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## CERTIFICATE OF APPROVAL

### No CF 5450

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This is to certify that, in accordance with  
TS00 General Requirements for Certification of Fire Protection Products  
The undermentioned products of

## ASSA ABLOY LTD

School Street, Willenhall, West Midlands, WV13 3PW  
Tel: 01902 867144

Have been assessed against the requirements of the Technical Schedule(s)  
denoted below and are approved for use subject to the conditions  
appended hereto:

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#### CERTIFIED PRODUCT

Ball Bearing Stainless Steel  
Hinges

#### TECHNICAL SCHEDULE

TS24 The Contribution of  
Single Axis Hinges to the Fire  
Resistance of Door Assemblies

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan  
Certification Manager



Issued: 1<sup>st</sup> August 2016  
Reissued: 12<sup>th</sup> December 2022  
Valid to: 27<sup>th</sup> October 2027

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### ASSA ABLOY LTD

#### ASSA ABLOY Ltd - Ball Bearing Stainless Steel Hinges

1. The hinges are all ball bearing stainless steel, single axis, classes 10 or 13 hinges. Only the hinges detailed below are included in this approval:

Reference	Description	Reference	Description
<b>C432.5</b>	4" x 3" x 2.5mm Square Corner – Stainless Steel	<b>C4.54.53.4 *</b>	4.5" x 4.5" x 3.4mm Square Corner – Stainless Steel
<b>C43.52.5</b>	4" x 3.5" x 2.5mm Square Corner – Stainless Steel	<b>C433DB</b>	4" x 3" x 3mm with Dogbolt – Stainless Steel
<b>C442.5</b>	4" x 4" x 2.5mm Square Corner – Stainless Steel	<b>C43.53DB</b>	4" x 3.5" x 3mm with Dogbolt – Stainless Steel
<b>C433</b>	4" x 3" x 3mm Square Corner – Stainless Steel	<b>C443DB</b>	4" x 4" x 3mm with Dogbolt – Stainless Steel
<b>C43.53</b>	4" x 3.5" x 3mm Square Corner – Stainless Steel	<b>C432 *</b>	4" x 3" x 2mm – Stainless Steel
<b>C443</b>	4" x 4" x 3mm Square Corner – Stainless Steel	<b>C43.52 *</b>	4" x 3.5" x 2mm – Stainless Steel
<b>C533 *</b>	5" x 3" x 3mm Square Corner – Stainless Steel	<b>C442 *</b>	4" x 4" x 2mm – Stainless Steel
<b>C532.5 *</b>	5" x 3" x 2.5mm Square Corner – Stainless Steel	<b>C43.352 *</b>	4" x 3.35" x 2mm – Stainless Steel
<b>C4.543.4</b>	4.5" x 4" x 3.4mm Square Corner – Stainless Steel		

*\* Hinge models C533, C532.5, C4.54.53.4, C432, C43.52, C442 and C43.352 are not approved for use with ITT timber/mineral- based door assemblies.*

2. This certification is provided to the client for their own purposes, and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
3. This approval relates to their use with the following door assemblies: -

**Latched and unlatched, intumescent sealed door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores in timber frames having a fire resistance of 60 minutes only (Code ITT).**

**Latched and unlatched, door assemblies consisting of uninsulated or insulated predominantly steel leaves, hung in steel frames with or without intumescent seals having a fire resistance up to 240 minutes (Code IMM/MM).**



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4. This approval relates to the use of the above single axis hinges in contributing to the fire resistance performance of timber/mineral- based doorsets and steel-based doorsets, as defined in BS EN 1634-1 or BS 476: Part 22: 1987.
5. The hinges are approved on the basis of:
  - i) Initial type testing to EN1935 and EN 1634-1
  - ii) An appraisal against TS24
  - iii) Certification of quality management system.
  - iv) Inspection and surveillance of factory production control
  - v) On-going audit testing in accordance with TS24 requirements
6. The door assembly shall be a CERTIFIRE approved product or have achieved the appropriate fire resistance performance when tested at a UKAS accredited laboratory in accordance with BS 476: Part 22: 1987 and/or BS EN 1634:1 with hinges of a similar size.
7. The hinges should only be used with door assemblies of proven fire resistance (as defined in BS EN 1634-1 or BS 476: Part 22: 1987), the critical aspects of the doorset construction are considered to be the material of the door frame, the leaf to frame clearance gaps and the lipping material. Attention should be paid to these details, and these should not be amended from that previously fire tested. Where this information is not known the following minimum specification will be followed:
  - a. 60 minute timber and mineral-based assemblies (ITT):
    - i) Door frame density -  $640 \text{ kg/m}^3$
    - ii) Door leaves shall have a minimum thickness of 54 mm
    - iii) Lipping density -  $640 \text{ kg/m}^3$ .
  - b. Steel-based assemblies (MM/IMM)
    - i) Door leaves shall have a minimum thickness of 44 mm for up to 240 minute applications.
8. When fitted to insulated timber or mineral based door assemblies, the required additional intumescent protection will be as follows:
  - i) The required protection for 60 minute ITT applications will be 2 mm thickness of Interdens mono ammonium phosphate or graphite-based intumescent material behind both blades.
  - ii) No additional intumescent protection is required for MM/IMM steel-based doorset applications.

