
Title:

Classification of Fire Resistance
Performance in Accordance with
BS EN 13501-2: 2023

Approved Body No:

0833

Product Name:

Flame Armour 60/90/120/240

WF Classification Report No.:

416674

Issue Number:

6

Prepared for:

SSS Industrial Doors Limited
Red Earth Farm
Plantation Road
Bolton
BL7 0DD

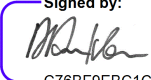
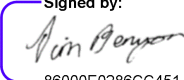
Date of Issue:

13th November 2025

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Signatories and revision history

Issue No.	Date	FM No.	Report scope and signatures
1	16/09/2019	416674	Initial report issued to SSS Industrial Doors Limited.
2	22/10/2019	416674	Corrections to tables.
3	13/01/2021	436113	Update to tables and classifications based upon modifications to 416673.
4	17/03/2023	530536	Separation of classifications to clarify that C classification relates to the tested design only. Inclusion of test result tables.
5	08/05/2024	530711	Updated reference of WF Test Report No. 404452 to Issue 3 version and correction to typographical error in section 3.3. Updated classifications to correspond to the latest revision of the standard EN 13501-2: 2023.
6	13/11/2025	555629	Update to classification report to reflect recent changes to 416673, plus update to report template.

Assessor	Reviewer
Name: *D. Hankinson	Name: *T. Benyon
Signature:  Signed by: C76BF9EBC1CA4C6...	Signature:  Signed by: 86000E0286CC451...
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*For and on behalf of Warringtonfire

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1. Introduction

This classification report defines the classification assigned to the element in accordance with the procedures given in BS EN 13501-2: 2023.

2. Details of classified product

2.1 General

For classification purposes, the element is defined as a rolling shutter doorset according to EN 16034: 2014.

2.2 Description

The element is fully described in the test report used in support of the Extended Application report, as detailed in Clause 3.1.

Briefly the product comprises a single skin steel rolling shutter, comprising interlocking steel laths and a profiled steel bottom bar. The shutter curtain is connected across its upper edge to a mild steel barrel housed within a mild steel head box. The vertical edges of the shutter curtain locate into steel guides. A full specification of the element is provided in the test report used in support of the Extended Application report referenced below.

The product family for which the classification is to be used is referenced "Flame Armour 60/90/120/240".

3. Test reports / extended application reports and test results in support of the classification

3.1 Test Reports / Extended application reports

Name of laboratory	Name of sponsor	Report reference number	Test / EXAP standard
Warringtonfire	SSS Industrial Doors Ltd.	404452 (Issue 4)	BS EN 1634-1:2014+A1:2018
Warringtonfire	SSS Industrial Doors Ltd.	429933/R (Issue 2)	BS EN 1634-1:2014+A1:2018
Warringtonfire	SSS Industrial Doors Ltd.	416673 (Issue 4)	BS EN 15269-10: 2011

3.2 Results

Test Report Reference 404452 (Issue 4)		
Report Sponsor	SSS Industrial Doors Ltd.	
Test Laboratory	Warringtonfire	
Test Date	8th February 2019	
Test Standard	BS EN 1634-1: 2014 + A1: 2018	
Shutter Mounting	Onto fire exposed face of brick wall	
Performance Parameters		Results
Integrity	Sustained Flaming	260 minutes*
	Gap Gauge	260 minutes*
	Cotton Pad	15 minutes
Insulation (I₂)		1 minute
Radiation	Time to exceed 15 kW/m ²	13 minutes
*The test was discontinued after a period of 260 minutes		
Self-Closing		C
Ability to Release		Released

Test Report Reference 429933/R (Issue 2)		
Report Sponsor	SSS Industrial Doors Ltd.	
Test Laboratory	Warringtonfire	
Test Date	7th July 2020	
Test Standard	BS EN 1634-1: 2014 + A1: 2018	
Shutter Mounting	Onto fire exposed face of timber stud partition	
Performance Parameters		Results
Integrity	Sustained Flaming	103 minutes
	Gap Gauge	132 minutes*
	Cotton Pad	9 minutes
Insulation (I₂)		0 minutes
Radiation	Time to exceed 15 kW/m ²	26 minutes
*The test was discontinued after a period of 132 minutes		
Self-Closing		C
Ability to Release		Released

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with Clause 7 of EN 13501-2:2023.

