FIRE DOORS AND EMERGENCY EXITS

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MAINTENANCE
MANUTENZIONE

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FIRE DOORS AND EMERGENCY EXITS MAINTENANCE

Scope of this manual

This manual deals with doors or locking systems intended to provide fire resistance in fire resistant separating elements. These also include construction accessories and gaskets inserted for fire resistance purposes, smoke dispersion control or for other features such as air tightness or acoustic insulation.

Possible movements of the fire doors:

- Hinged doors
- Sliding doors
- Sash doors
- Fixed windows

This manual contains the description of the operation and the instructions necessary to correctly carry out the main operations of use, ordinary and periodic maintenance.
We recommend the use of original spare parts and accessories and/or in any case recognized by the manufacturer. This manual DOES NOT deal with the maintenance of electrical parts or special components (panic exit devices, electronic locks, detectors, etc.) for which reference is made to the specific manuals.

Topics covered

Periodic checks:

- Taking charge: activity, periodicity, competence
- Related operations
- Extraordinary maintenance
- Routine maintenance

The identification system

Recommended equipment

Recommended frequency

Directions for use

- Cleaning
- Liquid surface painting
- Storage

Appendix:

- Reference standards
- Checklist example

PERIODIC CHECK AND MAINTENANCE OF FIRE DOORS

Periodic inspection and maintenance must not be limited to just the "function test of the closure", but must also aim at preserving its initial state.
Steps in which periodic inspection and maintenance are carried out:

ACTIVITY'	PERIODICITY	COMPETENCE
1- Taking Charge	Not applicable	Maintenance technician
2- Surveillance	According to the maintenance plan drawn up by the responsible person according to the risk (DVR)	Responsible person (User) (also with the help of adequately informed personnel)
3- Periodic check	See attached table	Maintenance technician
4- Ordinary maintenance	Occasional in case of minor anomalies found	Maintenance technician
5- Extraordinary maintenance	Occasional in case of non-conformities detected	Maintenance technician

The "Maintenance technician" is personnel with specific, adequate and up-to-date training, proven by certification.

1- TAKING CHARGE OF THE DOOR

Depending on the taking charge, it is advisable to prepare a summary document of the intervention which, once completed, will constitute the intervention report.

With the taking charge phase, the maintenance technician, starting from the examination of the site, should:

- evaluate the status of the installed doors;
- check the availability of the use and maintenance booklet Acquire the records of past interventions;
- check the compliance of the installation of the doors;
- check the integrity and tightness of the fastening systems, the stability of the door as a whole;
- check the integrity of the door and the accessories, and that no modifications not foreseen by the manufacturer have been made.

Correct taking charge represents an essential and crucial step for carrying out maintenance activities.

2- SURVEILLANCE

Surveillance consists of a visual check aimed at verifying that the fire doors are in normal operating conditions, are easily accessible and do not show material damage ascertainable by visual inspection. Surveillance can be carried out by personnel normally present in protected areas after having received adequate instructions. Minimum checks to be carried out on fire doors:

- operation of the opening system;
- integrity of the gaskets and absence of damage;
- regular closure (the door must not be bent, there must be no holes or cracks, ...) and locked in the closed position;
- in the presence of the self-closing device, this actually operates;
- if equipped with an opening retention device (electromagnet), they have efficient devices.

3- PERIODIC CHECK

The periodic check must be carried out by a maintenance technician. It consists of a series of operations aimed at verifying the complete and correct functionality of the fire door , under the normal conditions existing in the environment in which it is installed.

The operations to be carried out during the periodic inspection are described in point 7.7 of UNI 11473-1

- Check for the presence of the plate (conformity mark) affixed by the manufacturer
- Check for improper checks
- Check gaskets
- presence of damage, integrity and modifications - check secure fastening to door and frame
- presence of paint
- Check fixings
- check continuity and solidity of the anchorage to the wall support
- verification of the vertical and horizontal planes of installation of the moving parts
- check for play between door and frame - check for play between leaves
- verification of the games of the labyrinths of the sliding doors
- Verify construction integrity
- presence of punctures, dents, distortions, corrosion, cracks, sagging
- check for cracks, opacifications, cracks, flaking of the glass
- Check for other tampers that alter the initial build
- Check hinges
- Check integrity, correct lubrication, fastening and functioning of hinges
- Check the correct value of the friction torque - Check that the axis of the hinges is vertical
- Check opening devices
- Check latch and lock lubrication and fastening - Check the correct value of the lock latch reengagement force
- Check the force and release torque of the anti-panic or emergency device (handle)
- Check force and release torque of the emergency device (handle)
- Check force and release torque of the emergency device (push plate)
- Check ease of operation

