

TECHNICAL INSTALLATION MANUAL

MOTOREDUCER FOR SLIDING GATES

AG 2000



WARNING!! Before installing, thoroughly read this manual that is an integral part of the pack

Our products if installed by qualified personnel capable to evaluate risks, comply with norms UNI EN 12453, EN 12445



The CE mark conforms to European directive
EEC 89/336 + 92/31 + 93/68 D.L. 04/12/1992 N. 476.

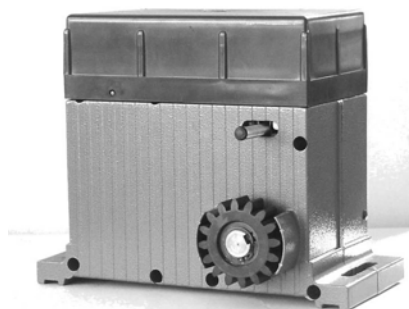
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PACKING CONTENTS

1- GEARED MOTOR



2- LIMIT STOP PLATES



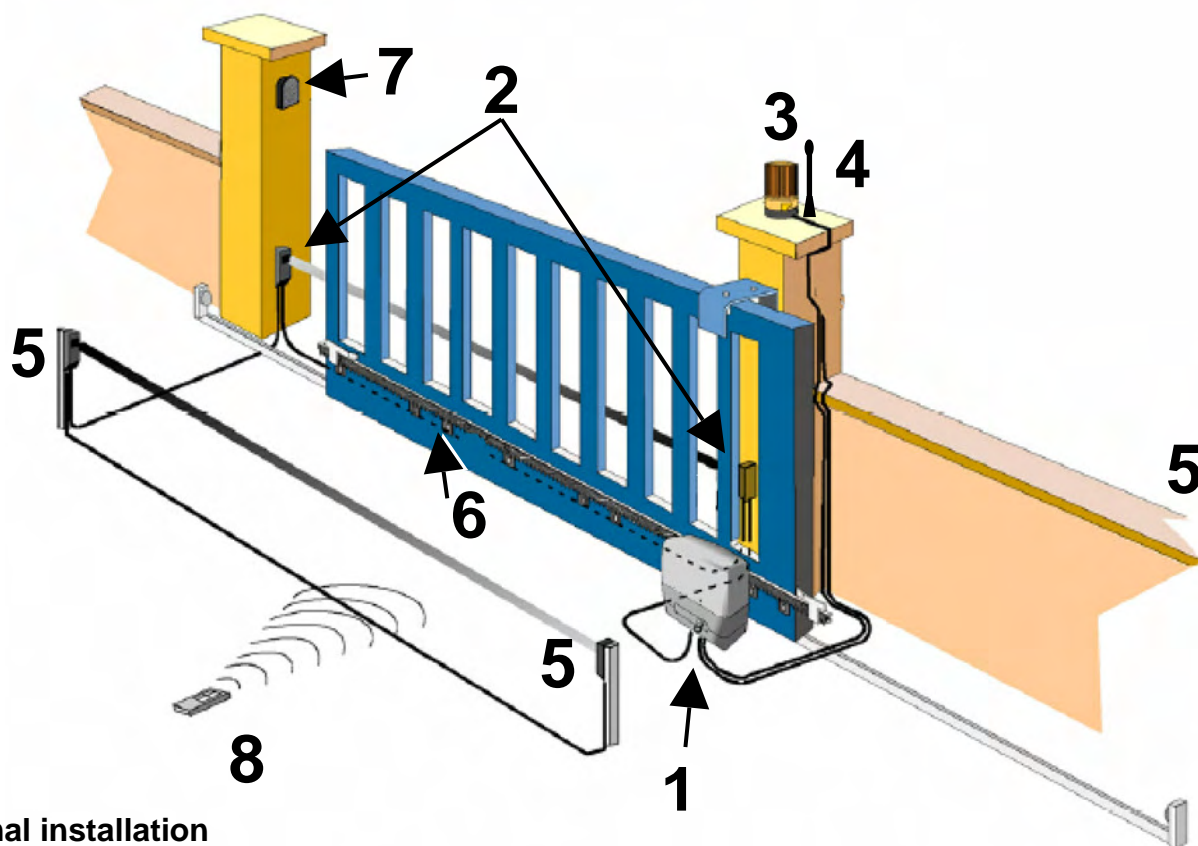
1- PAIR OF UNLOCKING KEYS



1- CONDENSER



VIEW OF TYPICAL AUTOMATION AND NAMES OF COMPONENTS



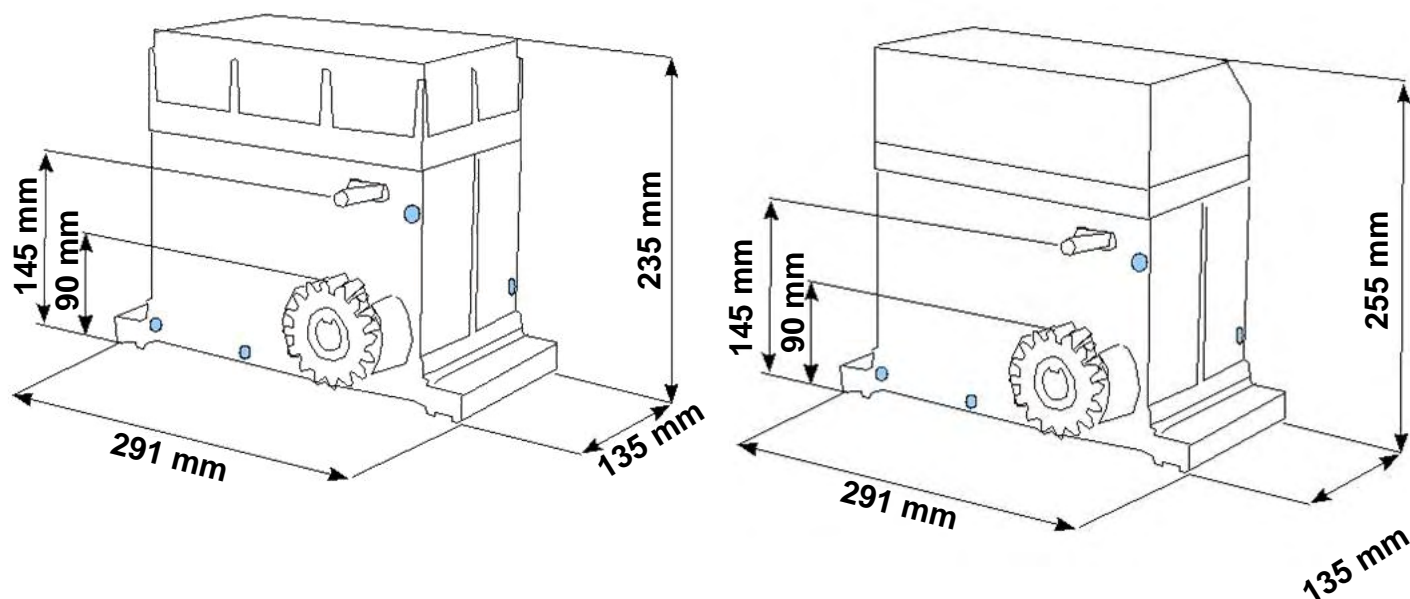
Optimal installation

- | | |
|------------------------------------|-----------------------|
| 1- Motor with on-board electronics | 5- Internal photocell |
| 2- External photocell | 6- Rack |
| 3- Flashing warning light | 7- Key-switch |
| 4- Antenna | 8- Remote control |

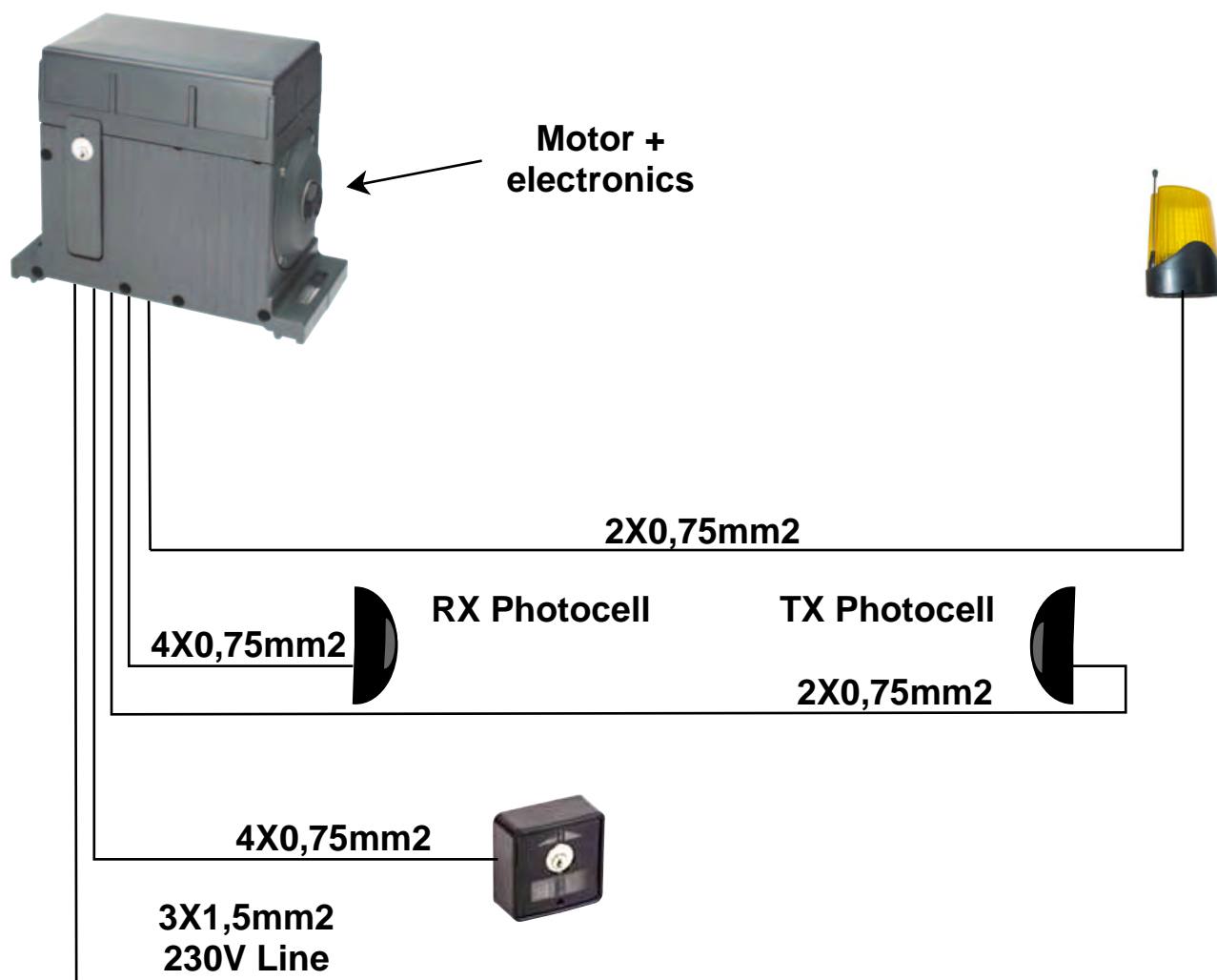
TECHNICAL DATA

TECHNICAL DATA	800K	1000K monofase	1600K	1600K trifase
Max. weight of gate	800 Kg	1000Kg	1600 Kg	1600 Kg
Motors power supply	230 Vac			400 Vac
Motor current input	1,1 A	1,7 A	1,8 A	1,5 A
Motor power	270 W	330 W	360 W	500 W
Motor RPM	1400			
Condenser	12,5 µF	16 µF		/
Mechanical unlock for emergency manoeuvre	With key			
Working temperature	-20° C / +55° C			
weight	13 Kg			
Protection rating	IP 44			
Opening time	10 mt min			
Limit switch	Electromechanical			

DIMENSIONS



TYPICAL CONNECTION AND CABLE SECTION



CONSIDERATIONS FOR INSTALLATION

- The installation and testing operations must be performed solely by qualified personnel in order to guarantee the proper and safe operation of the automatic gate.
- The company declines any responsibility for damage caused by incorrect installations due to incompetence and/or negligence.
- Also check that the runner on the ground (**Fig. 1**) is not deformed, is perfectly level and that the mechanical stop is present on opening (**Fig. 2**) in order to **prevent** the gate from going beyond the upper runners (**Fig. 3**)