4.2 Classification

The element is classified according to the example of the following combinations of performance parameters and classes as appropriate.

R	E	I	W		t	t	-	M	S	-	C	IncSlow	sn	ef	r
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Classification based upon WF Test Report No. 404452 (Issue 4):

Fire resistance classification*: E240-C This classification document does not represent type approval or certification of the product.
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Classification based upon WF Test Report No. 429933 (Issue 2):

Fire resistance classification*: EW20-C / E90-C This classification document does not represent type approval or certification of the product.
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The EW20-C classification above applies to the tested specimen size and direction of fire exposure only

Classification based upon EXAP referenced WF No. 416673 (Issue 4)

Fire resistance classification*: E60 / E90 / E120 / E240 This classification document does not represent type approval or certification of the product.

**Note: the classifications stated are the maximum classifications permitted. Any classification period below this is covered by default*

4.3 Field of application

4.3.1 Extended field of application

As defined within WF Report No. 416673 (Issue 4). The tables detailing the extended field of application relating to permitted opening sizes and components specifications are also appended to this report, although this does not represent the entire extended field of application provided.

5. Limitations

This classification document does not represent type approval or certification of the product.

Appendix 1: Summary of Extended Application Provided by WF Report No. 416673 (Issue 4)

The following tables have been derived based upon calculations undertaken in accordance with Annex B of EN 15269-10: 2011. The full calculations are retained in the technical file relating to this report.

60 Minutes Integrity Performance (for E60 classification) - Masonry/Concrete

Height (m)	2.5										
	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	11	0.7
2.4	101	3.6	16.5	40	300	300	5	10	2	14	0.7
3.5	101	3.6	16.5	40	300	300	5	10	2	18	0.7
7	127	3.2	30	65	400	400	5	10	2	30	0.7
10	127	3.2	30	65	400	400	5	10	2	23	0.7

Width (m)	3										
	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	21	0.7
3.2	101	3.6	16.5	40	300	300	5	10	2	32	0.7
4.5	127	3.2	30	65	400	400	5	10	2	40	0.7
7	127	3.2	30	65	400	400	5	10	2	32	0.7
10	139.7	5	30	65	500	500	5	10	2	23	0.7

Width (m)	3.5										
	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	36	0.7
3	101	3.6	16.5	40	300	300	5	10	2	53	0.7
4.8	127	3.2	30	65	400	400	5	10	2	42	0.7
10	139.7	6.3	30	65	500	500	5	10	2	34	0.7

Width (m)	4										
	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	58	0.7
2.3	101	3.6	16.5	40	300	300	5	10	2	72	0.7
3.8	127	3.2	30	65	400	400	5	10	2	57	0.7
7	139.7	5	30	65	500	500	5	10	2	50	0.7
10	168.3	5	30	65	500	500	5	10	2	38	0.7

60 Minutes Integrity Performance (for E60 classification) - Masonry/Concrete continued

Width (m)	4.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.5	101	3.6	16.5	40	400	400	5	10	2	86	0.7
5	139.7	5	30	65	400	400	5	10	2	60	0.7
8.7	168.3	5	40	65	400	400	5	10	2	53	0.7
10	193.7	5	40	65	500	500	8	10	2	39	0.7

Width (m)	5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.1	101	3.6	16.5	40	400	400	5	12	2	110	0.7
4.2	139.7	5	30	65	400	400	5	12	2	79	0.7
6.9	168.3	5	40	65	400	400	8	12	2	66	0.7
10	193.7	8	40	65	500	500	8	12	2	42	0.7

