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## CERTIFICATE OF APPROVAL

### No CF 714

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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

**D. P. GARG & CO. PVT. LTD.**

**B-210B, Phase-2, Noida, Gautam Budh Nagar – 201 305, India**  
Tel: +91 120 246 00 85/86/87 Fax: +91 120 246 00 83

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**  
**D. P. Garg 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: 24<sup>th</sup> November 2009  
Revised: 18<sup>th</sup> February 2020  
Valid to: 28<sup>th</sup> October 2024

Page 1 of 11



## CERTIFICATE No CF 714 D. P GARG & CO. PVT. LTD.

### D. P. Garg Steel Hinges

1. This approval relates to the use of D. P. Garg steel, single axis hinges with either square or radiused corners. This approval relates to the following specific hinges:

<b>Grade 13 – Stainless Steel Ball Bearing Hinges</b>	
Stainless steel	4" x 3" x 3 mm square corners
Stainless steel	4" x 3.5" x 3 mm square corners
Stainless steel	4" x 4" x 3 mm square corners*
Stainless steel	4.5" x 4" x 3.4 mm square corners*
Stainless steel	5" x 3" x 3 mm square corners
Stainless steel	6" x 3" x 3 mm square corners
Stainless steel	4" x 3" x 3 mm radiused corners
Stainless steel	4" x 3.5" x 3 mm radiused corners
Stainless steel	4" x 4" x 3 mm radiused corners*
Stainless steel	4.5" x 4" x 3.4 mm radiused corners*
Stainless steel	5" x 3" x 3 mm radiused corners
Stainless steel	6" x 3" x 3 mm radiused corners

<b>Grade 11 - Steel Ball Bearing Hinges (2BB)</b>		
<b>MHIN4515100</b>	Mild steel	101 x 76 x 2.6 mm square corners
<b>MHIN4517100</b>	Mild steel	101 x 76 x 3 mm square corners
<b>MHIN4519100</b>	Mild steel	101 x 88 x 3 mm square corners
<b>MHIN4522100*</b>	Mild steel	101 x 101 x 3.2 mm square corners
<b>MHIN5515100</b>	Mild steel	101 x 76 x 2.6 mm radiused corners
<b>MHIN5517100</b>	Mild steel	101 x 76 x 3 mm radiused corners
<b>MHIN5519100</b>	Mild steel	101 x 88 x 3 mm radiused corners
<b>MHIN5522100*</b>	Mild steel	101 x 101 x 3.2 mm radiused corners
<b>SHIN4515100</b>	Stainless steel	101 x 76 x 2.6 mm square corners
<b>SHIN4517100</b>	Stainless steel	101 x 76 x 3 mm square corners
<b>SHIN4519100</b>	Stainless steel	101 x 88 x 3 mm square corners
<b>SHIN4522100*</b>	Stainless steel	101 x 101 x 3.2 mm square corners
<b>SHIN5515100</b>	Stainless steel	101 x 76 x 2.6 mm radiused corners
<b>SHIN5517100</b>	Stainless steel	101 x 76 x 3 mm radiused corners
<b>SHIN5519100</b>	Stainless steel	101 x 88 x 3 mm radiused corners
<b>SHIN5522100*</b>	Stainless steel	101 x 101 x 3.2 mm radiused corners

