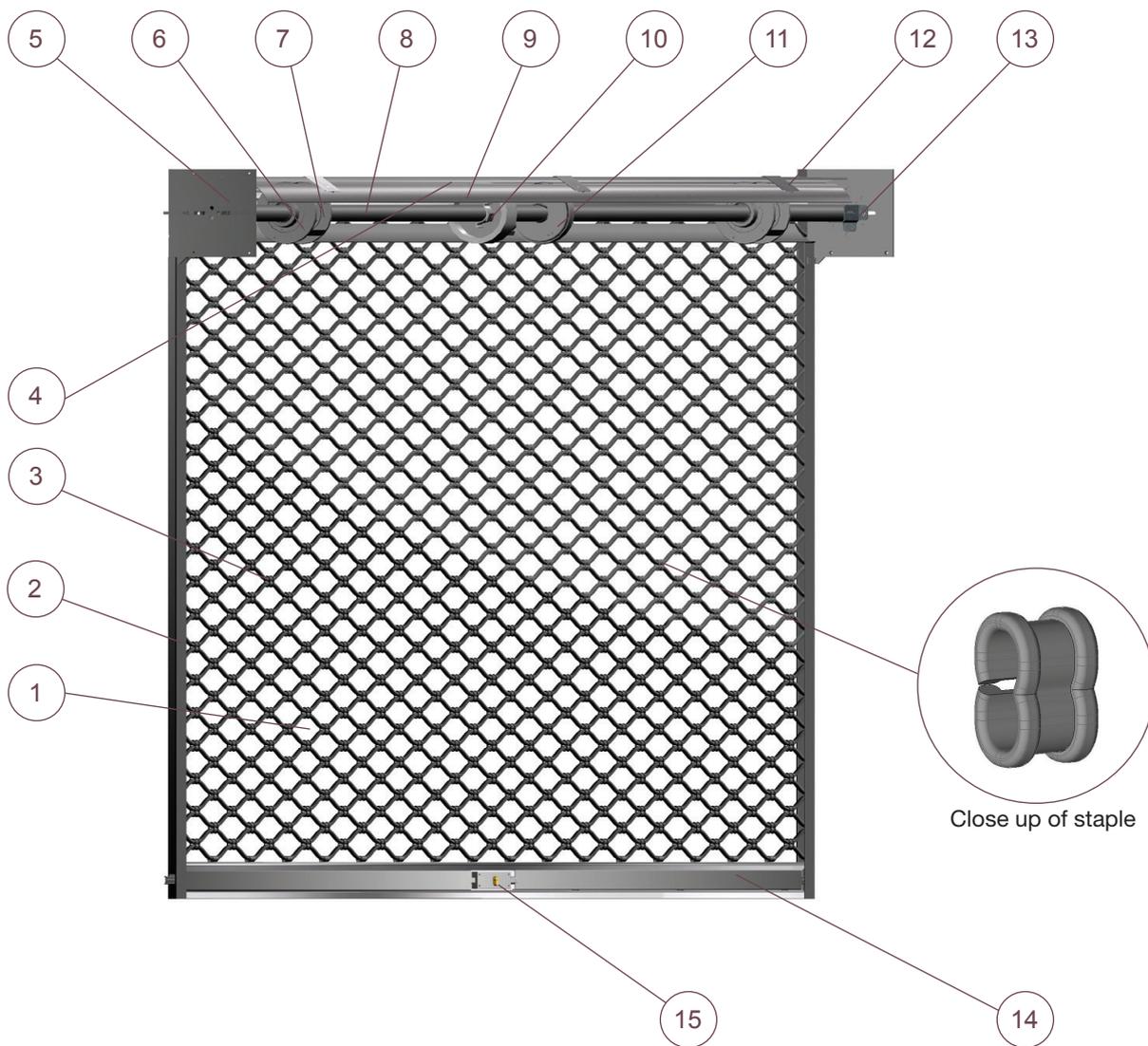
A user is considered to have been "trained" if the installer has given them instructions on how to use the product. The European standard EN 13241 + A2 requires that a user guide and a maintenance logbook be provided with each installation.

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



PARTS LIST

Shutter with spring-actuated shaft



- 1. Shutter
- 2. Guiding rail
- 3. Reinforced staples
- 4. Slats
- 5. Winding plate
- 6. Spring spool

- 7. Spring
- 8. Tube
- 9. Curved profile
- 10. Axial operator
- 11. "Stopchute"<sup>®</sup>
- 12. Shutter clip

- 13. Shaft support bracket
- 14. End slat with rod cover 20/10<sup>th</sup>
- 15. European cylinder lock