Width (m)	5.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	127	3.2	30	65	400	400	6	10	2	96	0.7
2.8	139.7	5	30	65	400	400	6	10	2	89	0.7
4.8	168.3	5	40	65	400	400	6	10	2	74	0.7
7	193.7	5	50	75	500	500	8	10	2	64	0.7
10	193.7	8	50	75	600	600	8	12	2	61	0.7

Width (m)	6										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1	127	3.2	30	65	400	400	6	10	2	122	0.7
2.8	139.7	6.3	30	65	400	400	6	10	2	109	0.7
4	168.3	5	30	65	400	400	6	10	2	91	0.7
6	193.7	5	50	75	500	500	8	10	2	80	0.7
10	219	6.3	50	75	600	600	8	12	2	69	0.7

Width (m)	6.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.8	139.7	6.3	30	65	500	500	6	10	2	121	0.7
4.2	193.7	5	40	65	500	500	6	10	2	87	0.7
6.7	193.7	8	50	75	500	500	6	10	2	88	0.7
10	273	6.3	65	85	600	600	8	12	2	51	0.7

60 Minutes Integrity Performance (for E60 classification) - Masonry/Concrete continued

Width (m)	7										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3.7	193.7	5	40	65	500	500	6	10	2	107	0.7
5.7	193.7	8	40	65	500	500	6	10	3	106	0.7
6.5	219	6.3	50	75	600	600	8	10	3	94	0.7
10	273	6.3	65	85	600	600	8	12	3	68	0.7

Width (m)	7.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	168.3	5	40	65	500	500	6	12	2	139	0.7
4.2	193.7	8	50	75	600	600	8	12	2	117	0.7
9	273	6.3	65	85	600	600	8	12	2	82	0.7
10	273	10	65	85	600	600	8	14	2	67	0.7

Width (m)	8										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3.15	193.7	8	40	65	500	500	6	12	2	132	0.7
4	219	6.3	50	75	500	500	6	12	2	119	0.7
7	273	6.3	65	85	600	600	8	12	2	90	0.7
10	273	10	65	85	600	600	8	14	2	86	0.7

Width (m)	8.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.9	219	6.3	40	65	500	500	6	12	2	130	0.7
6	273	6.3	50	75	600	600	8	12	2	104	0.7
9.3	273	10	50	75	600	600	8	14	2	104	0.7

Width (m)	9										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.5	219	6.3	40	65	600	600	8	12	3	152	0.7
5.2	273	6.3	50	75	600	600	8	12	3	121	0.7
7	273	10	65	85	600	600	8	12	3	112	0.7

60 Minutes Integrity Performance (for E60 classification) - Masonry/Concrete continued

Width (m)	9.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.2	273	6.3	50	75	600	600	8	12	3	105	0.7
7	273	10	65	85	600	600	8	12	3	138	0.7

Width (m)	10										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3.4	273	6.3	50	75	600	600	8	12	3	149	0.7
5.3	273	10	65	85	600	600	8	12	3	149	0.7
7	323.9	10	65	85	600	600	8	14	3	109	0.7

120 Minutes Integrity Performance (for E120 classification) - Masonry/Concrete

Width (m)	2.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	20	0.7
2.4	101	3.6	16.5	40	300	300	5	10	2	25	0.7
5.3	127	3.2	30	65	300	300	5	10	2	24	0.7
7	139.7	5	30	65	400	400	5	10	2	16	0.7
10	139.7	6.3	40	65	500	500	5	10	2	18	0.7

Width (m)	3										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	37	0.7
1.8	101	3.6	16.5	40	300	300	5	10	2	40	0.7
3	127	3.2	30	65	300	300	5	12	2	31	0.7
6	139.7	5	30	65	400	400	5	10	2	28	0.7
10	168.3	5	40	65	500	500	5	12	2	24	0.7