\* Suitable for use on minimum 54 mm thick doors only





**CERTIFICATE No CF 714**  
**D. P GARG & CO. PVT. LTD.**

**D. P. Garg Steel Hinges**

<b>Grade 7 - Steel Ball Bearing Hinges (2BB)</b>		
<b>MHIN4510075*</b>	Mild steel	76 x 101 x 2 mm square corners
<b>MHIN4511075</b>	Mild steel	76 x 50 x 2 mm square corners
<b>MHIN4512075</b>	Mild steel	76 x 62 x 2 mm square corners
<b>MHIN4513075</b>	Mild steel	76 x 76 x 2 mm square corners
<b>MHIN4515100</b>	Mild steel	101 x 76 x 2.6 mm square corners
<b>MHIN4517100</b>	Mild steel	101 x 76 x 3 mm square corners
<b>MHIN4519100</b>	Mild steel	101 x 88 x 3 mm square corners
<b>MHIN4522100*</b>	Mild steel	101 x 101 x 3.2 mm square corners
<b>MHIN4523114*</b>	Mild steel	114 x 101 x 3.2 mm square corners
<b>MHIN5511075</b>	Mild steel	76 x 50 x 2 mm radiused corners
<b>MHIN5512075</b>	Mild steel	76 x 62 x 2 mm radiused corners
<b>MHIN5513075</b>	Mild steel	76 x 76 x 2 mm radiused corners
<b>MHIN5515100</b>	Mild steel	101 x 76 x 2.6 mm radiused corners
<b>MHIN5517100</b>	Mild steel	101 x 76 x 3 mm radiused corners
<b>MHIN5519100</b>	Mild steel	101 x 88 x 3 mm radiused corners
<b>MHIN5522100*</b>	Mild steel	101 x 101 x 3.2 mm radiused corners
<b>MHIN5523114*</b>	Mild steel	114 x 101 x 3.2 mm radiused corners
<b>SHIN4510075*</b>	Stainless steel	76 x 101 x 2 mm square corners
<b>SHIN4511075</b>	Stainless steel	76 x 50 x 2 mm square corners
<b>SHIN4512075</b>	Stainless steel	76 x 62 x 2 mm square corners
<b>SHIN4513075</b>	Stainless steel	76 x 76 x 2 mm square corners
<b>SHIN4515100</b>	Stainless steel	101 x 76 x 2.6 mm square corners
<b>SHIN4517100</b>	Stainless steel	101 x 76 x 3 mm square corners
<b>SHIN4519100</b>	Stainless steel	101 x 88 x 3 mm square corners
<b>SHIN4522100*</b>	Stainless steel	101 x 101 x 3.2 mm square corners
<b>SHIN4523114*</b>	Stainless steel	114 x 101 x 3.2 mm square corners
<b>SHIN5511075</b>	Stainless steel	76 x 50 x 2 mm radiused corners
<b>SHIN5512075</b>	Stainless steel	76 x 62 x 2 mm radiused corners
<b>SHIN5513075</b>	Stainless steel	76 x 76 x 2 mm radiused corners
<b>SHIN5515100</b>	Stainless steel	101 x 76 x 2.6 mm radiused corners
<b>SHIN5517100</b>	Stainless steel	101 x 76 x 3 mm radiused corners
<b>SHIN5519100</b>	Stainless steel	101 x 88 x 3 mm radiused corners
<b>SHIN5522100*</b>	Stainless steel	101 x 101 x 3.2 mm radiused corners
<b>SHIN5523114*</b>	Stainless steel	114 x 101 x 3.2 mm radiused corners

*\* Suitable for use on minimum 54 mm thick doors only*



**CERTIFICATE No CF 714**  
**D. P GARG & CO. PVT. LTD.**

**D. P. Garg Steel Hinges**

<i>Grade 7 - Butt Hinge Plain Joint</i>		
MHIN0804076	Mild steel	76 x 76 x 1.9 mm square corners
MHIN2020076	Mild steel	76 x 49 x 1.9 mm square corners
MHIN2020100	Mild steel	101 x 71 x 1.9 mm square corners
MHIN5050075	Mild steel	76 x 46 x 1.9 mm square corners
MHIN5050100	Mild steel	101 x 58 x 1.9 mm square corners
MHIN0451075	Mild steel	76 x 64 x 2.35 mm square corners
MHIN0451100	Mild steel	101 x 76 x 2.5 mm square corners
MHIN451A100	Mild steel	101 x 76 x 2.85 mm square corners
MHIN804R076	Mild steel	76 x 76 x 1.9 mm radiused corners
MHIN2021076	Mild steel	76 x 49 x 1.9 mm radiused corners
MHIN2021100	Mild steel	101 x 71 x 1.9 mm radiused corners
MHIN451R075	Mild steel	76 x 64 x 2.35 mm radiused corners
MHIN451R100	Mild steel	101 x 76 x 2.5 mm radiused corners
MHIN4510100	Mild steel	101 x 76 x 2.85 mm radiused corners
MHIN2020090	Mild steel	90 x 49 x 1.9 mm square corners
MHIN1738090	Mild steel	90 x 49 x 1.9 mm radiused corners
MHIN5050090	Mild steel	90 x 46 x 1.9 mm square corners
MHIN0451090	Mild steel	90 x 64 x 2.35 mm square corners
MHIN451R090	Mild steel	90 x 64 x 2.35 mm radiused corners
MHIN451T100	Mild steel	101 x 76 x 2.5 mm square corners
MHIN45RT100	Mild steel	101 x 76 x 2.5 mm radiused corners
MHIN5451100	Mild steel	101 x 76 x 2.85 mm square corners
MHIN6451100	Mild steel	101 x 76 x 2.85 mm radiused corners
SHIN0453075	Stainless steel	76 x 49 x 1.9 mm square corners
SHIN0453100	Stainless steel	101 x 71 x 1.9 mm square corners
SHIN0451076	Stainless steel	76 x 64 x 2.35 mm square corners
SHIN0451100	Stainless steel	101 x 64 x 2.5 mm square corners
SHIN1451100	Stainless steel	101 x 76 x 2.5 mm square corners
SHIN1452100	Stainless steel	101 x 76 x 2.85 mm square corners
SHIN453R076	Stainless steel	76 x 49 x 1.9 mm radiused corners
SHIN453R100	Stainless steel	101 x 71 x 1.9 mm radiused corners
SHIN451R076	Stainless steel	76 x 64 x 2.35 mm radiused corners
SHIN2451100	Stainless steel	101 x 76 x 2.5 mm radiused corners
SHIN2452100	Stainless steel	101 x 76 x 2.85 mm radiused corners
SHIN2020090	Stainless steel	90 x 49 x 1.9 mm square corners
SHIN1738090	Stainless steel	90 x 49 x 1.9 mm radiused corners