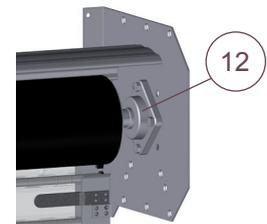
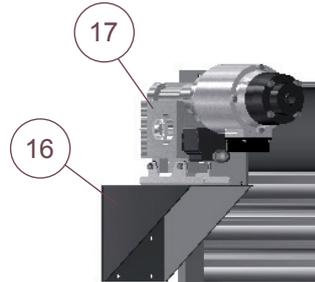
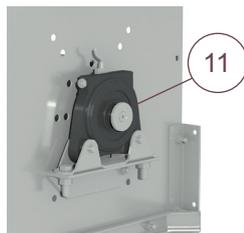
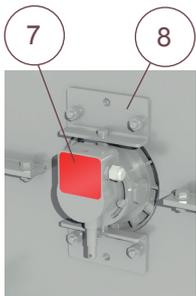
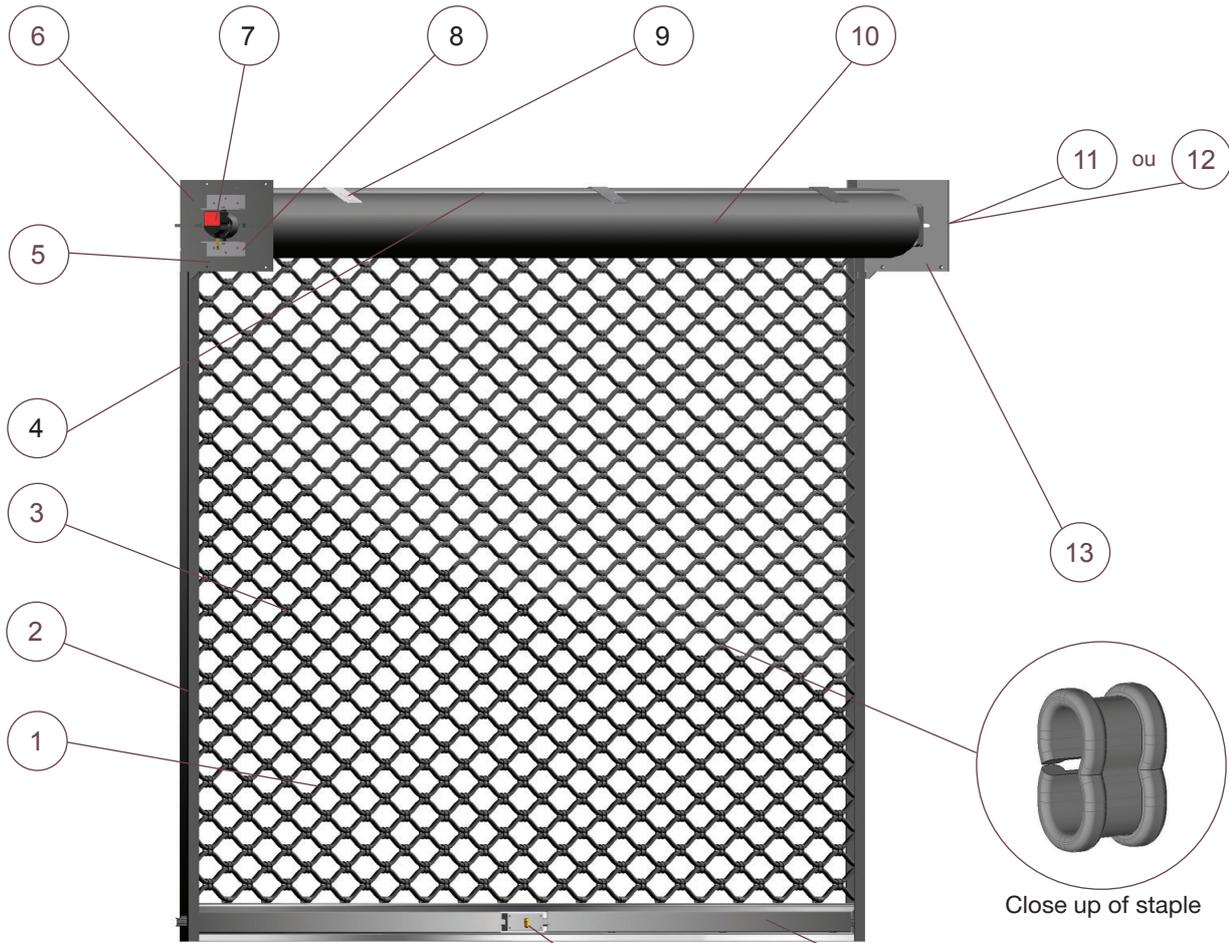


All our spring-loaded shafts for shutters over 120 kg are equipped with "Stopchute"<sup>®</sup> (EN 13241 + A2).





Grille with hollow shaft



**Tubular operator**

(T15M / T20M / T25M / T30M / T35M / T45M)

**Ringed tubular operator**

(TB20M / TB25M / TB30M / TB35M / TB45M)