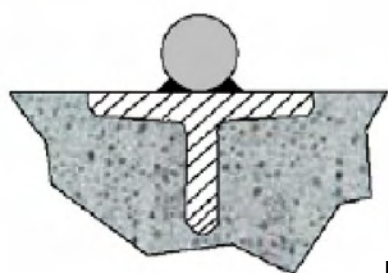
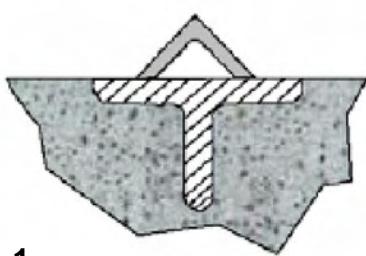


Fig. 1

Rounded section



Corner section

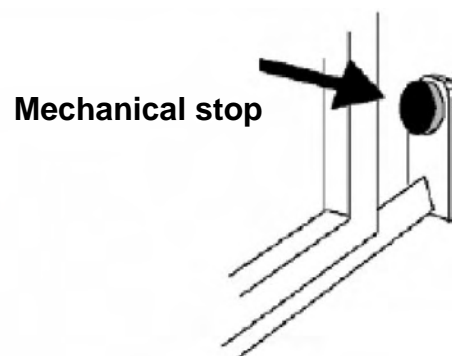


Fig. 2

- Check the upper runner (**see Fig. 3**) is firm and the gate slides freely.

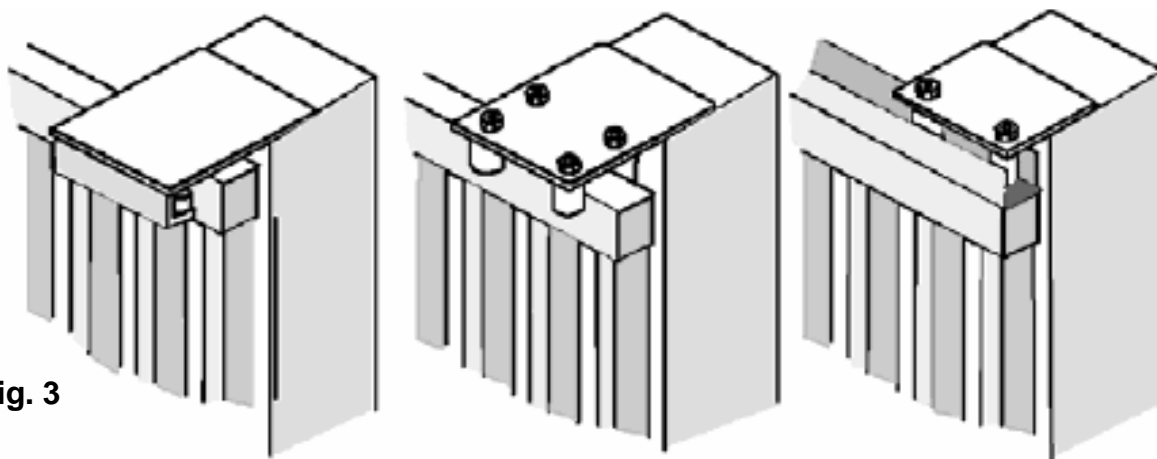


Fig. 3

- Check that the wheels (**Fig. 4**) used are suitable for the type of runner on the ground

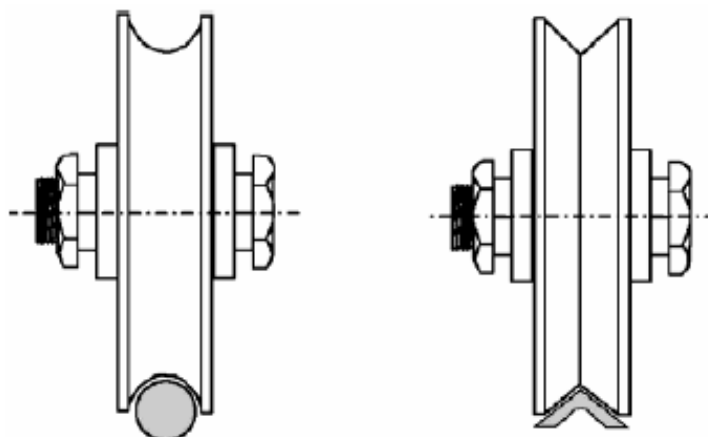
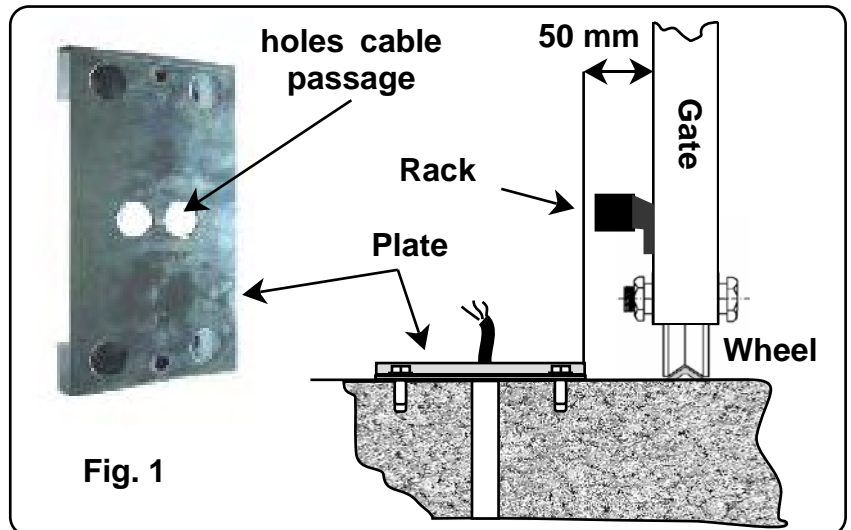


Fig. 4

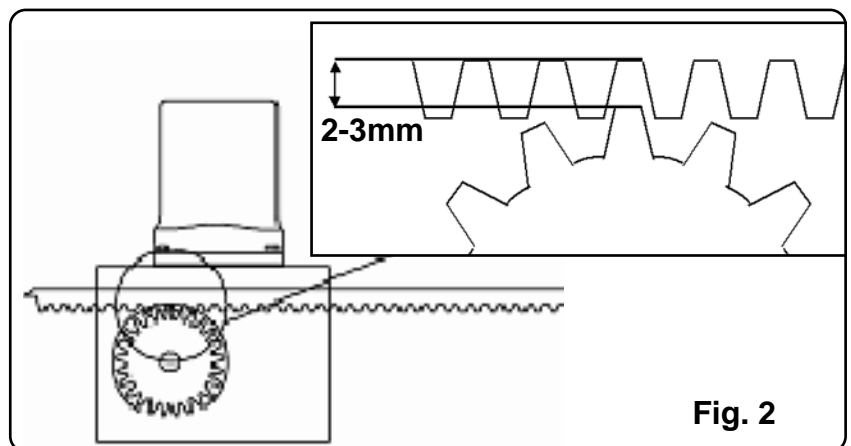
INSTALLATION

Position the plate provided **(Fig. 1) 50 mm** from the edge of the gate and perfectly square at an angle of 90°.