Width (m)	3.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.9	127	3.2	30	65	300	300	5	10	2	41	0.7
4	139.7	5	30	65	300	300	5	10	2	37	0.7
6.9	168.3	5	30	65	400	400	5	10	2	32	0.7
9.5	193.7	5	50	75	400	400	5	12	2	27	0.7
10	193.7	8	50	75	500	500	5	12	2	21	0.7

Width (m)	4										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	127	3.2	30	65	300	300	5	10	2	54	0.7
2.7	139.7	5	30	65	300	300	5	10	2	48	0.7
4.5	168.3	5	30	65	400	400	5	10	2	39	0.7
6.9	193.7	5	50	75	500	500	5	12	2	35	0.7
10	193.7	8	50	75	500	500	5	14	2	34	0.7

120 Minutes Integrity Performance (for E120 classification) - Masonry/Concrete continued

Width (m)	4.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	139.7	5	30	65	400	400	5	12	2	60	0.7
2	139.7	6.3	40	65	400	400	5	12	2	58	0.7
3.2	168.3	5	30	65	400	400	5	12	2	49	0.7
4.8	193.7	5	50	75	500	500	5	12	2	43	0.7
7.8	193.7	8	50	75	500	500	5	12	2	44	0.7
10	273	6.3	60	85	600	600	8	14	2	23	0.7

Width (m)	5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.3	139.7	6.3	40	65	400	400	5	12	2	73	0.7
2.2	168.3	5	30	65	400	400	5	12	2	61	0.7
3.5	193.7	5	50	75	400	400	6	12	2	53	0.7
5.5	193.7	8	50	75	400	400	6	12	2	53	0.7
6.3	219	6.3	60	85	500	500	5	14	2	47	0.7
10	273	6.3	60	85	600	600	8	14	3	34	0.7

Width (m)	5.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.3	168.3	5	30	65	400	400	6	12	2	71	0.7
2.4	193.7	5	50	75	400	400	6	12	2	64	0.7
4	193.7	8	50	75	400	400	6	12	2	64	0.7
4.7	219	6.3	60	85	500	500	5	14	2	57	0.7
8.8	273	6.3	60	85	600	600	8	14	3	45	0.7
10	273	10	70	85	600	600	8	16	2	38	0.7

Width (m)	6										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.2	193.7	8	50	75	500	500	6	12	2	71	0.7
3.3	219	6.3	60	85	500	500	6	12	3	67	0.7
6.6	273	6.3	60	85	500	500	6	12	3	53	0.7
10	273	10	70	85	600	600	8	14	4	52	0.7

120 Minutes Integrity Performance (for E120 classification) - Masonry/Concrete continued

Width (m)	6.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.1	219	6.3	60	85	500	500	6	14	2	76	0.7
4.8	273	6.3	60	85	500	500	6	14	2	61	0.7
7.8	273	10	70	85	600	600	8	16	3	62	0.7
10	323.9	10	70	85	600	600	8	16	3	45	0.7

Width (m)	7										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3.7	273	6.3	60	85	500	500	6	14	2	72	0.7
5.8	273	10	70	85	500	500	6	14	3	72	0.7
7	323.9	10	70	85	500	500	6	16	3	50	0.7
10	335.6	10	70	85	600	600	8	16	3	54	0.7

Width (m)	7.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	273	10	70	85	500	500	6	14	2	65	0.7
4.2	323.9	10	70	85	600	600	8	14	3	54	0.7
5	335.6	10	70	85	600	600	8	16	3	53	0.7

Width (m)	8										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.6	273	10	70	85	500	500	6	14	3	91	0.7
5.9	323.9	10	70	85	500	500	6	14	4	78	0.7
6.9	335.6	10	70	85	600	600	8	16	4	76	0.7
10	406.4	12.5	70	85	600	600	8	18	5	50	0.7

Width (m)	8.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
4	323.9	10	70	85	500	500	6	14	4	86	0.7
5	335.6	10	70	85	600	600	8	16	3	85	0.7
7	406.4	12.5	70	85	600	600	8	18	4	55	0.7