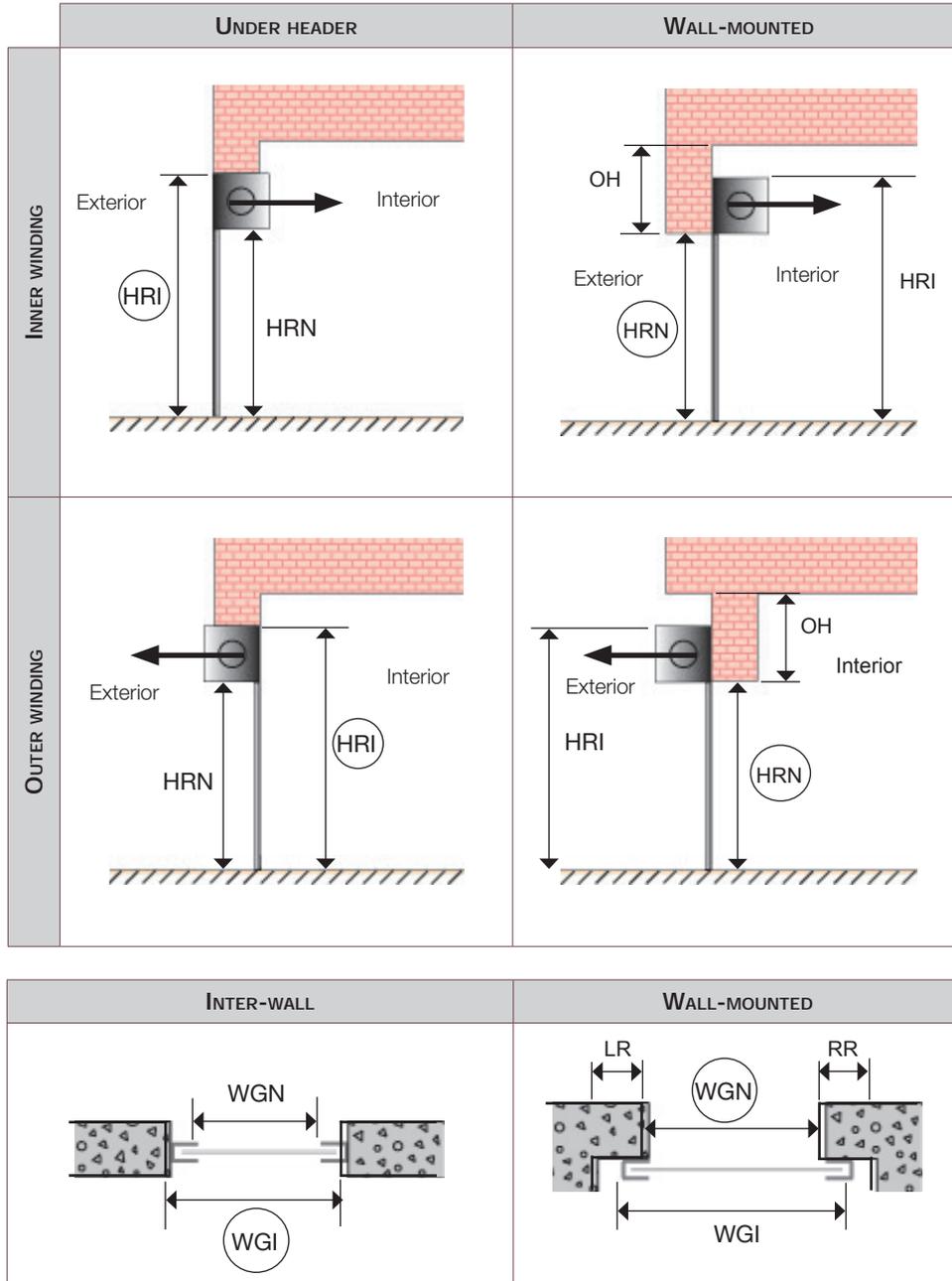
**Gear operator**

(E400 / E750 / S100 / S140 / S2000)

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1. Shutter</li> <li>2. Guiding rail</li> <li>3. Reinforced staples</li> <li>4. Slats</li> <li>5. Lower half winding plate on operator side (OS)</li> <li>6. Upper half winding plate on operator side (OS)</li> <li>7. Tubular operator</li> <li>8. Tubular operator support</li> <li>9. Shutter clip</li> </ul> | <ul style="list-style-type: none"> <li>10. Hollow shaft</li> <li>11. Anti-fall guard with support for tubular operator</li> <li>12. Bearing opposite side to gear operator</li> <li>13. Winding plate opposite side to operator (OO)</li> <li>14. End slat with rod cover 20/10<sup>th</sup></li> <li>15. European cylinder lock</li> <li>16. Gear operator support</li> <li>17. Gear operator</li> </ul> |
|---|---|



GRILLE INSTALLATION LAYOUTS



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



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



The installation layouts are always provided from the interior view.



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



## SHUTTER

The shutter weight can be calculated approximately using the formula:

$$W \text{ (kg)} = WGI \text{ (m)} \times HRI \text{ (m)} \times 13 \text{ (kg/m}^2\text{)}$$



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



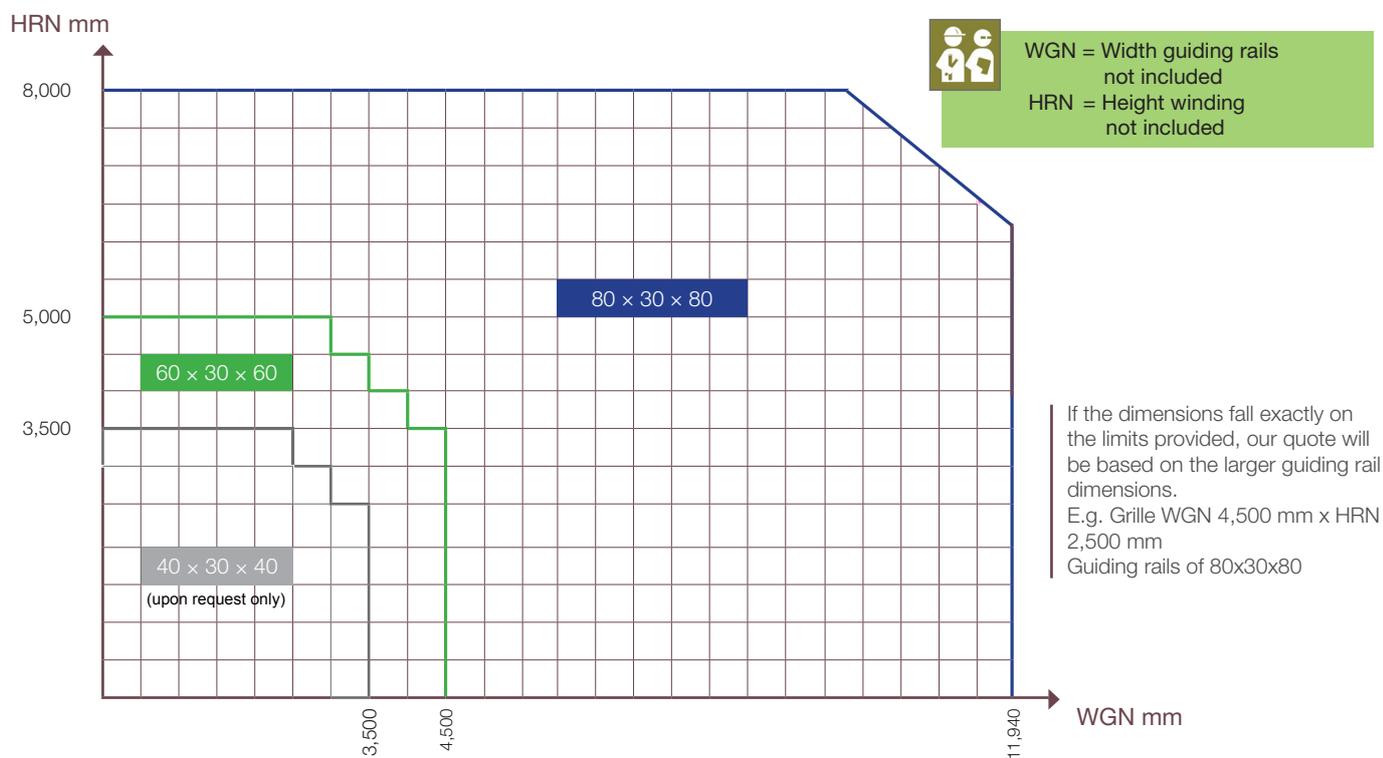
The formula above must not be used for the operator. Contact our quotation service.