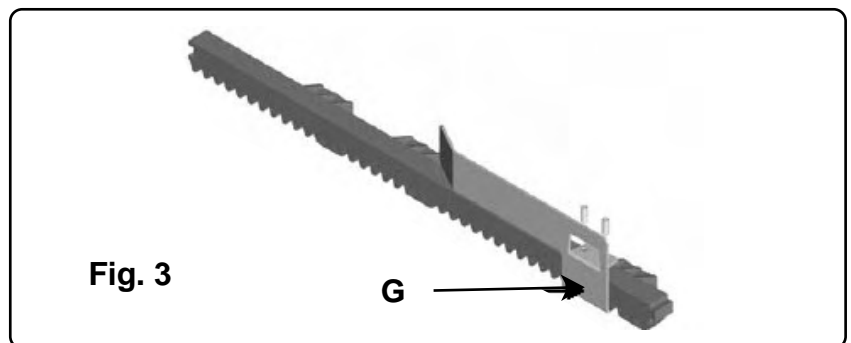
Before fastening the plate with cement, dowels or other means, thread the cable sheath(s) through the prepared holes.



Fasten the rack to the gate firmly, leaving a distance of between 2 and 3 mm from the motor pinion **(Fig.2).**



Fasten the limit stop plates (Cams **G**) of the motor on the rack, **(Fig. 3)**



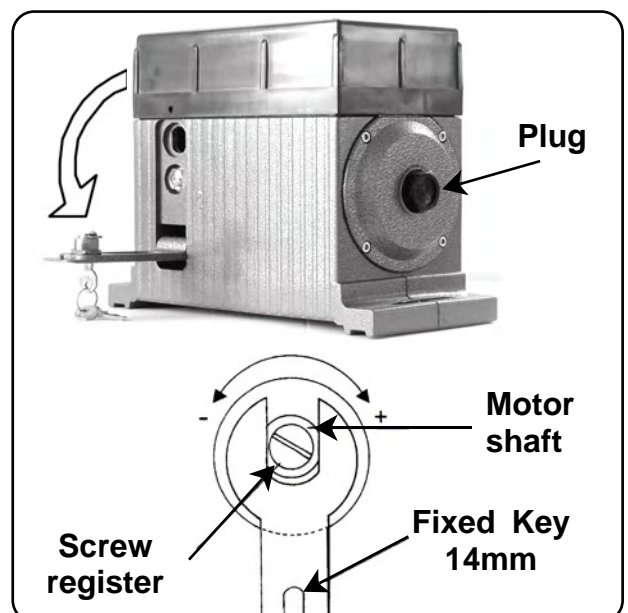
Emergency release

1. Insert the key provided into the appropriate cylinder and turn the key.
2. Pull the lever until it stops

Clutch adjustment

The version 1000/1600Kg and three-phase are provided by mechanical friction bi-disc, adjustable by the screw built-in the motor shaft.

To set, unscrew the plastic plug, keep blocked the motor shaft with a fixed key 14mm and with a screw-driver turn the screw clockwise direction to increase the pair, in the opposite direction to decrease.



TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
On giving a command with the remote control or with the key-switch, the gate doesn't open or the motor doesn't start	230 volt mains voltage absent	Check master switch
	Emergency STOP present	Check for any STOP selectors or commands. If not used, check jumper on STOP contact input on the control board
	Fuse blown	Replace with one of same value.
	Power cable of motor or motors not connected or faulty.	Connect the cable to appropriate terminal or replace.
	The photocell is not functioning or the beam is interrupted	Check the connection, remove any obstacle across the beam
On giving a command with the remote control, the gate doesn't open but works with the key command	The remote control has not been memorised or the battery is flat	Carry out the remote control learning procedure on the radio receiver or replace the battery with a new one..
The gate starts, but stops immediately	The force of the motor or motors is insufficient	Modify the value with the FORCE trimmer on the control unit

N.B. - If the problem persists, contact your Retailer or the nearest Service Centre

SAFETY PRECAUTIONS

These warnings are an essential, integral part of the product and must be given to the user. They provide important indications on the installation, use and maintenance and must be read carefully. This form must be preserved and passed on to subsequent users of the system. The incorrect installation or improper use of the product may be dangerous.

INSTALLATION INSTRUCTIONS

- The installation must be performed by professionally skilled personnel and in compliance with current local, state, national and European legislation.
- Before beginning the installation, check the integrity of the product.
- The laying of cables, electrical connections and adjustments must be workmanlike performed.
- The packing materials (cardboard, plastic, polystyrene, etc.) are a potential hazard and should be disposed of correctly and not left within reach of children.
- Do not install the product in potentially explosive environments or environments disturbed by electromagnetic fields. The presence of inflammable gases or fumes is a grave danger to safety.
- Set up a safety device for overvoltage, a disconnecting and/or differential switch suitable for the product and conforming to current standards.
- The manufacturer declines any and all responsibility for product integrity, safety and operation in the event incompatible devices and/or components are installed.
- Solely original spare parts should be used for repairs and replacements.
- The installer must provide all the information relating to the operation, maintenance and use of the individual parts, components and system as a whole.

WARNINGS FOR THE USER

- Read the instructions and enclosed documentation carefully.
- The product must be used for the express purpose for which it was designed. Any other use is considered improper and therefore hazardous. In addition, the information given in this document and in the enclosed documentation may be subject to modifications without prior notice. It is given as an indication only for product application. The company declines any responsibility for the above.
- Keep products, devices, documentation and anything else provided out of reach of children. In the event of maintenance, cleaning, breakdown or faulty operation of the product, cut off the power and do not attempt to operate on the product. Contact solely the professionally skilled personnel responsible for these operations. Failure to adhere to the above indications may be dangerous.

The data and images are for guidance only

VDS reserves the right to change at any time characteristics of the products described in its sole discretion, without notice.



