CARDIN®
RIELLO ELETTRONICA

Installation / maintenance / assistance company:

RISK ANALYSIS

The dangers/risks indicated below are those most commonly found in automatic closing installations; it is therefore necessary to take into consideration additional dangers/risks that could occur in specific situations and to exclude those which are not applicable. The dangers/risks that have been detected and which do not appear below must be added to this document or included in an annex to this document along with the solutions used to resolve the situations.

Types of risk (Mark the risks considered)	**Evaluation criteria and solutions used** (tick the box corresponding to the solution used)
Mechanical and structural risks and wear and tear	
☐ loss of stability	☐ The robustness of the structure has been checked, suitable materials and fastenings have been used.
☐ falling parts	☐ Required interventions and adjustments have been carried out to make sure the gate leaves cannot fall.
☐ protrusions	☐ Checked that protrusions greater than 4 mm (e.g.. the gate runner guide) have been rounded and highlighted.
☐ slippery surfaces	☐ Checked that protrusions do not have slippery surfaces or could become slippery when it rains.
	☐ Checked the presence and efficiency of an anti-falling system for the moving parts.
	☐ Suitable travel limits have been installed and checked.
	☐ The necessary maintenance instructions have been supplied.
Further checks	
☐ The moving parts have been fitted with enough protection according to the standards in force and have been installed following the manufacturer's instructions.	☐ If required and according to the manufacturer's instructions, the speed adjustment of the gate leaf can only be carried out by specialised personnel.
☐ The gate has been fitted with a release device to allow manual operation.	☐ The opening has been checked to verify that there are no assembly errors.
☐ Suitable instructions have been supplied to carry out the manual release.	☐ Suitable instructions explaining how to avoid unforeseen or non wanted start ups (e.g. during maintenance interventions) have been supplied.

Risks caused by movement of the closing system

Risk type		**Solutions adopted**
A) bangs/ crushing	D) dragging / wedging	
B) cuts	E) shearing	
C) lifting	F) hooking	
Protection to be applied		
1) manual commands	8) multiplex barriers (protective devices)	
2) safety edges (protective devices)	9) acoustic signals	
3) photoelectric cells (detection devices)	10) warning lights	
4) safety devices	11) warning signs	
5) torque adjustment (protective devices)	12) separation (using covers or rubber buffers)	
6) rounding the surfaces	13) wire mesh protection	
7) safety mats (protective devices)	14) other	

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Safety and reliability of the operator and the command devices	
☐ safety conditions (even during failure and blackouts).	☐ Suitable command, movement and safety devices have been used which conform to the standard EN12453 (chapter 5 and appendix A).
	☐ Command devices fitted with buffer batteries which conform to the standards and regulations in force have been installed.
	☐ The installation has been carried out following the indications in the installation manual.
☐ assembly errors and command coherence	☐ The commands are coherent with the movement of the closing automation and with the instructions supplied by the constructor.
☐ command devices	☐ An emergency stop device has been installed (and doesn't introduce added risk).
	☐ The command devices have been installed in a visible and easily accessible position.
☐ measuring the force of the closing device	☐ Measurements have been carried out using instruments according to the standard EN 12445 and at the correct points (chapter 5).
☐ proximity protection devices (contact between the closing system and people must never be allowed)	☐ A detection device which confirms to the standard EN 12978 has been installed.
☐ detection devices	☐ Checks have been carried out to the detection device according to the standard EN 12445.
Principles for integrating safety devices and information	
☐ residual non protected risks	☐ The user has been informed that residual non protected risks remain and that foreseeable incorrect use of the installation has been communicated.
☐ warning devices	☐ Warning lights, traffic lights and sirens etc. have been installed in correct and easily visible positions.
☐ warning signs	☐ Warning signs indicating residual risk have been positioned.
☐ marking	☐ An adhesive or plaque with the CE marking and containing the constructor's Date, the address, series, type of closing device and the installation year has been fitted.
☐ user instructions	☐ User manual and safety instructions have been given to the end user.
	☐ Keys and tools for manual release etc. have been supplied.
	☐ The commands have been situated in easily accessible positions.
Electrical risks	
☐ direct and indirect contact	☐ Components marked with the CE symbol according to the Low Voltage Directive (2006/95/EC).
☐ electrical energy dispersion	☐ The electrical connection and connection to the mains conforms to the standards in force and is in agreement with the instructions supplied by the constructor.
Electromagnetic compatibility risks	
☐ electrical, magnetic and electromagnetic field emission	☐ Approved radio control devices or those conforming to the directive R&TTE (99/5/CE) with allowed frequencies, according to the relative standards, have been used.
	☐ Components marked with the CE symbol according to the EMC (2004/108/CE) directive have been used.
	☐ The installation follows the instruction manual for the operating device and for other eventual electrical and electronic components.
Ergonomic risks	
☐ force required for manual movement	☐ Check that the manual movement commands do not require excessive force and conform to the standard EN12604 (manual gate opening/closing using force not greater than 150N if in a residential area or 260N if in a commercial/industrial area) and to the standard EN12453 chapter 5.3.5.
Maintenance	
☐ how to proceed	☐ A maintenance plan has been drawn up and put into act for the required time period (at least once every 6 months) maintenance contract.
☐ power supply cut off devices	☐ A cut off device has been installed to interrupt the electrical power supply.
☐ documentation	☐ Maintenance interventions have been registered and the CE declaration of conformity has been given to the end user.