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Title:
Classification report assigned to two metal hinged single leaf doors in accordance with the procedure given in the Standard EN 13501-2:2016.

Nº 9/LE 895

Classified material:

- Two metal hinged single leaf doors with reference "Puerta servicio cortafuegos" supplied by REPRO, S.L.

File number: 17/14384-1011 Part 2

This report, issued the 26th of September 2017, is the English version of the original Spanish report 17/14384-1011 Parte 2. In the event of litigation, the original version will be valid.

Sponsor:
COMERCIAL INDUSTRIAL REPRO, S.L.
Avda. del Mar s/n
46410 Sueca
Valencia

Report date:
26th September, 2017

Date of the test:
11th May, 2017

1.- INTRODUCTION

This fire resistance classification report defines the classification assigned to two elements with reference "Puerta servicio cortafuegos", in accordance with the procedure given in the Standard EN 13501-2:2016.

2.- DETAILS OF THE CLASSIFIED ELEMENTS

2.1.- Type of function

The elements tested are defined as two metal hinged single leaf doors (one door opens outwards the furnace and the other inwards the furnace). Their function is to resist fire regarding the integrity and thermal insulation characteristics provided in section 5 of the Standard EN 13501-2:2016.

2.2.- Description

A complete description of the tested elements is carried out in the test report, in which is based the classification defined in section 5 of the current report.

3.- INFORME DE ENSAYO

The current classification report is based on the following test report:

File number: 17/14384-1011 Parte 1
Report issued on: 26th September 2017
Date of the test: 11th May 2017

4.- TEST RESULTS

4.1.- Standard of the test:

EN 1634-1:2014: "Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 1: Fire resistance test for door and shutter assemblies and openable windows".

4.2.- EXPOSURE CONDITIONS

Temperature/time curve	$T = 345 \log_{10}(8t + 1) + 20$
Direction of the exposure	Door A opens outwards the furnace (hinges outside the furnace). Door B opens inwards the furnace (hinges inside the furnace).
Number of exposed sides	2 (1 side of each door).
Supporting conditions	Perforated ceramic brick wall of 140 mm thick, coated with mortar on the exposed side fire, total thickness of 150 mm.

4.3.- TABLE RESULTS

Door A: "Puerta servicio cortafuegos" opening outwards the furnace (hinges outside the furnace).

	Minute of failure	Reason
Integrity	No failure.	It is maintained throughout the test, 93 minutes.
Thermal insulation	No failure.	It is maintained throughout the test, 93 minutes.

Door B: "Puerta servicio cortafuegos" opens inwards the furnace (hinges inside the furnace).

	Minute of failure	Reason
Integrity	No failure.	It is maintained throughout the test, 93 minutes.
Thermal insulation	92	Thermocouple nº 48 records an increase in temperature greater than 180 ºC over the initial average temperature.

5.- CLASSIFICATION

Pursuant to section 7.5 of the Standard EN 13501-2:2016, the classification of the tested elements are as follow:

Door A:

Metal hinged single leaf door with reference "Puerta servicio cortafuegos", opening outwards the furnace (hinges outside the furnace).	**EI_2 90**

Door B:

Metal hinged single leaf door with reference "Puerta servicio cortafuegos", opening inwards the furnace (hinges inside the furnace).	**EI_2 90**

Note: as indicated in section 13.3.2 of the Standard EN 1634-1:2014 and considering the results reflected in section 4.3 of the current classification report, the category which corresponds to door A with reference "Puerta servicio cortafuegos" and classification EI_2 90 is: CATEGORY A. Likewise, the category of door B with reference "Puerta servicio cortafuegos" and classification EI_2 90: is CATEGORY A.

6.- FIELD OF DIRECT APPLICATION

6.1 Generalities (acc/section 13 of the EN 1634-1:2014).

The results of the fire test and classification obtained are directly applicable to those constructions equal to the test samples when one or more of the changed listed below are made:

Characteristics	Reference of sample tested*	Modification permitted
Materials/construction	<u>Metallic:</u> Leaf (total thickness: 77 mm): - Lacquered galvanized steel sheet of 1 mm thick. - Inner composition (see section 3 of test report nº 17/14384-1011 Parte 1). - Stainless steel perimeter frame of 1.2 mm thick. Frame: - Two galvanized steel profiles of 1.2 mm thick, section of 105 x 185 mm (width x depth). Weight of each door (frame not included): 120.9 kg. (See test report nº 17/14384-1011 Parte 1).	- Increase of the dimensions of the metallic profile of the frame to accommodate them to the increased thickness of the support construction. - The thickness of the metal frame may be increased up to 25 %. - Variation in metal type is not allowed.
	<u>Glazed:</u> - Stainless steel frame, 1.2 mm thick. - Glass ref. "Pyranova® 90 S3.0" by SCHOTT AG, supplied by Protection Glass Fire, S.L., 39 mm thick, total dimensions of 460 x 360 mm (height x width). - Fixing method and others: • Intumescent strip, ref. "SEALBIFIRE®" by Bifire, 2 mm thick. • Galvanized steel profile of 1 mm thick. • 8 screws per side, dim. M5 x 20 mm with hollow rivets. (See section 3 of test report nº 17/14384-1011 Parte 1).	- No variations allowed in type of glass and the edge fixing technique, including type and number of fixings per meter of perimeter. - Increasing the number of glazed apertures and glass dimensions is not allowed. May be reduced in a limited manner[1]. - The distance between the edge of glazing and the perimeter of the door leaf or the distance between glazed apertures may not be reduced. - Change of positioning of glazed apertures is limited[2].