Installer:

(Name, address, telephone)

UNAC GUIDE No. 1
FOR THE MOTORISATION OF SLIDING GATES
IN ACCORDANCE WITH MACHINERY DIRECTIVE 98/37/EEC AND THE APPLICABLE PARTS OF
STANDARDS EN 13241-1, EN 12453, EN 12445

With this publication UNAC sets out to inform and assist installers in applying the specifications of the directives and of European standards concerning the safe use of motorised gates/doors.

It should be noted that those who sell and *motorise* an existing manual door/gate become the manufacturer of the motorised door/gate *machine* and must prepare and keep the technical file, as laid down by Annex V of the Machinery Directive (98/37/EEC). The technical file must contain the following documents:

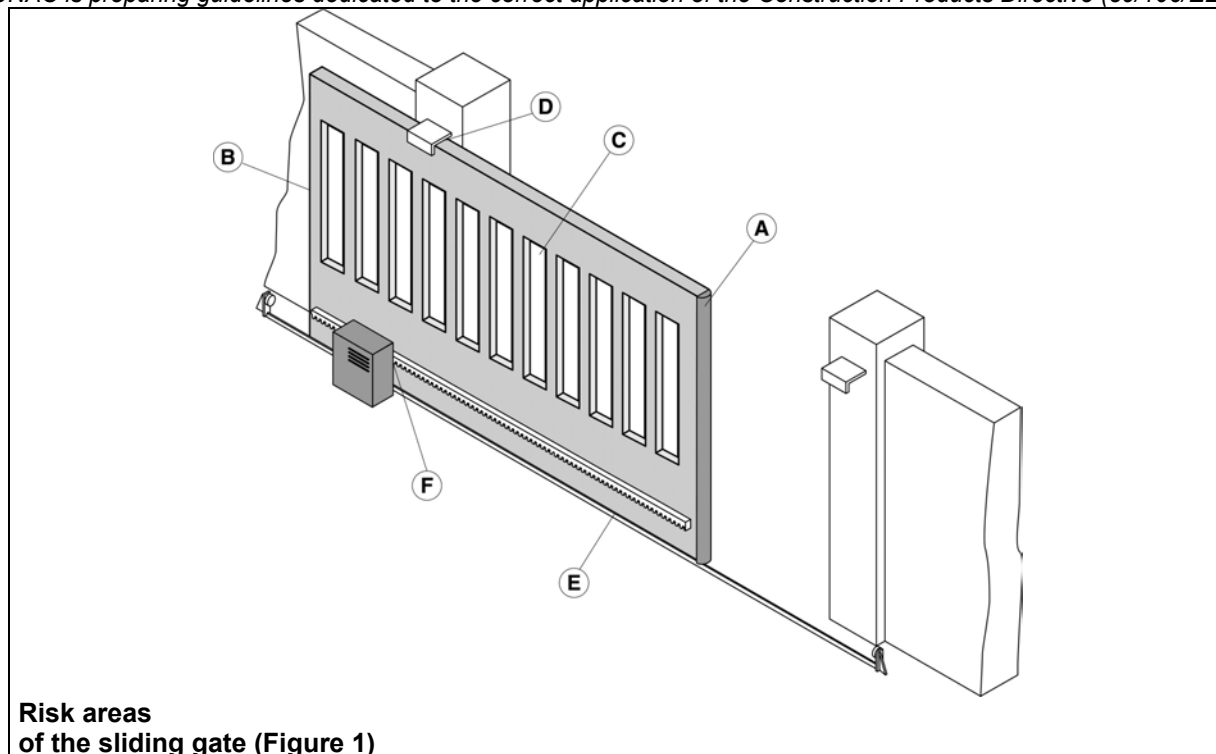
- ☐ Assembly drawing of the motorised door/gate (usually included in the installation manual).
- ☐ Electrical connections and control circuit diagrams (usually included in the installation manual).
- ☐ Risk analysis including (as indicated on the following pages):
the list of the essential requirements as indicated in Annex I of the Machinery Directive;
the list of the risks presented by the door/gate and the description of the solutions adopted.
- ☐ They must also keep the manuals for installation and maintenance of the door/gate and of the components.
- ☐ Prepare the operating instructions and general warnings for safety (if necessary integrating those in the manual for installation of the door/gate) and give the user a copy.
- ☐ Compile the proof book and give the user a copy (see facsimile in Annex 1).
- ☐ Draft the EC declaration of conformity (see facsimile in Annex 2) and give the user a copy.
- ☐ Fill in the label or plate with CE marking and attach it to the motorised door/gate.

N.B. *The technical file must be held and made available to the competent national authorities for at least ten years from the date of construction of the motorised door/gate.*

Note also that, as from May 2005, the manufacturer of a new door/gate (both manual and motorised) must observe the procedure for the CE marking pursuant to the Construction Products Directive (89/106/EEC), as indicated in annex ZA of the standard EN 13241-1. This procedure involves the manufacturer:

- ☐ setting up and maintaining internal production control;
- ☐ having a notified body carry out the initial type tests referring to the applicable characteristics indicated in Annex ZA of standard EN 13241-1.

N.B. *UNAC is preparing guidelines dedicated to the correct application of the Construction Products Directive (89/106/EEC).*

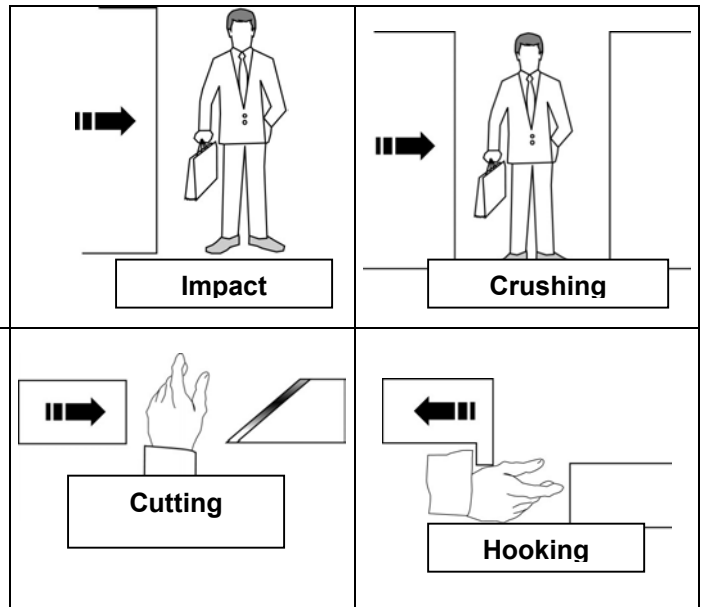


The information given was drafted and checked with the utmost care, nevertheless UNAC declines all responsibility for any errors, omissions or inaccuracies due to technical or graphical requirements. UNAC points out that this guide does not replace the content of standards which the manufacturer of the motorised door/gate must observe.