- Verify integrity and smoothness
- Check integrity and smoothness of carriages, pins, pulleys, cables, chains, counterweights, etc.
- Check correct lubrication
- Check closing (re-engaging) and correct closing speed
- Check self-closing devices
- Check overhead door closer lubrication
- Check door closer arm conditions
- Check for any oil leaks on the door closer body - Check leaf and frame alignment with floor-mounted door closer
- Check that the door closer pin bushing is working properly
- Check correct operation of the closing speed regulating valve
- Check closing times
- Check correct closure (test drive at minimum angle)
- Verify proper functioning of the locking coordinator
- Checking the retaining devices (electromagnets or heat sensitive elements)
- Check correct fastening and lubrication
- Check good condition of power cable - Check power supply voltage
- Check absorbed power
- Check presence of electromagnet manual release - Check that the anchor and the magnet are not oxidized

NB: the above list is intended to give a general picture but may not be exhaustive for specific components and applications. In this case, refer to the instructions attached to the window or component.

4- OPERATIONS RELATED TO ROUTINE MAINTENANCE

Ordinary maintenance is carried out on site, with commonly used tools and equipment. It is limited to minor repairs, which involve the use of small parts and consumables of current use, or the replacement of parts of modest value expressly provided for. This operation can be carried out at the same time as the periodic inspection visit.

5- OPERATIONS RELATED TO EXTRAORDINARY MAINTENANCE

Extraordinary maintenance consists of an intervention that cannot be performed on site or which, despite being performed on site, requires means of particular importance, or special equipment or tools, or which involves the replacement of components.

Once the maintenance has been completed, the technician is required to fill in the intervention report and, if necessary, to issue a new declaration of correct installation.

THE IDENTIFICATION SYSTEM

Once the inspection and ordinary maintenance have been completed, the technician is required to fill in the intervention report and update the maintenance report.

The maintenance report must refer to each port. In this regard, you can use a maintenance tag or an identification tag or QRcode affixed by the company in charge of carrying out the maintenance service. Each door in operation must be equipped with an individual identifier from which the following data can be deduced:

- name of the maintainer and signature of the employee;
- date of the verification and/or intervention following which it was applied.

EQUIPMENT

Below is a non-exhaustive list of equipment, currently on the market, necessary for correct maintenance.

- Screwdriver set for straight and cross recessed screws
- Set of wrenches for hexagon socket head cap screws
- Wrench set
- Spring hinge loading tools
- ~ 2 m long plumb bob or laser beam level (projector of two orthogonal laser beams with automatic leveling of the beams within a horizontality error of the support surface of ± 4°)
- Force gauge with full scale equal to or greater than 200 N and accuracy equal to or greater than ± 0,5 % of reading ± 2 digits
- Meter and caliper
- Stopwatch
- WD-40 lubricant or equivalent
- Flux, such as Svitol or equivalent
- Door lifter pedal or equivalent tool
- testers.

RECOMMENDED PERIODICITY

SWING AND SLIDING DOORS			
Intervention description	Periodicity		
	Light use	Average use	Intensive use
Checks, greasing and adjustments	annual	half yearly	quarterly

Replacement of worn, damaged or tampered with parts: when needed

As an indication, the following parameters of use can be assumed to identify the type of use to which the doors are subjected.

In the event of installation in non-harsh environments (with ordinary ventilation, humidity and corrosion):

Usage classification	Openings per day			
	Swing doors		Sliding	
	From	TO	From	TO
Light use	0	5	0	2
Average use	6	30	4	10
Intensive use	31	200	11	50

For more intensive/heavier use, an appropriate maintenance program must be used.

INDICATIONS FOR USE

- **Cleaning**

General indications for cleaning surfaces painted with thermosetting powder and anodized aluminum surfaces

Never use detergents of unknown chemical composition. Detergents, as is known, are produced by different manufacturers and sold under different names, but in general they can be classified into three macro families:
• Alkaline (not usable)
• Acid type (not usable)
• Neutral type (usable)

When cleaning, it is absolutely necessary to pay attention to the following aspects:
• Painted surfaces during washing must be cold and not exposed to direct sunlight.
• The neutral detergents used for cleaning must be at room temperature (about 20 degrees).
• Do not use acids and alkalis.
• Do not use abrasive materials
• Do not use organic solvents
• Absolutely avoid the use of coarse abrasives, such as sand, steel wool, metal brushes, etc.
Cleaning should be done with the aid of a soft brush, sponge or chamois. Then always rinse with clean water.
A soft abrasive or detergent can be used to remove very adherent dirt.
Better not to grease with waxes, vaseline, lanolin and similar substances, as they create a film with possible deterioration over time.
The same precautions are to be used with the combined cleaners.