## GUIDING RAILS

### Types of guiding rail

- minimum guiding rails dimensions types according to height (HRN) and width (WGN)



### Reservations

TYPES OF GUIDING RAIL		LATERAL DIMENSION (LGD) IN MM	BASE DIMENSION (GBD) IN MM
	Guiding 40x30x40 (upon request only)	40	30
	Guiding rail 60x30x60	60	30
	Guiding rail 80x30x80	80	30
	Guiding rail 80x30x80 + offset post 80x50	80	80



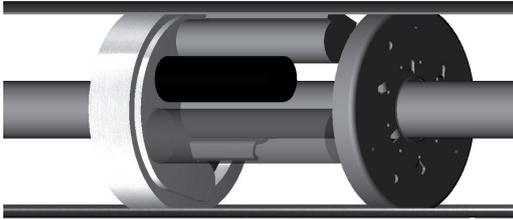
Depending on the space available and in accordance with the winding diameter that the height allows, the shutter may "sag" in the upper section (between the shaft and the header).



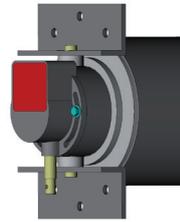
This "sagging" can be reduced at the header by lifting the shaft by a minimum of 500 mm if the overhead height allows.



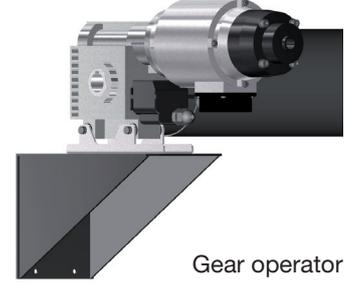
TYPES OF OPERATION



Axial operator + "Stopchute"®



Tubular operator



Gear operator

TYPES OF OPERATION	RECOMMENDED OPERATORS	TYPES OF SHAFT	LIMITS OF USE
<b>DIRECT PULL</b> (OR WITH ROD)	<ul style="list-style-type: none"> <li>• None</li> </ul>	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
<b>AXIAL OPERATOR/veoHz</b> (OR CENTRAL)	<ul style="list-style-type: none"> <li>• Positioned in the center of the shaft</li> <li>• Emergency operation using the release mechanism handle and direct pull operation</li> </ul>		WGI ≤ 6,000 mm HRN ≤ 5,300 mm W ≤ 240 Kg Emergency operation difficult using direct pull for W ≥ 120 Kg
<b>TUBULAR OPERATOR</b>	<ul style="list-style-type: none"> <li>• Positioned at the end of the shaft</li> <li>• Direct drive</li> <li>• emergency operation operated by detachable oscillating rod (width 3,000 mm max.)</li> <li>• Anti-fall guard on opposite side to operator</li> <li>• With or without ring</li> </ul>	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
<b>GEAR OPERATOR E400</b>	<ul style="list-style-type: none"> <li>• Positioned at the end of the shaft</li> <li>• Direct drive</li> <li>• Emergency operation:                             <ul style="list-style-type: none"> <li>- operated using short crank</li> <li>- optional hoist</li> </ul> </li> <li>• Anti-fall guard integrated into operator</li> </ul>	Hollow 133 mm ≤ Ø ≤ 244 mm	WGI ≥ 1,000 mm W ≤ 530 Kg
<b>GEAR OPERATOR E750</b>		Hollow 168 mm ≤ Ø ≤ 244 mm	WGI ≥ 1,000 mm W ≤ 670 Kg
<b>GEAR OPERATOR S100 AND S140</b>			WGI ≥ 1,000 mm W ≤ 1,200 Kg
<b>GEAR OPERATOR S2000</b>		Hollow Ø 244 mm ou Ø 273 mm	WGI ≥ 1,000 mm W ≤ 1,200 Kg



## OPERATORS

### Types of operator

As all of our products are custom-made, our quotation team will determine the most suitable operator according to the grille 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	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 DIMENSIONS (OSD)	OPPOSITE SIDE TO OPERATOR DIMENSIONS (OOD)	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
	CRANK	410	100	1/2 plate + 760	420	190	590
	HOIST	210	100	1/2 plate + 590	210	135	590
S140	ALONE	210	100	1/2 plate + 570	250	135	590
	CRANK	410	100	1/2 plate + 840	480	135	590
	HOIST	210	100	1/2 plate + 660	250	135	590
S2000	ALONE	240	140 ****	1/2 plate + 590	310	200	510
	CRANK	540	140 ****	1/2 plate + 800	520	290	510
	HOIST	280	140 ****	1/2 plate + 700	310	200	510

\*\*\*\* Lower dimension = 570 mm in relation to the winding shaft

Note: reservations provided in mm.