Failure to install the protection identified above will invalidate this certificate



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9. Those models where corner type is not stated are approved in square or radius corner options. All hinge models are approved in Satin Stainless Steel (SSS), Polished Stainless Steel (PSS) and Brass (PVD) finishes.
10. The hinges may only be fitted in the manner described in this certificate and subject to any limitations on the inclusion of hinges specified for the door leaf. This approval is applicable only to the specified hinges used with door assemblies of proven fire resistance (as defined in BS EN 1634-1 or BS 476: Part 22: 1987) and when using appropriate intumescent protection.
11. Hinges shall only be fitted using the fixings supplied by the hinge manufacturer. Regard should be paid to the maximum door mass permitted to be used with the hinge (see classifications).
12. The ITT 60 doorsets shall be installed in accordance with BS 8214.
13. The approval relates to ongoing production. The product and/or its immediate packaging is identified with the manufacturer's name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.



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14. Matrix of acceptable doorset types:

Class	Approved Door Type			
	IMM	MM	ITT	ITM
FD20	✓	✓	✗	✗
FD30	✓	✓	✗	✗
FD60	✓	✓	✓*	✗
FD120	✓	✓	✗	✗
FD240	✓	✓	✗	✗
E 20	✓	✓	✗	✗
EI 20	✓	✓	✗	✗
E 30	✓	✓	✗	✗
EI 30	✓	✓	✗	✗
E 60	✓	✓	✓*	✗
EI 60	✓	✓	✓*	✗
E 90	✓	✓	✗	✗
EI 90	✓	✓	✗	✗
E 120	✓	✓	✗	✗
EI 120	✓	✓	✗	✗
E 240	✓	✓	✗	✗
EI 240	✓	✓	✗	✗

**Key:**

- ✓ - approved
- ✗ - Not approved
- ✓\* - Hinge models C533, C532.5, C4.54.53.4, C432, C43.52, C442 and C43.352 are not approved for use with ITT timber/mineral- based door assemblies.



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15. Doors are classified as the following types:

**Code ITT** - 20 minute to 120 minute doorsets containing intumescent seals and consisting of timber faced and edged leaves with timber, cellulosic or mineral cores, hung in timber-based frames.

**Code ITM** - 20 minute to 120 minute doorsets containing intumescent seals and consisting of timber faced and edged leaves with timber, cellulosic or mineral cores, hung in metal frames.

**Code MM** - 20 to 240 minute doorsets consisting of uninsulated or insulated predominantly steel leaves, hung in steel frames without intumescent seals.

**Code IMM** - 20 to 240 minute doorsets consisting of uninsulated or insulated predominantly steel leaves, hung in steel frames with intumescent seals.

#### Classification codes

The above approval provides the following classifications:

C432.5, C43.52.5, C442.5, C433, C43.53, C443, C533, C532.5, C4.543.4, C4.54.53.4 – Maximum leaf weight 120 kg:

4	7	6	1	1	4	0	13
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C432, C43.52, C442, C43.352 – Maximum leaf weight 60kg:

2	7	3	1	1	4	0	10
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C433DB, C43.53DB, C443DB – Maximum leaf weight 120 kg:

4	7	6	1	1	4	1	13
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##### Scope of Approval:

- The hinges may not be fitted to timber doorsets without perimeter intumescent fire seals within the frame rebate or edge of the door leaf.
- Hinge models C533, C532.5, C4.54.53.4, C432, C43.52, C442 and C43.352 are not approved for use with ITT timber/mineral- based door assemblies. Where graphite based intumescent sheet material is to be used in lieu of the Interdens mono ammonium phosphate tested, the proposed graphite-based intumescent sheet material, shall have suitable test evidence in the required thickness or less, with timber/mineral-based doorset of the required classification period, in with steel hinges of a minimum size of 100 mm x 75 mm.

##### Further Information

Further information regarding the details contained in this certificate may be obtained from ASSA ABLOY Ltd. (Tel: 01902 867144).

Further information regarding CERTIFIRE certification and other approved products can be obtained from CERTIFIRE (Tel: 01925 646777).