

Statement on the influence of Abloy door closers to the fire resistance of hinged steel doors, hinged timber doors and hinged glazed doors with steel or timber frames

Requested by: Abloy Oy



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Order: e-Mail order sent on 13 November by Mr Vesa Kärkkäinen

Organisation undertaking statement

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Request for comment

The client requested a statement on the influence of Abloy door closers listed in table 1 to the fire resistance of hinged steel doors, hinged timber doors and hinged glazed doors with steel or timber frame that are classified according to standard EN1301-2 and/or requirements in Finland. In the following table is presented door closers and arms.

Table 1. Abloy door closers and arms.

Type of door closer	Type of arm
DC240, DC241, DC250, DC247 and DC330	DC193 and DC194, DC194
DC240, DC241, DC334, DC335 and DC247	DC190, DC199 and DC197
FD440	DC199, DC193, DC194, FD494 and FD499
DC405	standard arm (808 019)
DC403	sliding arm (811 749)

The client delivered also following drawings of the door closers:

DC240/DC241, drawing number 1-3A807354,
DC247, drawing number 1-3A807353,
DC250, drawing number 1-3A807350,
DC330, drawing number A2-D811775 0,
DC333/DC334, drawing number A2-D811773 0,

DC405/DC403, drawing number 1-3A811776 and
FD440, drawing number 1-3A808876.

The drawings are archived in the file of this task.

Background information The statement is supported by following statement and five test reports delivered by the sponsor:

Statement No RTE3136/03 (12 September 2003) of VTT

“Statement on influence of door closers manufactured by Abloy Oy to the fire resistance of metal and glazed doors”.

The statement include evaluation on influence of Abloy door closer types DC240/DC241, DC233...DC235, DC247 and DC250 to the fire resistance of metal and glazed doors.

Test report No VTT-S-2313-06 (3 April 2006) of VTT.

“Fire resistance test on two single leaf hinged steel doors equipped with Abloy locking and closing systems”

In the fire resistance test two identical single leaf hinged steel doors equipped with Abloy locking and closing systems was tested at same time. The fire resistance test was carried out on 17 February 2006 according to standard EN 1634-1. At the fire resistance test the other door opened towards the fire and the other door away from the fire. Duration of the fire test was 120 minutes.

At the fire resistance test the door opened towards the fire met the requirements for integrity (E) during 98 minutes and for insulation (I₂) during 29 minutes. The door opened away from the fire met the requirements for integrity (E) during 120 minutes and for insulation (I₂) during 39 minutes.

During the fire resistance test the closing device of both doors had not any influence to the loose of integrity.

Test report No VTT-S-6468-06 (27 September 2006) of VTT.

“Fire resistance test on two single leaf hinged timber doors with Abloy locking and closing systems”.

In the fire resistance test two identical single leaf hinged timber doors equipped with Abloy locking and closing systems was tested at same time. The fire resistance test was carried out on 16 June 2006 according to standard EN 1634-1. At the fire resistance test the other door opened towards the fire and the other door away from the fire. Duration of the fire test was 33 minutes.

At the fire resistance test the door opened towards the fire met the requirements for integrity (E) during 19 minutes and for insulation (I₁) during 14 minutes. The door opened away from the fire met the requirements for integrity (E) during 28 minutes and for insulation (I₁) during 26 minutes.

During the fire resistance test the closing device of both doors had not any influence to the loose of integrity.

Test report No VTT-S-4213-06 (30 August 2006) of VTT.

“Fire resistance test on two single leaf hinged glazed doors with Abloy locking and closing systems”.

In the fire resistance test two identical single leaf hinged glazed doors equipped with Abloy locking and closing systems was tested at same time. The fire resistance test was carried out on 28 April 2006 according to standard EN 1634-1. At the fire resistance test the other door opened towards the fire and the other door away from the fire. Duration of the fire test was 62 minutes.

At the fire resistance test the door opened towards the fire met the requirements for integrity (E) during 62 minutes and for insulation (I_2) during 24 minutes. The door opened away from the fire met the requirements for integrity (E) during 59 minutes and for insulation (I_2) during 30 minutes.

During the fire resistance test the closing device of both doors had not any influence to the loose of integrity.

Test report No VTT-S-1238-05 (29 June 2005) of VTT.

“Fire resistance test on two single leaf hinged steel doors equipped with Abloy locking and closing systems”.

In the fire resistance test two identical single leaf hinged steel doors equipped with Abloy locking and closing systems was tested at same time. The fire resistance test was carried out on 28 January 2005 according to standard EN 1634-1. At the fire resistance test the other door opened towards the fire and the other door away from the fire. Duration of the fire test was 132 minutes.

At the fire resistance test the door opened towards the fire met the requirements for integrity (E) during 132 minutes and for insulation (I_2) during 69 minutes. The door opened away from the fire met the requirements for integrity (E) during 132 minutes and for insulation (I_2) during 84 minutes.

During the fire resistance test the closing device of both doors had not any influence to the loose of integrity.

Test report No RTE1202/04 (2 July 2004) of VTT.

“Fire resistance test on two single leaf hinged steel doors equipped with Abloy locking and closing systems”.

In the fire resistance test two identical single leaf hinged steel doors equipped with Abloy locking and closing systems was tested at same time. The fire resistance test was carried out on 16 April 2004 according to standard EN 1634-1. At the fire resistance test the other door opened towards the fire and the other door away from the fire. Duration of the fire test was 135 minutes.

At the fire resistance test the door opened towards the fire met the requirements for integrity (E) during 135 minutes and for insulation (I_2) during 60 minutes. The door opened away from the fire met the requirements for integrity (E) during 104 minutes and for insulation (I_2) during 38 minutes.

During the fire resistance test the closing device of both doors had not any influence to the loose of integrity.

Statement

On the base delivered documents we can state as our opinion that Abloy door closers listed in table 1 can be used in the following doors classified according to the standard EN13501-2 and/or requirements in Finland or that fulfil the requirements for the fire classes below so that the fire resistance of the door does not decrease:

The doors classified according to the standard EN 13501-2

- Steel doors, timber doors and glazed doors with steel or timber frame: EI₁15, EI₁20, EI₁30, EI₁45, EI₁60, EI₁90 and EI₁120 or EI₂15, EI₂20, EI₂30, EI₂45, EI₂60, EI₂90 and EI₂120

The doors classified according to the requirements in Finland

- Steel doors, timber doors and glazed doors with steel or timber frame: EI15, EI20, EI30, EI45, EI60, EI90 and EI120

In addition following things will be taken into account:

- Door closers shall be fixed according to the installation instructions given by Abloy Oy and
- Retention force of the door closer shall be set according to the installation instructions given by Abloy Oy.

Annotation

If any changes are made to the construction of the door closer this statement is not valid.

Espoo, 3 December 2007



Riitta Kajastila
Research Engineer



Matti Immonen
Research Engineer

DISTRIBUTION

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