WINDING PLATES

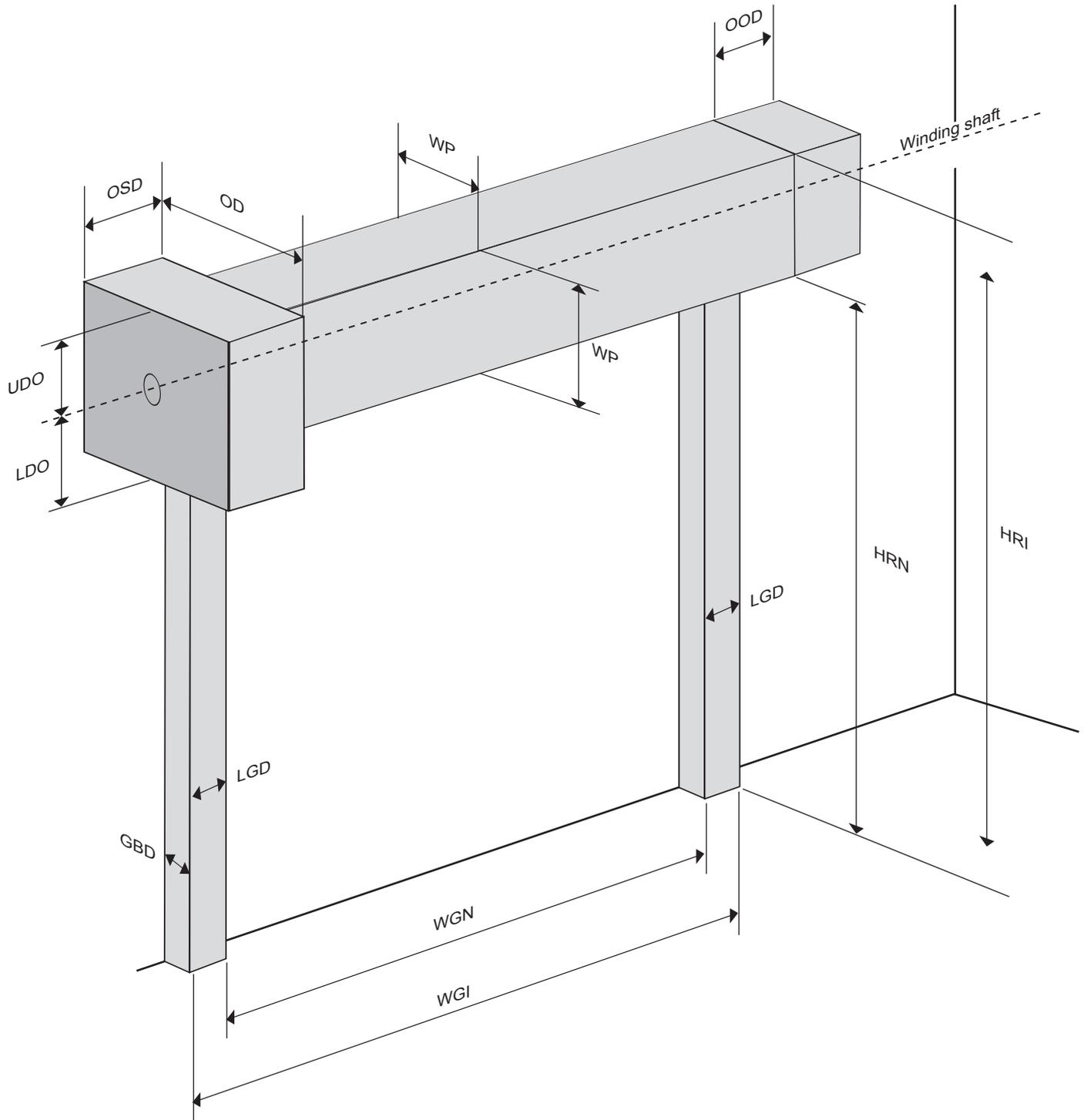
Standard slats	Ø (mm)	Operation	Winding plate (WP) dimensions in mm														
	220	Rod	340	370	400	440											
	220	Axial II / III	340	370	400	440	480										
	133	Tubular	310	340	370	400	440										
	133	E400	*	340	370	400	440	480									
	168	Tubular	340	370	400	440	480										
	168	E400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

800      2,000    2,250    2,500    2,750    3,000    3,250      4,000    4,500      5,000    5,300    5,500    5,750    6,000    6,250    6,500      7,250      8,000

\* 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 winding not included
- HRI** : Height winding 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

Hold to run (trained users)

This operating mode can be used for all grille 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

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

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



## Impulse operation for ascent / Hold to run for descent (trained users)

This operating mode allows opening by impulse operation and closing by hold to run (previously combined operation under French Standard NFP 25362). This operating mode relates to impulse operation mode in the Standard EN 13241 + A2.



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



Pulse operation in public area: only available with Axial and Tubular operators.

### • Safety devices required

	OUTSIDE PUBLIC AREAS	IN PUBLIC AREAS
INDUSTRIAL OR COMMERCIAL PREMISES, OR GARAGES	<ul style="list-style-type: none"> <li>Control box adapted according to operator</li> <li>1 safety micro switch with lock</li> </ul>	<ul style="list-style-type: none"> <li>Control box adapted according to operator</li> <li>1 safety micro switch with lock</li> <li>1 set of top cells</li> </ul>

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



Impulse operation (trained users)

In impulse 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.



Impulse operation in public area: only available with Axial and Tubular operators.

• 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	<ul style="list-style-type: none"> <li>Control box adapted according to operator</li> <li>Bottom safety edge</li> <li>1 safety micro switch with lock</li> </ul>	<ul style="list-style-type: none"> <li>Control box adapted according to operator</li> <li>Bottom safety edge</li> <li>1 safety micro switch with lock</li> <li>1 set of top cells</li> </ul>	<ul style="list-style-type: none"> <li>Control box adapted according to operator</li> <li>Bottom safety edge</li> <li>1 safety micro switch with lock</li> <li>1 set of top cells</li> <li>2 sets of bottom cells</li> </ul>

CONTROLLER		IN AREA	OUTSIDE AREA
<b>BBAI</b>	Wall-mounted impulse button box		x
<b>BCBA</b>	Wall-mounted bipolar key switch box		x
<b>BCBE</b>	Flush-mounted bipolar key switch box		x
<b>BCA</b>	Wall-mounted key switch box		x
<b>BCE</b>	Flush-mounted key switch box		x
<b>BCDA</b>	Wall-mounted key switch and release box		x
<b>BCDE</b>	Flush-mounted key switch and release box		x
<b>CCA</b>	Wall-mounted, wired key pad		x
<b>Receiver</b>	Separate 2- or 4-function receiver		x
<b>Transmitter</b>	4-function transmitter (Commerce and Industry)		x
<b>Sécurinox</b>	Sécurinox release box with tubular cylinder		x
	Sécurinox release box with European cylinder		
<b>BDD</b>	Junction box with double release mechanism		x



For more technical information, refer to the "Operators and accessories" chapter, in 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 it 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: our metal grilles must not be used to equip residential buildings (individual or collective) EN 13241 + A2



Impulse operation in public area: only available with Axial and Tubular operators.