KEY TO THE MECHANICAL RISKS CAUSED BY MOVEMENT OF THE GATE

Pursuant to the Machinery Directive:

- ❑ “Danger zones” refer to any zone within and/or around machinery in which an exposed person is subject to a risk to his or her health and safety.
- ❑ “Exposed person” refers to any person wholly or partially in a danger zone.



MINIMUM LEVEL OF PROTECTION OF THE MAIN EDGE

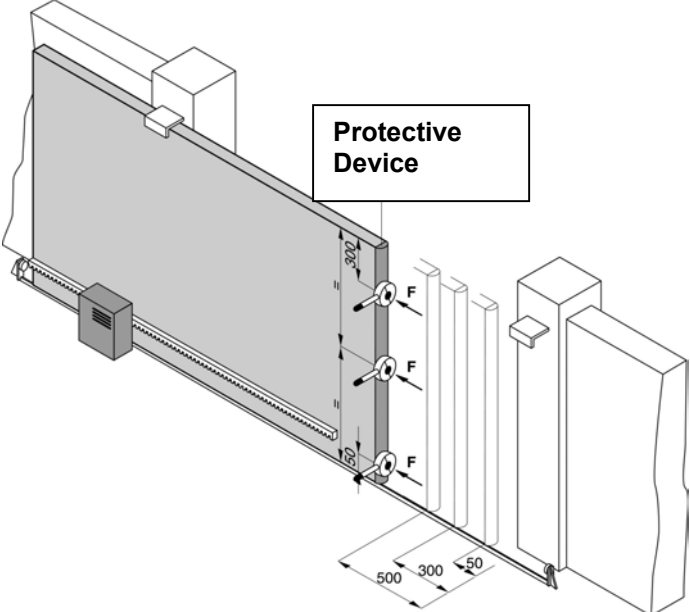
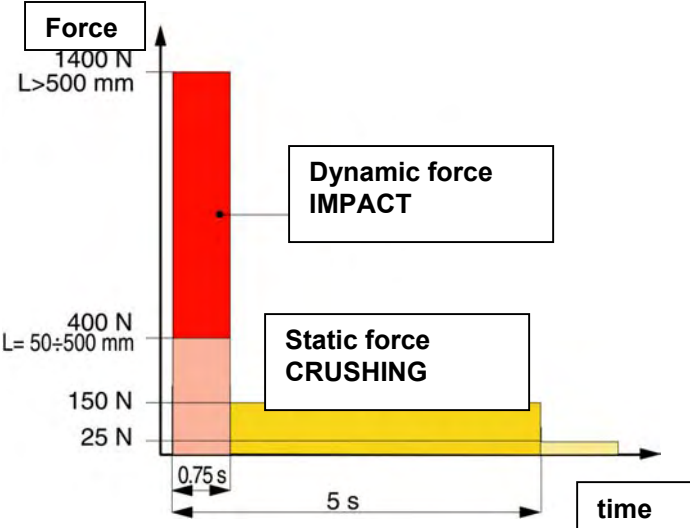
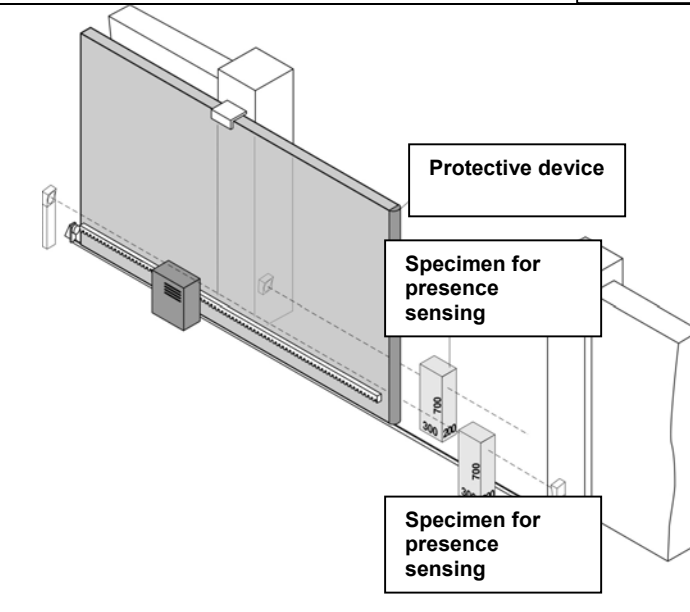
Type of actuation controls	Type of use		
	Informed users (private area)	Informed users (public area)	Uninformed users
Hold-to-run control	Pushbutton control	Pushbutton control with key	Hold-to-run control not possible
Impulse control with door visible	Limitation of forces, or presence sensing devices	Limitation of forces, or presence sensing devices	Limitation of forces and photocells, or presence sensing devices
Impulse control with door not visible	Limitation of forces, or presence sensing devices	Limitation of forces and photocells, or presence sensing devices	Limitation of forces and photocells, or presence sensing devices
Automatic control (e.g. timed closure control)	Limitation of forces and photocells, or presence sensing devices	Limitation of forces and photocells, or presence sensing devices	Limitation of forces and photocells, or presence sensing devices

ANALYSIS OF THE RISKS AND CHOICE OF SOLUTIONS

IN ACCORDANCE WITH THE MACHINERY DIRECTIVE 98/37/EEC AND THE STANDARDS EN 13241-1, EN 12453, EN 12445

The risks listed below follow the sequence of the installation process. These risks are those which are commonly present in motorised doors/gates systems. According to the various situations, consideration therefore has to be made of any possible additional risks and exclude those which are not applicable. The solutions to be adopted are those indicated by the standards mentioned above; in the case of risks not dealt with, the safety integration principles indicated by the Machinery Directive (Annex 1 – 1.1.2) have to be applied.

MD ANN. 1	Type of risks	Evaluation criteria and solutions to be adopted (Tick the box corresponding to the solution adopted)
1.3.1 1.3.2	<i>Mechanical, structural and wear risks.</i> [1] Loss of stability and break-up.	<input type="checkbox"/> Check the solidity of the structure installed (jambs, hinges and leaves) in relation to the forces generated by the motor. Attach the motor stably using adequate materials. If available, check the content of the EC declaration of conformity of the manual gate. <input type="checkbox"/> If necessary, carry out the structural calculation and attach it to the Technical File. <input type="checkbox"/> Check that the travel of the leaves is limited (during opening and closure) by mechanical stops of adequate strength. Check that the leaves cannot, under any circumstance, exit their slide guides and fall.
1.5.15	[2] Tripping.	<input type="checkbox"/> Check that any thresholds higher than 5 mm are visible, indicated or shaped.

