



CERTIFICATE OF APPROVAL

No CF 215

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

ROYDE & TUCKER LIMITED

Bilton Road, Cadwell Lane, Hitchin, Hertfordshire, SG4 0SB
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Have been assessed against the requirements of the Technical Schedule(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT

**Hi-Load Hinges Concealed
Bearing Series**

TECHNICAL SCHEDULE

**TS24 - The Contribution of
Single Action 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: 7th October 2000
Revised: 7th April 2021
Valid to: 13th October 2021

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HI-LOAD HINGES – CONCEALED BEARING SERIES

1. This certification is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
2. This approval relates to the use of the following specific Hi-Load stainless steel concealed bearing, single axis hinges:

Code	Description	EN1935
H201	Concealed Bearing Lift-Off Hinge 100 X 88 x 3 mm	11
H202	Concealed Bearing Lift-Off Hinge 102 x 102 x 3.3 mm	13
H203	Concealed Bearing Lift-Off Hinge with dog bolt 102 x 102 x 3.3 mm	13
H206 [#]	Concealed Bearing Lift-Off Hinge 102 x 76 x 3 mm	11
H207 [#]	Concealed Bearing Hinge 3-Knuckle 102 X 76 X 3 mm	13
H208	Concealed Bearing Hinge 3-Knuckle 102 X 89 X 3 mm	13
H209	Concealed Bearing Hinge 3-Knuckle 102 X 102 X 3 mm	13
H210	Concealed Bearing Hinge 3-Knuckle 114 X 102 X 3.3 mm	13
H211*	Concealed Bearing Hinge 3-Knuckle 114 X 114 X 3.3 mm	13
G4530**	Concealed Bearing Hinge 3-Knuckle 114 X 76 X 3.25 mm	14
G4535**	Concealed Bearing Hinge 3-Knuckle 114 X 89 X 3.25 mm	14
G4540**	Concealed Bearing Hinge 3-Knuckle 114 X 102 X 3.25 mm	14
G4545**	Concealed Bearing Hinge 3-Knuckle 114 X 114 X 3.25 mm	14
G4530-5**	Concealed Bearing Hinge 3-Knuckle with dog bolt 114 X 76 X 3.25 mm	14
G4535-5**	Concealed Bearing Hinge 3-Knuckle with dog bolt 114 X 89 X 3.25 mm	14
G4540-5**	Concealed Bearing Hinge 3-Knuckle with dog bolt 114 X 102 X 3.25 mm	14
G4545-5**	Concealed Bearing Hinge 3-Knuckle with dog bolt 114 X 114 X 3.25 mm	14

*Note specific requirements later in this document for the door thickness and intumescent protection of the H211 hinge.

**Note G45xx series are not approved for use with MM/IMM doorsets.

#Note specific requirements later in this document for ITT 90 and 120 minutes fire resistance when using H206 & H207 hinge.





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3. This approval relates to their use with the following door assemblies:-

All hinges - 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 up to 60 minutes (Code ITT).

H206 and H207 hinges only - 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 up to 120 minutes (Code ITT).

All hinges except G45xx Series - 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).

4. The hinges are approved on the basis of:

- i. Initial type testing to EN1935 and testing/appraisal to EN 1634-1.
- ii. A design appraisal against TS24
- iii. Production surveillance under ISO9001
- iv. On-going audit testing in accordance with BS EN 1935 requirements
- v. Inspection and surveillance of factory production control

5. **ITT30 and ITT60** - This approval relates to the above hinges used with latched or unlatched single-leaf or double-leaf door assemblies consisting of timber faced and edged leaves with timber, cellulosic or mineral cores and in timber frames (Code ITT):

- Door leaf not less than 44 mm thick for FD30, E30 and EI30 applications (except H211 hinges which shall be a minimum thickness of 54 mm thick)
- Door leaf not less than 54mm thick for FD60, E60 and EI60 applications.
- The door frame shall consist of timber with a minimum density of 450 kg/m³ for FD30, E30 and EI30 applications.
- The door frame shall consist of timber with a minimum density of 640 kg/m³ for FD60, E60 and EI60 doorsets.
- Where the H211 hinge is incorporated on a standard 54 mm thick ITT FD60, E60 and EI60 door leaf, it shall be positioned such that 2.5 mm of the hinge blade extends beyond the opening face of the door face to ensure 10 mm of door edge material is maintained alongside the hinge blade.

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6. ITT30 and ITT60 - Intumescent protection

Both blades of the hinges must be bedded onto 1mm thick Interdens when used with ITT doorsets for 30 and 60 minute applications, except for the H211 where both blades of the hinges must be bedded onto 2mm thick Interdens when used with ITT doorsets for 30 and 60 minute applications.