• **Safety devices required:**

	OUTSIDE PUBLIC AREAS	IN PUBLIC AREAS WITHIN OR OUT OF SIGHT OF DOOR
INDUSTRIAL OR COMMERCIAL PREMISES, OR GARAGES	<ul style="list-style-type: none"> <li>• Control box adapted according to operator</li> <li>• Bottom safety edge</li> <li>• 1 safety micro switch with lock</li> <li>• 2 sets of bottom cells</li> </ul>	<ul style="list-style-type: none"> <li>• Control box adapted according to operator</li> <li>• Bottom safety edge</li> <li>• 1 safety micro switch with lock</li> <li>• 1 set of top cells</li> <li>• 2 sets of bottom cells</li> </ul>

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



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



OPTIONS

OPTIONS	
<ul style="list-style-type: none"> <li>• <b>Seal</b> under end slat.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Mixing possible with full slats.</b></li> </ul>	
 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 winding.	
<ul style="list-style-type: none"> <li>• <b>Latch</b> instead of a lock.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Lock offset</b> to the left or right of the end slat</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Safety micro switch</b> on lock: recommended with tubular operators or gear operators.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Housing (galvanized or optional 180 RAL of your choice):</b> If you select the "Housing" option, you can order your shutter with a suitable housing that will conceal or protect the shutter shaft (housing for wall-mounted installations only).</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Polyurethane lacquer</b> with RAL of your choice:</li> </ul>	<ul style="list-style-type: none"> <li>• guiding rails</li> <li>• housing</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Epoxy lacquer</b> RAL of your choice: WGI max. ≤ 10,500 mm</li> </ul>	<ul style="list-style-type: none"> <li>• end slat only</li> <li>• guiding rails</li> <li>• housing</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Emergency chain hoist</b> allowing repair operations to be performed from the ground:</li> </ul>	<ul style="list-style-type: none"> <li>• E400 operator</li> <li>• E750 operator</li> <li>• S100 operator</li> <li>• S140 operator</li> <li>• S2000 operator</li> </ul> 
<ul style="list-style-type: none"> <li>• <b>Installation accessories - Hardware</b> (For guiding rails to be pinned: screws, sleeper screws, washers, pins, nuts and stop pins)</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Accessories for electrical connection</b> (Disconnect switch, junction box, insulating screw joints, cable ties + threaded pins, 6m of 3-core cable 0.75mm<sup>2</sup>, 1m of 5-core cable 1.5mm<sup>2</sup>, 7m of 5-core cable 0.75mm<sup>2</sup>, 4 x 3m IRO tubes)</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Floor anchor lock (not compatible with seal and safety edge)</b></li> </ul>	
<ul style="list-style-type: none"> <li>• <b>VAK safety pump lock</b></li> </ul>	
<ul style="list-style-type: none"> <li>• <b>LED flashing spot</b> Operating modes: Impulse, Automatic</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Illumination spot</b> 10W power = 930 lumen Operating modes: Impulse, Automatic</li> </ul>	



SOME OF OUR PROJECTS

COMMERCIAL



DENTEL GRILLE



DENTEL GRILLE



DENTEL GRILLE

INDUSTRIAL



MURAX 110 SHUTTERS WITH MIXED DENTEL GRILLE



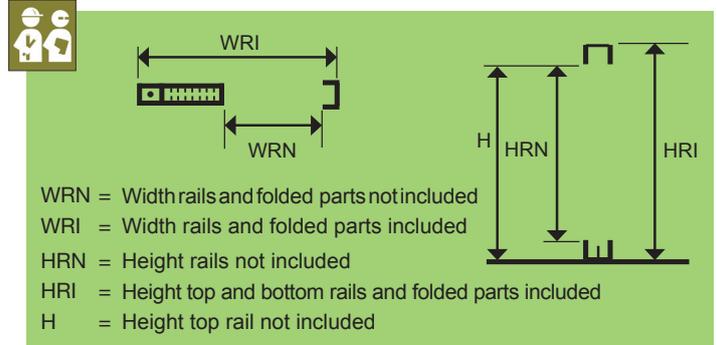


## DESCRIPTION

### Limits of use

	WIDTH* (WRI) MM		HEIGHT (HRI) MM
MIN.	Without pivot posts	With pivot posts	800
	500	610	
MAX.	10,000		3,000

\* If using pivot posts the maximum width per leaf WRI = 3,500 mm and the maximum surface area = 7 m<sup>2</sup>  
 \* Without pivot posts maximum width per leaf WRI = 5,600 mm



### Installation layouts

**The Delial can be:**

- wall-mounted
- installed between walls
- on post that pivots 90° inwards
- on post that pivots 90° outwards

### Shutter

- In top-quality, galvanized steel (galvanized: 275 g/m<sup>2</sup>)
- Can be composed of 1 or 2 leaves upon request or due to dimensional constraints
- A leaf is composed of:
  - Vertical U-shaped bars 14×14×14×14×20/10th mm thick connected by 2.5 mm thick cross-braces
  - Lock with 2 anchor points and a full height joint cover
- The maximum possible gap between the vertical bars is 130 mm