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## CERTIFICATE No CF 714

### D. P GARG & CO. PVT. LTD.

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#### D. P. Garg Steel Hinges

<i>Grade 7 - Butt Hinge Plain Joint</i>		
<b>SHIN0451090</b>	Stainless steel	90 x 64 x 2.35 mm square corners
<b>SHIN451R090</b>	Stainless steel	90 x 64 x 2.35 mm radiused corners
<b>SHIN3451100</b>	Stainless steel	101 x 76 x 2.5 mm square corners
<b>SHIN4451100</b>	Stainless steel	101 x 76 x 2.5 mm radiused corners
<b>SHIN5451100</b>	Stainless steel	101 x 76 x 2.85 mm square corners
<b>SHIN6451100</b>	Stainless steel	101 x 76 x 2.85 mm radiused corners
<b>SHIN6463100</b>	Stainless steel	101 x 71 x 1.9 mm square corners
<b>SHIN6461100</b>	Stainless steel	101 x 64 x 2.5 mm square corners

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 the use of the above single axis hinges in contributing to the fire resistance performance of timber based doorsets and metallic based doorsets, as defined in BS EN 1634-1 or BS 476: Part 22: 1987.
4. 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 up to 120 minutes (Code ITT).**

**Latched and unlatched, door assemblies consisting of uninsulated or insulated metal door assemblies in metal frames with or without intumescent seals having a fire resistance up to 120 minute or 240 minutes\* (Code IMM/MM).**

*\*Note: 240 minute MM/IMM approval relates to Grade 13 Stainless Steel Ball Bearing Hinges only*

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.



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## CERTIFICATE No CF 714

### D. P GARG & CO. PVT. LTD.

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#### D. P. Garg Steel Hinges

7. 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.
8. For ITT timber and mineral-based doorsets the hinges shall only be fitted using the fixings supplied by the hinge manufacturer.
9. Regard should be paid to the maximum door mass permitted to be used with the hinge (see classifications).
10. The ITT doorsets shall be installed in accordance with BS 8214.
11. 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. The following minimum specification shall be followed:
  - a. 30 and 60 minute timber and mineral-based assemblies (ITT):
    - i) Door frame density - 460 kg/m<sup>3</sup> (30 minutes), 640 kg/m<sup>3</sup> (60 minutes)
    - ii) Door leaves shall have a minimum thickness of 44 mm for 30 minute applications and 54 mm for 60 minute applications.
    - iii) Lipping density - 640 kg/m<sup>3</sup>.
  - b. Steel-based assemblies (MM/IMM)
    - i) Door leaves shall have a minimum thickness of 44 mm for up to 240 minute applications.
12. For 90 minute and 120 minute timber and mineral-based assemblies (ITT), D. P. Garg hinges shall only be fitted to doorsets which have previously been tested with hinges of a similar size, subject to the following requirements:
  - i) 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 Interdens mono ammonium phosphate 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.



## CERTIFICATE No CF 714 D. P GARG & CO. PVT. LTD.

### D. P. Garg Steel Hinges

- ii) A minimum of 10 mm of perimeter intumescent fire seal shall by-passed the hinges. Where the perimeter intumescent fire seal on the original test of the chosen doorset by-passes the hinge by more than 10 mm, this shall be maintained on the doorset incorporating the D. P. Garg chosen hinges.
- iii) The critical dimensions of the D. P. Garg hinge 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
<b>Hinge blade</b>	
Width	+0/-5% of tested hinge
Height	+/-10% of tested hinge
Thickness	+/-15% of tested hinge
<b>Knuckle</b>	
Diameter	Minimum 11 mm
<b>Fixings</b>	
Quantity	Maximum 4No. fixings tested
Size	4.8 mm dia. Minimum
Length	No shorter than that tested
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 D. P. Garg 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).