Failure to install the protection will invalidate this certificate

7. ITT90 and ITT120 - H206 and H207 hinges only:

- Shall only be fitted to doorsets which have previously been tested with hinges of a similar size, subject to the following requirements:
- The critical dimensions of the H206 and H207 hinges to be used shall be based on the size of the hinge tested originally by the chosen doorset manufacturer, with the following tolerance:

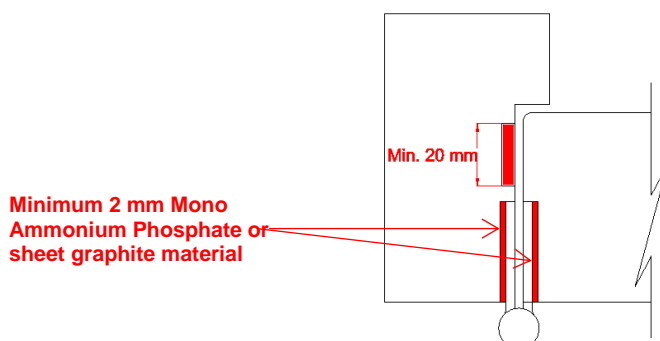
Hinge Specification of Chosen Doorset	
Component/dimension	Tolerance/Rule
Hinge blade	
Width	+0/-5% of tested hinge
Height	+/-20% of tested hinge
Thickness	+/-15% of tested hinge
Knuckle Diameter	Minimum 13 mm
Fixings	
Quantity	Maximum 4No. fixings tested
Size	5 mm dia. Minimum
Length	Minimum 32 mm
Position (width)	+/-10% from the positions of the fixings in the tested hinge when measured with respect to the centre lines of the blade

Note: Where the H206 and H207 hinge does not comply with the parameters identified above it shall not be used in conjunction with the chosen 90 minute and 120 minute timber and mineral-based assemblies (ITT).

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8. **ITT90 and ITT120 - Intumescent protection** - When fitted to insulated timber or mineral composite door assemblies, the required additional intumescent protection will be as follows:
- The required intumescent protection shall be as tested by the chosen door manufacturer. In all cases this shall be a minimum of a 2 mm thick 'Mono Ammonium Phosphate or graphite based intumescent sheet material incorporated beneath each hinge blade, however, this protection shall be increased as required based on the chosen doorset manufacturers test data.
 - In addition a minimum of 20 mm wide perimeter intumescent fire seal shall by-passed the hinges within the frame rebate or edge of the door leaf. Where the perimeter intumescent fire seal tested within the chosen doorset by-passing the hinge exceeds 20 mm, this increased intumescent protection shall be maintained.



Failure to install the protection will invalidate this certificate

9. **MM/IMM doorsets** - This approval also relates to the above hinges used with latched or unlatched single-leaf or double-leaf door assemblies consisting of metallic faced and edged leaves in metallic frames (Codes MM/IMM)
- Door leaf not less than 45 mm thick.
10. All applications apply to glazed and unglazed doorsets.
11. The hinges may only be fitted to previously tested timber door assemblies when fitted in the manner described in this certificate and when particular aspects of the door assembly are maintained.
12. The hinges may be suitable for use on thinner door leaves or with lower density frames but these shall be the subject of a separate test and approval and will be limited to that doorset.



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13. Hinges shall only be fitted using the fixings supplied by the hinge manufacturer.
14. The doorset, including door frame and associated building hardware, should be either CERTIFIRE approved for the relevant application and classification or the doorset, including door frame and associated building hardware, should have achieved up to 120 minutes fire resistance (ITT) or up to 240 minutes (MM/IMM) as required when tested, or subsequently assessed to BS EN 1634-1 or BS 476: Part 22: 1987.
15. Regard should be paid to the maximum door mass permitted to be used with the hinge (see classifications).
16. Timber doorsets shall be installed in accordance with BS 8214.
17. The approval relates to on-going production. 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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18. The following table show acceptable doorset types and fire resistance periods:

Class	Approved Door Type				
	IMM	MM	ITT	ITM	ITC
FD20	✓*	✓*	✓	✗	✗
FD30	✓*	✓*	✓**	✗	✗
FD60	✓*	✓*	✓	✗	✗
FD90	✓*	✓*	✓#	✗	✗
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
- ✓* - Excludes G45xx series
- ✓** - Where H211 hinges are fitted to FD30, E30 and EI30 doorsets the door leaf shall be a minimum of 54 mm thick.
- ✓# - Applicable to H206 & H207 hinges only





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19. 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 ITC - 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 proprietary composite frames, of which the principal material is other than timber or metal but which may include any other materials.

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.

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.
- Where H211 hinges are fitted to FD30, E30 and EI30 doorsets the door leaf shall be a minimum of 54 mm thick.
- Where the H211 hinge is incorporated on a standard 54 mm thick ITT FD60, E60 and EI60 door leaf, it shall be positioned such that 2.5 mm of the hinge blade extends beyond the opening face of the door face to ensure 10 mm of door edge material is maintained alongside the hinge blade.



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Classification codes

The above approval provides the following classifications for the hinges:

H207, H208, H209, H210 & H211:

4	7	6	1	1	4	0	13
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H201 & H206:

3	7	4	1	1	4	0	11
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H202 & H203:

4	7	6	1	1	4	0	13
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G4530, G4535, G4540 & G4545:

4	7	7	1	1	4	0	14
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G4530-5, G4535-5, G4540-5 & G4545-5:

4	7	7	1	1	4	1	14
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Further Information

Further information regarding the details contained in this data sheet may be obtained from Royde & Tucker Limited (Tel: 01462 444444).

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