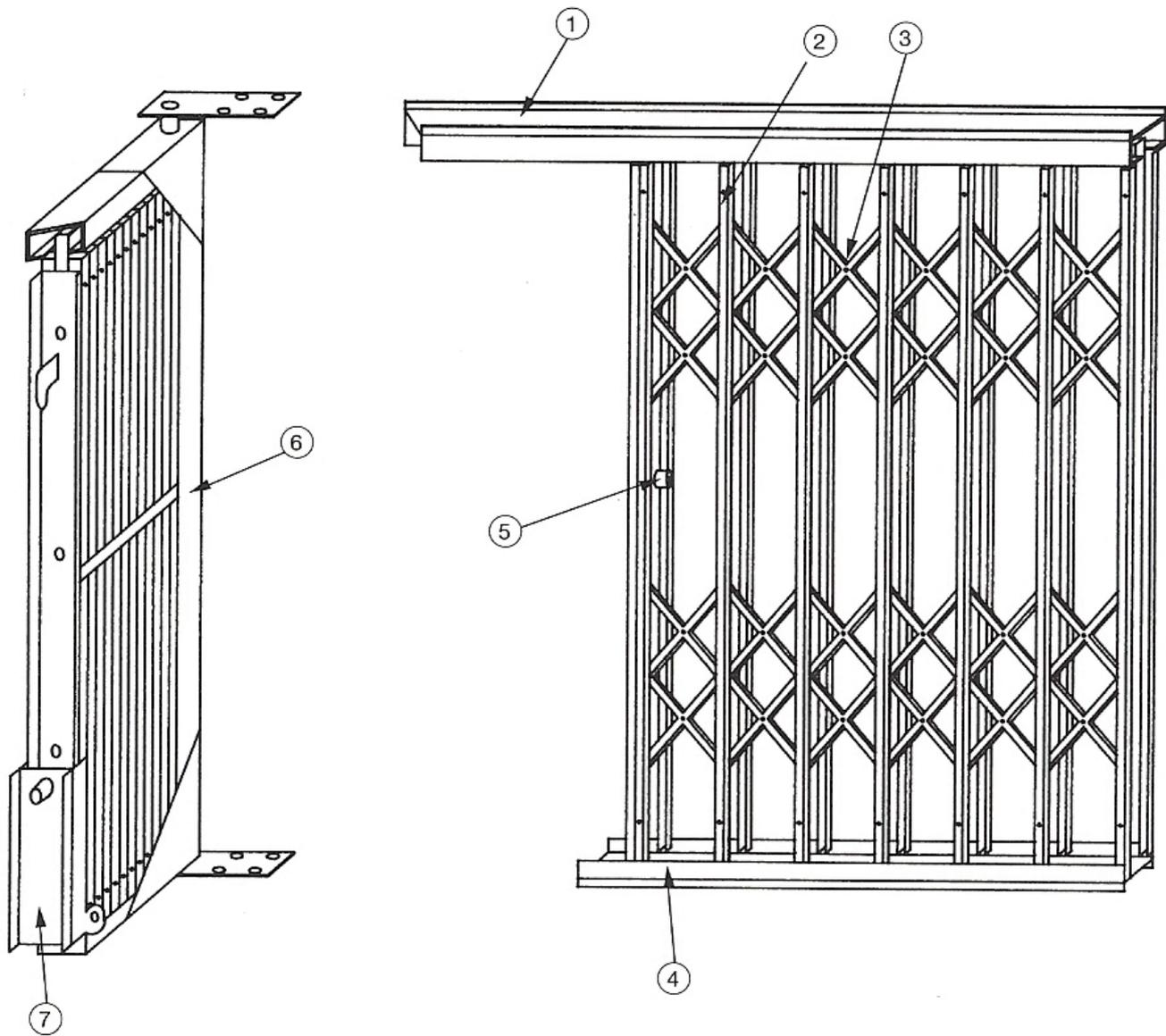
### Horizontal rails

- In top-quality, galvanized steel (galvanized: 275 g/m<sup>2</sup>)
- Top rail:
  - U-shaped
  - Fixed (unless it is a pivoting model)
  - Holds and guides the top section of the grille
- Bottom rail:
  - W-shaped
  - Standard fixed, removable or liftable on request
  - Supports the guiding rollers
  - Holds and guides the bottom section of the grille



PARTS LIST

Extendable grille \_\_\_\_\_

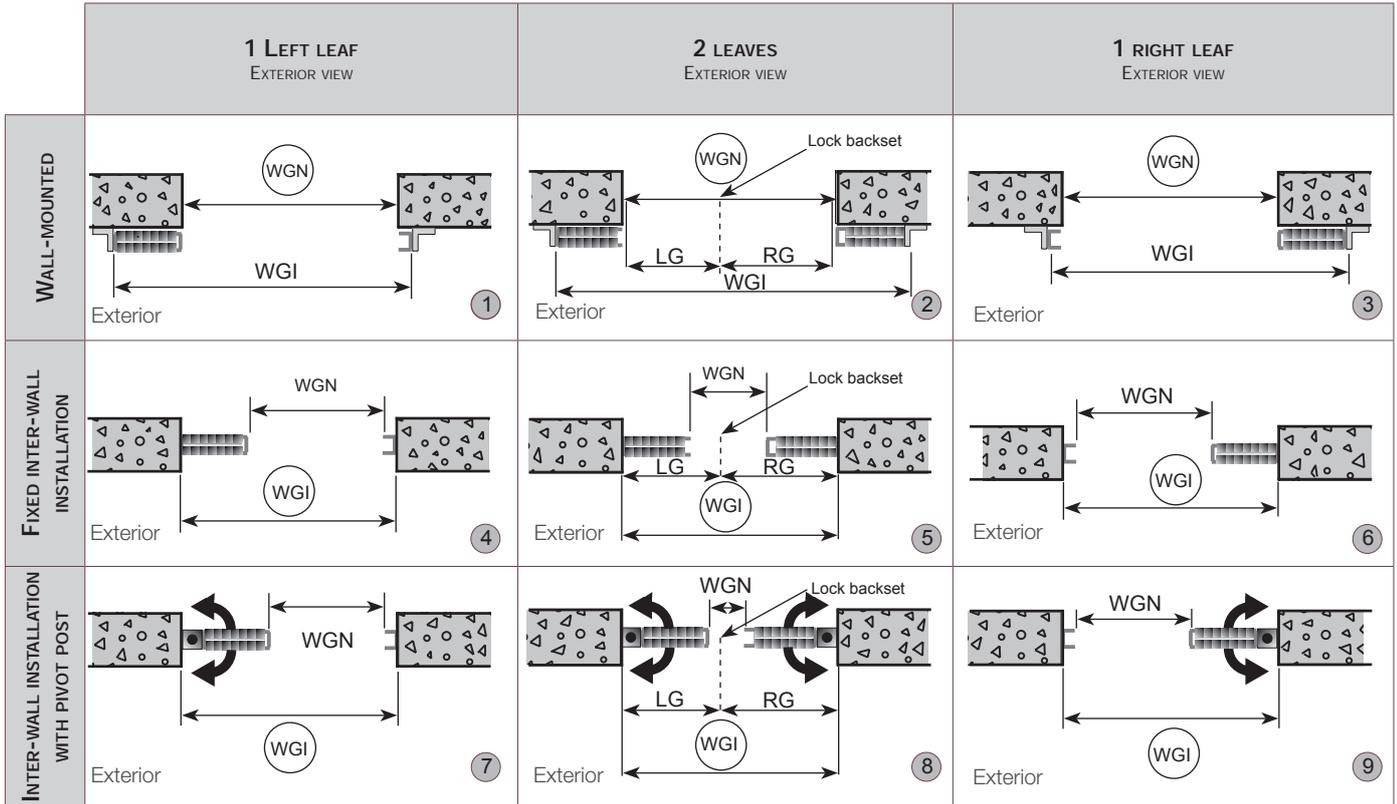


Extendable grille with one fixed leaf and a pivoting leaf with liftable bottom rail