MD Ann. 1	Type of risks	Evaluation criteria and solutions to be adopted (Tick the box corresponding to the solution adopted)
1.3.7 1.3.8 1.4	<p><i>Mechanical risks caused by the movement of the gate (see references in Figure 1).</i></p> <p><input type="checkbox"/> CAUTION – If the door/gate is used solely with hold-to-run controls (and meets the requirements of the standard EN 12453), the danger points listed below do not have to be protected.</p> <p><input type="checkbox"/> CAUTION – If protective devices are installed (in accordance with the standard EN 12978) which prevent in all cases contact between the moving leaf and persons (for example photoelectric barriers, presence sensing devices), it is not necessary to measure the operating forces.</p>	
	<p>[3] Impact and crushing on the main closing edge (Figure 1, risk A).</p> <p><input type="checkbox"/> Measure the closure forces (by means of the special instrument required by the standard EN 12445) as illustrated. Check that the values measured by the instrument are below those indicated in the graph. Carry out the measurements in the following points: L = 50, 300 and 500 mm; H = 50 mm, at mid-height of the leaf and at the height of the leaf minus 300 mm (max 2500).</p> <p><i>N.B. The measurement should be repeated three times in each point and the average value considered.</i></p>	
	<p>The graph indicates the maximum values of the dynamic, static and residual operating forces in relation to the various positions of the leaf.</p> <p><i>N. B. With reference to the measurement points with L = 50, 300 and 500 mm, the maximum dynamic force value permitted is 400 N.</i></p> <p><input type="checkbox"/> If the values of the forces are higher, install a protective device in accordance with the standard EN 12978 (for example a sensitive edge) and repeat the measurement.</p> <p><i>N. B. The dynamic force can be reduced, for example, by reducing the speed of the leaf or using a sensitive edge with high elastic deformation.</i></p>	
	<p>[4] Impact on the main closing edge (Figure 1, risk A).</p> <p><input type="checkbox"/> To reduce the risk of impact between the sliding leaf and persons (or vehicles), a pair of photocells must be installed (preferably on the outside) as illustrated (recommended height 500 mm).</p> <p><input type="checkbox"/> In the cases where the thickness of the leaf is greater than 150 mm, or when the impact risk is high (such as for example the presence of unattended children), a second pair of photocells should be installed (on the inside), as illustrated (recommended height 500 mm).</p> <p><i>N.B. The test specimen for presence sensing is a parallelepiped (700 x 300 x 200 mm) having 3 faces with a light and reflective surface and 3 faces with a dark and opaque surface.</i></p>	

MD Ann. 1	Type of risks considered	Evaluation criteria and solutions to be adopted (Tick the box corresponding to the solution adopted)
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[5] Impact and crushing in the area of opening (Figure 1, risk B).

☐ Observe the safety distances illustrated, in the two different cases.



or:

☐ Measure the forces of opening (by means of the special instrument required by the standard EN 12445) as illustrated.

Check that the values measured by the instrument are less than those indicated in the graph.

Carry out the measurements in the following points:

L = 50, 300 and 500 mm;

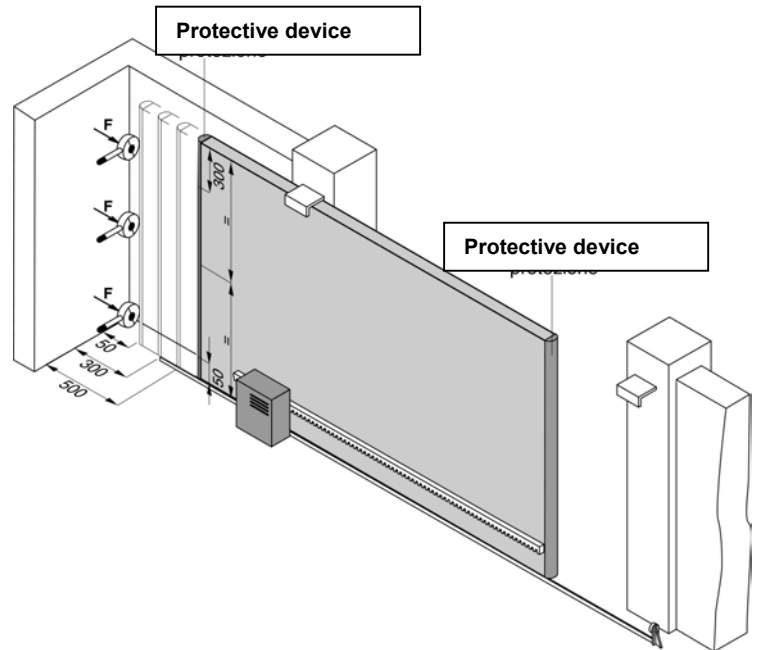
H = 50 mm,

at mid-height of the leaf and

at the height of the leaf minus 300 mm (max 2500).

N.B. The measurement should be repeated three times in each point and the average value considered.

☐ If the values of the forces are higher, install a protective device in accordance with the standard EN 12978 (for example a sensitive edge) and repeat the measurement.



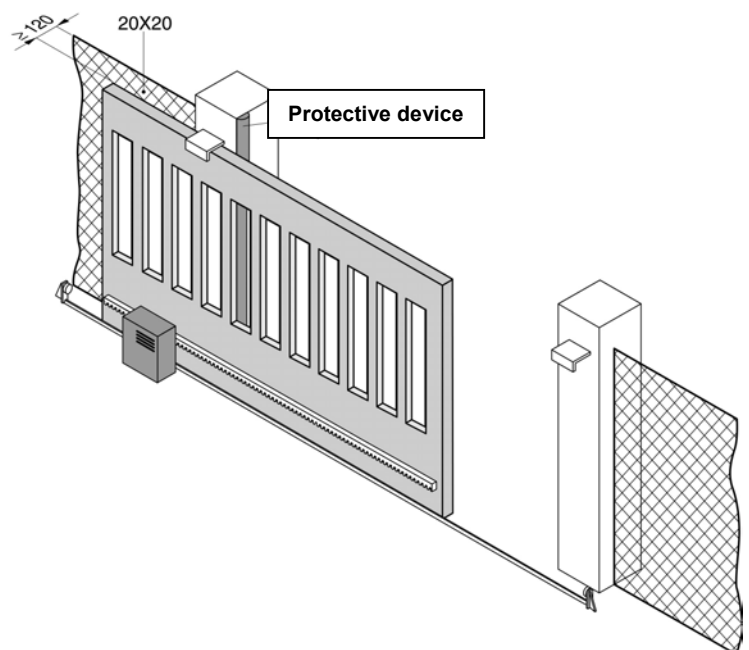
[6] Shearing between the sliding leaf and fixed part during the movement of opening and closure (Figure 1, risk C).