- **Liquid surface painting**

It is strongly recommended that surfaces be lightly sanded with fine sandpaper before any painting.
Our doors are powder coated with epoxy polyester or polyester powders polymerizing in the oven, temperature 180°C - 210°C degrees for about 10-20 minutes. Having no solvents inside, they can be dyed with most paints.
Some problems could arise when using "nitro" paints. For that type of paint, it is recommended to do a preliminary test on a hidden corner.
The best result is obtained with water based paint.
Carefully avoid any color dripping into the mechanical components (lock, hinges, etc.)

- **Storage**

In the event of prolonged storage, the doors must be kept in a ventilated and dry place, away from the sun, with pallets and/or doors removed from any protective film.

REFERENCE STANDARDS

- EN 179 Accessories for doors and windows - Emergency exit devices operated by lever handle or push plate for use on escape routes - Requirements and test methods
- EN 1125 Accessories for doors and windows - Devices for panic exits activated by means of a horizontal bar for use on escape routes - Requirements and test methods
- EN 1154 Accessories for doors and windows - Controlled door closing devices - Requirements and test methods
- EN 1155 Accessories for doors and windows - Electromagnetic door-stop devices for revolving doors - Requirements and test methods
- EN 1158 Accessories for doors and windows - Devices for coordinating the door closing sequence - Requirements and test methods
- EN 1634-1 Fire resistance and smoke dispersion control tests for doors and locking systems, opening windows and their construction accessories - Part 1: Fire resistance tests for doors and locking systems and opening windows
- EN 1634-2 Fire resistance and smoke dispersion control tests for doors, locking systems, opening windows and their construction components - Part 2: Resistance tests for construction components
- EN 1906 Accessories for doors and windows - Handles and knobs - Requirements and test methods
- EN 1935 Accessories for doors and windows - Single axis hinges - Requirements and test methods
- 11473-1 Fire resistant doors and windows that can be opened and/or for smoke dispersion control - Part 1: Requirements for the provision of the installation and maintenance service
- EN 12209 Window fittings - Locks and bolts - Mechanically operated locks, bolts and lock plates - Requirements and test methods
- EN 13501-2 Fire classification of construction products and elements
- EN 14600 Openable doors and windows with characteristics of resistance to fire and/or smoke tightness. Requirements and classification
- EN 14637 Door and window fittings - Electrically controlled exit systems for smoketight door assemblies - Requirements, test methods, application and maintenance
- prEN16034 Pass doors, industrial commercial garage doors and windows. Product standard, performance characteristics. Fire resistance and/or smoke control

EXAMPLE OF CHECK LIST

Closing no. ……. Position…… Date ……..

line	ITEM	Okay	No
1	presence of a plate (mark of conformity) affixed by the manufacturer	✓	×
2	presence of improper restraints	✓	×
3	gaskets	✓	×
4	presence of damage, integrity and modifications - secure fastening to door and frame	✓	×
5	presence of paint	✓	×
6	fixings	✓	×
7	continuity and solidity of the anchorage to the wall support	✓	×
8	of the vertical and horizontal laying planes of the moving parts	✓	×
9	presence of play between the door and frame - play between the leaves	✓	×
10	of the labyrinth games of the sliding doors	✓	×
11	construction integrity	✓	×
12	presence of punctures, dents, distortions, corrosion, cracks, sagging	✓	×
13	fissures, opacifications, cracks, flaking of the glass	✓	×
14	other tampering that alter the initial construction	✓	×
15	state of hinges	✓	×
16	integrity, correct lubrication, fastening and functioning of hinges	✓	×
17	correct value of the friction torque - that the axis of the hinges is vertical	✓	×
18	opening devices	✓	×
19	latch and lock lubrication and fastening - correct value of the lock latch reengagement force	✓	×
20	release force and torque of the anti-panic or emergency device (handle)	✓	×
21	emergency device (handle) release force and torque	✓	×
22	release force and torque of the emergency device (push plate)	✓	×
23	ease of maneuver	✓	×
24	integrity and fluency	✓	×
25	integrity and smoothness of carriages, pins, pulleys, cables, chains, counterweights, etc.	✓	×
26	correct lubrication	✓	×
27	closing (relatching) and correct closing speed	✓	×
28	self-closing devices	✓	×
29	overhead door closer lubrication	✓	×
30	door closer arm conditions	✓	×
31	any oil leaks on the door closer body - alignment of leaves and frame with floor door closer	✓	×
32	door closer pin bushing is working properly	✓	×
33	correct operation of the closing speed control valve	✓	×

34	closing speed	✓	×
35	correct closure (test drive at minimum angle)	✓	×
36	correct functioning of the closing coordinator	✓	×
37	retaining devices (electromagnets or heat sensitive elements)	✓	×
38	correct fastening and lubrication	✓	×
39	good condition of the power cable - power supply voltage	✓	×
40	absorbed power	✓	×
41	presence of manual electromagnet release	✓	×
42	non-oxidized magnet anchors	✓	×

For the positions marked on " × " indicate the no. line and comments

line	COMMENTS

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