- |                 |                             |
|-----------------|-----------------------------|
| 1. Upper rail   | 5. Lock                     |
| 2. Bars         | 6. Pivot post (optional)    |
| 3. Cross-braces | 7. Liftable rail (optional) |
| 4. Lower rail   |                             |



GRILLE INSTALLATION LAYOUTS

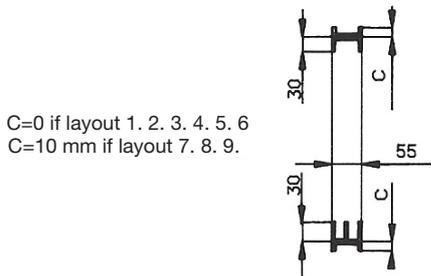


 You must provide us with the encircled dimensions according to the layout.  
 HGN = Height of grille, horizontal rails not included  
 WGN = Width of grille, folded part(s) strike jamb and pivot(s) not included  
 HGI = Height of grille, horizontal rails included  
 WGI = Width of grille, folded part(s) and pivot(s) included  
 LG = Left-hand gap for lock position  
 RG = Right-hand gap for lock position

 The installation layouts are always provided from the interior view. For installations with pivot post, please specify whether it should pivot inwards or outwards. The two leaves must either both pivot outwards or both pivot inwards.

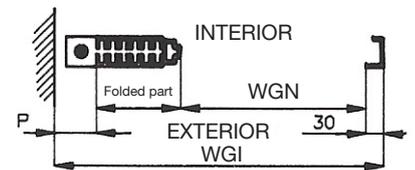
 For wall-mounted installations (1, 2, 3), corner pieces of 50 x 30 are provided to attach the folded parts and the top rail.

CLOSE-UP OF FLOOR-WINDING RAILS



P=0 if layout 1. 2. 3. 4. 5. 6  
 P=75 mm if layout 7. 8. 9

CLOSE-UP OF FOLDED PARTS



FOLDED PART VALUES \*

	560	700	840	980	1,120	1,260	1,400	1,540	1,680	1,820	1,960	2,100	2,240	2,380	2,520	2,660	2,800	2,940	3,080
WGI (MM)	560	700	840	980	1,120	1,260	1,400	1,540	1,680	1,820	1,960	2,100	2,240	2,380	2,520	2,660	2,800	2,940	3,080
WGN (MM)	455	580	705	830	955	1080	1205	1330	1455	1,580	1,705	1,830	1,955	2,080	2,205	2,330	2,455	2,580	2,705
FOLDED PART (MM)	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	375

	3,220	3,360	3,500	3,640	3,780	3,920	4,060	4,200	4,340	4,480	4,620	4,760	4,900	5,040	5,180	5,320	5,460	5,600
WGI (MM)	3,220	3,360	3,500	3,640	3,780	3,920	4,060	4,200	4,340	4,480	4,620	4,760	4,900	5,040	5,180	5,320	5,460	5,600
WGN (MM)	2,830	2,955	3,080	3,205	3,330	3,455	3,580	3,705	3,830	3,955	4,080	4,205	4,330	4,455	4,580	4,705	4,830	4,955
FOLDED PART (MM)	390	405	420	435	450	465	480	495	510	525	540	555	570	585	600	615	630	645

\* For the pivoting leaf: Add 75 mm (pivot) to the folded part and 40 mm for liftable rails  
 \* For the fixed leaf and liftable rail: Add 30 mm (rail) to the folded part



SELECTION OF RAILS

	1 LEFT LEAF EXTERIOR VIEW	2 LEAVES EXTERIOR VIEW	1 RIGHT LEAF EXTERIOR VIEW
FIXED BOTTOM RAIL	A	A	A
REMOVABLE BOTTOM RAIL	B	B	B
LIFTABLE BOTTOM RAIL	C	C G H	C
FIXED + LIFTABLE MIXED BOTTOM RAIL	D	D	D
REMOVABLE + LIFTABLE MIXED BOTTOM RAIL	E	E	E
FIXED + REMOVABLE + FIXED RAIL		F	



The liftable rail always lifts on the folded part side. The removable rail in the middle is delivered in two separate pieces if length > 5,000 mm. Maximum length of a liftable bottom rail = HRI - 150 mm



2-leaf grilles can be mixed for: layout A and B or A and C



## SHUTTER

The shutter weight can be calculated approximately using the formula:

$$W \text{ (kg)} = WFI \text{ (m)} \times HRI \text{ (m)} \times 14 \text{ (kg/m}^2\text{)}$$



WFI = Width folded parts included  
HRI = Height top and bottom rails and folded parts included  
W = Weight of grille

### GUIDELINES FOR NUMBER OF CROSS-BRACE ROWS

- 1 row of cross-braces:  $800 \leq HRI < 1430$
- 2 rows of cross-braces:  $1,430 \leq HRI < 2,000$
- 3 rows of cross-braces:  $2,000 \leq HRI < 3,000$



## OPTIONS

<b>Coupling lock with reinforced padlock</b> for 2-leaf grille	
Shutter with <b>2 leaves</b>	
<b>Leaf pivots</b> to 90°	
<b>Liftable bottom rail</b>	
<b>Removable bottom rail</b>	



SOME OF OUR PROJECTS



Delial Grille option with 2 leaves and coupling lock with reinforced padlock



Delial Grille



Delial Grille