☐ The leaf of the sliding gate and the enclosure must be free from gaps, or the gaps must be covered with a net whose mesh sizes depend on the distance of the leaf from the enclosure.

Dimensions of the meshes of the net	Distance between the leaf and the enclosure
≤ 18.5	120
from > 18.5 to ≤ 29	300
from > 29 to ≤ 44	500
> 44	850

☐ Or a protective device should be installed in accordance with the standard EN 12978 (for example a sensitive edge) as illustrated.

☐ Eliminate or protect any sharp edges, handles, projecting parts etc. (for example by means of covers or strips in rubber).



MD Ann. 1	Type of risks	Evaluation criteria and solutions to be adopted (Tick the box corresponding to the solution adopted)
1.3.7 1.3.8 1.4	<p><i>Mechanical risks due to movement of the leaf.</i></p> <p>[7] Dragging of the hands in point (Figure 1, risk D).</p> <p>[8] Dragging of the feet on the lower edge (Figure 1, risk E).</p> <p>[9] Dragging of the hands on the drive unit (Figure 1, risk F).</p>	<p><input type="checkbox"/> Check that there is a clearance ≤ 8 mm.</p> <p>or:</p> <p><input type="checkbox"/> attach guards that prevent fingers from being inserted (for example a rubber strip).</p> <p><input type="checkbox"/> The clearance between the gate and ground must prevent the risk of dragging of the feet.</p> <p><input type="checkbox"/> Adequately protect the point of dragging between the pinion and the rack during movement of the leaf.</p>
1.5.1 1.5.2 1.5.10 1.5.11	<p><i>Electrical and electromagnetic compatibility risks</i></p> <p>[10] Direct and indirect contacts. Dispersion of electrical energy.</p> <p>[11] Risks relating to electromagnetic compatibility.</p>	<p></p> <p><input type="checkbox"/> Use CE-marked components and materials pursuant to the Low Voltage Directive (73/23/EEC).</p> <p><input type="checkbox"/> Carry out the electrical connections, connection to the mains, earth connections and relevant checks, in accordance with current regulations and as indicated in the installation manual of the drive unit.</p> <p><i>N.B. If the electrical supply line is already set up (via both a socket and a connector block) declarations of conformity to Italian law no. 46/90 are not necessary.</i></p> <p><input type="checkbox"/> Use CE-marked components pursuant to the EMC Directive (89/336/EEC). Carry out the installation as indicated in the manual for installation of the drive unit.</p>
1.2 1.5.3 1.2.3 1.2.4	<p><i>Safety and reliability of drive unit and control and safety devices.</i></p> <p>[12] Safety conditions in the event of malfunctioning and power failure.</p> <p>[13] Energy types other than electrical energy</p> <p>[14] Actuation and disabling of the drive unit.</p> <p>[15] Power supply switch.</p>	<p><input type="checkbox"/> Use drive units which comply with the standard EN 12453 and safety devices which comply with the standard EN 12978.</p> <p><input type="checkbox"/> If hydraulic drive units are used, they must comply with the standard EN 982; or</p> <p><input type="checkbox"/> if pneumatic drive units are used, they must comply with the standard EN 983.</p> <p><input type="checkbox"/> Check that, after a fault or power failure, the drive unit restarts safely without creating hazardous situations.</p> <p><input type="checkbox"/> Install an omnipolar switch for electrical insulation of the door/gate, in accordance with current laws. This switch must be positioned and protected against accidental or unauthorised actuation.</p>

MD Ann. 1	Type of risks	Evaluation criteria and solutions to be adopted (Tick the box corresponding to the solution adopted)
1.2.5	[16] Consistency of controls	<input type="checkbox"/> Install the controls (e.g. key selector) so that the user is not in a danger zone, and check that the meaning of the controls has been understood by the user (for example the function selector). <input type="checkbox"/> Use CE-marked radio controls pursuant to the R&TTE directive (1999/5/EEC) and complying with the frequencies admitted by the laws of each individual country.
1.5.14	[17] Risk of trapping.	<input type="checkbox"/> Install a device for release of the drive unit that allows manual opening and closure of the leaf with force no higher than 225 N (for doors/gates in residential areas) or 390 N (for doors/gates in industrial or commercial areas). Supply the user with the means and instructions for the release operations. Check that operation of the release device is simple and does not create additional risks.
1.2.4	[18] Emergency stop.	<input type="checkbox"/> If appropriate, install an emergency stop control in accordance with the standard EN 418. <i>N.B. Make sure that the emergency stop does not introduce additional risks, aborting operation of the safety devices installed.</i>
1.7.1	<i>Integration principles for safety and information.</i> [19] Signalling equipment.	<input type="checkbox"/> A flashing light should be installed, in a visible position, to indicate movement of the leaf. <input type="checkbox"/> Traffic lights can be installed to control vehicle traffic. <input type="checkbox"/> Reflectors can also be attached to the leaf.
1.7.2	[20] Warnings.	<input type="checkbox"/> Attach all those signs or warnings considered necessary for indicating any unprotected residual risks and to indicate any foreseeable improper use.
1.7.3	[21] Marking.	<input type="checkbox"/> Attach the label or plate with the CE marking and containing at least what is shown in the illustration.
1.7.4 1.6.1 1.1.2	[22] Operating instructions.	<input type="checkbox"/> Consign to the user the operating instructions, safety warnings and EC declaration of conformity (cf. facsimile in Annex 2).
	[23] Maintenance.	<input type="checkbox"/> A maintenance plan has to be drawn up and implemented. Check on the proper working of the safety devices at least every 6 months. <input type="checkbox"/> Record the work carried out in the proof book in accordance with the standard EN 12635 (cf. facsimile in Annex 1).
	[24] Unprotected residual risks.	<input type="checkbox"/> Inform the user in writing (for example in the operating instructions) of any unprotected residual risks and foreseeable improper use.