13. When fitted to timber or mineral composite-based door assemblies, the required additional intumescent protection will be as follows:
- i) The required protection for 30 minute ITT applications will be 1 mm thick Interdens mono ammonium phosphate based or graphite based intumescent sheet material behind both blades.
  - ii) The required protection for 60 minute ITT applications will be 2 mm thick Interdens mono ammonium phosphate based or graphite based intumescent sheet material behind both blades.
  - iii) Additionally or 60 minute ITT applications only, a minimum of 7.5 mm of perimeter intumescent fire seal within the edge of the door or frame rebate is required to by-pass the hinges.



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## CERTIFICATE No CF 714

### D. P GARG & CO. PVT. LTD.

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#### D. P. Garg Steel Hinges

- iv) The required intumescent protection for 90 and 120 minute ITT applications shall be as tested by the chosen door manufacturer. In all cases this shall be a minimum of a 2 mm thick Interdens mono ammonium phosphate based 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.
- v) Additionally or 90 and 120 minute ITT applications only, a minimum of 10 mm of perimeter intumescent fire seal shall by-passed the hinges. Where the perimeter intumescent fire seal on the original test of the chosen doorset by-passes the hinge by more than 10 mm, this shall be maintained on the doorset incorporating the D. P. Garg chosen hinges.

Failure to install the intumescent protection will invalidate this certificate

- 14. The products identified within this certificate/assessment report are marketed under the brand names of GARG, TUFF, ELITE and SICHERN. In all case the products are identical with only branding and packaging changing.
- 15. 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.



## CERTIFICATE No CF 714 D. P GARG & CO. PVT. LTD.

### D. P. Garg Steel Hinges

16. Matrix of acceptable doorset types

Class	Approved Door Type				
	IMM	MM	ITT	ITM	ITC
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

✓\* *Note: 240 minute MM/IMM approval relates to Grade 13 Stainless Steel Ball Bearing Hinges only*





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## CERTIFICATE No CF 714

### D. P GARG & CO. PVT. LTD.

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#### D. P. Garg Steel Hinges

17. Doors are classified as the following types:

**Type MM** - 20 minute to 240 minute doorsets that consist of metallic leaves in metallic frames that do not contain intumescent materials in the frame to leaf gap.

**Type IMM** - 20 minute to 240 minute doorsets that consist of metallic leaves in metallic frames that contain intumescent materials in the frame to leaf gap.

**Type ITT** - 20 minute to 120 minute doorsets containing intumescent seals and consisting of non-metallic faced and edged leaves hung in timber frames

**Type ITM** - 20 minute to 120 minute doorsets containing intumescent seals and consisting of non-metallic faced and edged leaves hung in metal frames.

**Type ITC** - 20 minute to 120 minute doorsets containing intumescent seals and consisting of non-metallic faced and edged leaves hung in proprietary composite frames, of which the principal material is other than timber or metal but which may include any other materials.

#### 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 graphite based intumescent sheet material is to be used in lieu of the 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, with steel hinges of a minimum size of 100 mm x 75 mm.
- The following hinges are approved for use on minimum 54 mm thick doors only:
  - 4" x 4" x 3 mm Grade 13 ball bearing hinges
  - 4.5" x 4" x 3.4 mm Grade 13 ball bearing hinges
  - MHIN4510075
  - MHIN4522100
  - MHIN4523114
  - MHIN5522100
  - MHIN5523114
  - SHIN4510075
  - SHIN4522100
  - SHIN4523114
  - SHIN5522100
  - SHIN5523114
- 240 minute MM/IMM approval relates to Grade 13 Stainless Steel Ball Bearing Hinges only



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**CERTIFICATE No CF 714**  
**D. P GARG & CO. PVT. LTD.**

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**D. P. Garg Steel Hinges**

**Classification codes**

The above approval provides the following classifications:

Grade 13 - Stainless Steel Ball Bearing hinges:

Category of duty	Number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance	Security	Hinge grade
4	7	6	1	1	4	0	13

Grade 11 - Stainless Steel Ball Bearing hinges (2BB):

Category of duty	Number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance	Security	Hinge grade
3	7	4	1	1	3	0	11

Grade 7 - Steel Ball Bearing Hinges (2BB) and Grade 7 - Butt Hinge Plain Joint:

Category of duty	Number of test cycles	Test door mass	Fire resistance	Safety	Corrosion resistance	Security	Hinge grade
2	7	2	1	1	2	0	7

**Further Information**

Further information regarding the details contained in this certificate may be obtained from D. P. Garg & Co. Pvt Ltd (Tel: + 91 120 246 00 85).

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