[1] Reduction in size will be conditioned by:

- Decreased in proportion with size reductions; or
- Decreased by a maximum of 25% for integrity only and/or radiation control constructions and for insulation specimens where the unexposed surface temperature for both the construction and the glazing have been maintained for the classification; or
- Reduced for doorsets, without restriction, providing that the total area of the tested pane(s) is less than 15 % of the door leaf or side/over panel area.

[2] Other positioning within the door can only be modified if this does not involve the removal or re-positioning of structural members relative to the glazing.

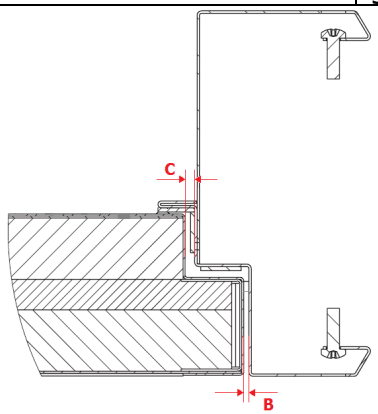
Decorative finishes.	- Leaf tested with lacquer. - Frame tested without paint finish.	- Application of paint which does not contribute to fire resistance in leaves and frames is allowed.
	- Tested without decorative laminates.	- Decorative laminates and timber veneers ≤ 1.5 mm thick may be added to the faces (but not the edges) of doors that satisfy the insulation criteria (normal or supplementary procedure).
Fixings	Each door is fixed to the supporting construction by means of a total of 30 metallic fixings, ref. "CH-PI" by INDEX, dim. Ø 8 x 45 mm: - 6 fixings per each vertical element and on both sides. - 3 fixings on the lintel and on both sides.	- Not allowed the reduction of 6 metallic fixings per each side of each vertical element and 3 per each side of the lintel. - No increase in distance between metallic fixings is allowed. - The increase in the number of metallic fixings and the reduction in distance between them are permitted.
Building hardware	- Interchange of building hardware.	- Not covered by the field of direct application.
	- Three-point lock, series "Mito Panic", ref. "43115.65.0" by CISA, centre of each latch placed at, regarding the lower part of each leaf, at 397, 1065 and 1733 mm.	- Not covered by direct application.
	- Four stainless steel hinges per door, ref. "77703821" by Metalurgia Pons, lower part of bottom hinges placed at 145 and 905 mm from the lower part of each leaf; and upper part of top hinges placed at 100 and 320 mm from the upper part of each leaf.	- Allowed the increase but not the reduction in number.

	- Overhead door closer ref. "TS 2000 V" by GEZE GmbH, placed one on the upper left corner of the unexposed side of door A and other on the upper left corner of the exposed side of door B. Both are deactivated during the test.	- No installation of it is allowed.
Size variations	- Door A: metal hinged single leaf door, ref. "Puerta servicio cortafuegos". Classification 90 minutes. Category A. - Total dimensions: 2180 x 1160 mm (height x width).	- Size increase is not permitted. - Decrease in size up to 50% in width and 75% in height with respect to the sample tested is allowed[4].
	- Door B: metallic hinged single leaf door, ref. "Puerta servicio cortafuegos". Classification 90 minutes. Category A. - Total dimensions: 2180 x 1160 mm (height x width).	- Size increase is not permitted. - Decrease in size up to 50% in width and 75% in height with respect to the sample tested is allowed[4].

[4] The relative positioning of movement restrictors for size reductions shall remain the same as the tested sample or the distance between them is limited to the same percentage reduction applied on the tested samples.

Supporting construction	- Perforated ceramic wall, total thickness of 150 mm and density of 1390 kg/m^3.	- Valid for other rigid supporting constructions with a thickness and density equal to or greater than the one tested.
Gaps	- Door A: metal hinged single leaf door, ref. "Puerta servicio cortafuegos". (See tested gaps in test report nº 17/14384-1011 Parte 1).* Note: Values of gap C do not take into account the thickness of the intumescent strip.	Maximum gaps allowed for primary gaps: - Between leaf and lintel (see detail 1): Gap B: **7.9 mm** Gap C: **9.1 mm** - Between leaf and hinged side (see detail 1): Gap B: **5.9 mm** Gap C: **8.9 mm** - Between leaf and lock side (see detail 1): Gap B: **6.6 mm** Gap C: **9.2 mm** - Between leaf and floor: **8.5 mm** The minimum size of primary gaps may be reduced.

Gaps	- Door B: metal hinged single leaf door, ref. "Puerta servicio cortafuegos". (See tested gaps in the test report nº 17/14384-1011 Parte 1).* Note: Values of gap C do not take into account the thickness of the intumescent strip.	Maximum gaps allowed for primary gaps: - Between leaf and upper frame (see DETAIL 1): Gap B: **5.6 mm** Gap C: **7.3 mm** - Between leaf and hinged side (see DETAIL 1): Gap B: **7.1 mm** Gap C: **10.1 mm** - Between leaf and lock side (see DETAIL 1): Gap B: **5.6 mm** Gap C: **6.8 mm** - Between leaf and floor: **8.8 mm** The minimum size of primary gaps may be reduced.



DETAIL 1

* The reference values of the tested samples not indicated in the present section are described in section 3 "Assembly method and installation of the samples" of the file 17/14384-1011 Parte 1.

The period of validity is the one stated in the product certification system.

This document cannot be considered either a type approval or certification of the product.

Digitally signed by
Jordi Mirabent Junyent

Responsible of Fire Laboratory
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The results refer only and exclusively to the samples tested in the moment and under the conditions indicated herein.