120 Minutes Integrity Performance (for E120 classification) - Masonry/Concrete continued

Width (m)	9										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3	323.9	10	70	85	600	600	8	14	4	99	0.7
3.5	335.6	10	70	85	600	600	8	14	4	94	0.7
7	406.4	12.5	70	85	600	600	8	18	5	69	0.7

Width (m)	9.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.2	335.6	10	70	85	600	600	8	16	3	104	0.7
7	406.4	12.5	70	85	600	600	8	18	4	85	0.7

Width (m)	10										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
5.5	406.4	12.5	70	85	600	600	8	18	5	96	0.7
6.3	457	16	80	85	600	600	8	20	5	71	0.7

240 Minutes Integrity Performance (for E240 classification) – Masonry/Concrete

Width (m)	2.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.4	101	3.6	16.5	40	300	300	5	10	2	41	0.7
3.8	127	3.2	30	65	300	300	6	10	2	32	0.7
7	139.7	5	30	65	400	400	5	10	2	27	0.7
9.7	139.7	6.3	30	65	500	500	5	10	3	30	0.7
10	168.3	5	30	65	500	500	5	10	3	21	0.7

Width (m)	3										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.1	101	3.6	16.5	40	300	300	5	10	2	52	0.7
2	127	3.2	30	65	300	300	6	10	3	41	0.7
4.3	139.7	5	30	65	400	400	5	12	3	37	0.7
7	168.3	5	30	65	400	400	5	10	3	31	0.7
10	193.7	5	40	75	500	500	5	12	3	27	0.7

Width (m)	3.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	127	3.2	30	65	300	300	6	10	2	55	0.7
2.7	139.7	5	30	65	300	300	6	10	2	50	0.7
3.5	139.7	6.3	40	65	400	400	5	10	3	51	0.7
4.7	168.3	5	30	65	400	400	5	12	3	41	0.7
7	193.7	5	50	75	500	500	5	12	3	37	0.7
10	193.7	8	50	75	500	500	5	12	3	34	0.7

Width (m)	4										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	139.7	5	30	65	400	400	5	12	3	65	0.7
3.2	168.3	5	30	65	400	400	5	12	3	54	0.7
4.8	193.7	5	50	75	400	400	5	12	3	47	0.7
7	193.7	8	50	75	500	500	5	12	3	45	0.7
10	273	6.3	60	85	500	500	6	14	3	25	0.7

240 Minutes Integrity Performance (for E240 classification) – Masonry/Concrete
continued

Width (m)	4.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	139.7	6.3	40	65	400	400	5	12	3	81	0.7
2	168.3	5	30	65	400	400	5	12	3	66	0.7
3.2	193.7	5	50	75	400	400	5	12	3	58	0.7
5	193.7	8	50	75	500	500	5	12	3	57	0.7
6	219	6.3	60	85	500	500	5	12	3	52	0.7
10	273	6.3	60	85	600	600	8	14	3	39	0.7

Width (m)	5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	168.3	5	30	65	400	400	5	12	3	81	0.7
2	193.7	5	50	75	400	400	5	12	3	69	0.7
3.4	193.7	8	50	75	400	400	6	12	3	70	0.7
4.1	219	6.3	60	85	400	400	6	12	3	62	0.7
7	273	6.3	60	85	500	500	5	14	3	46	0.7
10	273	10	70	85	600	600	8	14	4	44	0.7

Width (m)	5.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.3	193.7	5	50	75	400	400	6	12	3	85	0.7
2	193.7	8	50	75	400	400	6	12	3	83	0.7
2.8	219	6.3	60	85	400	400	6	12	3	75	0.7
6	273	6.3	60	85	500	500	5	14	3	61	0.7
9	273	10	70	85	600	600	8	14	4	59	0.7
10	323.9	10	70	85	600	600	8	16	4	40	0.7

Width (m)	6										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
4.2	273	6.3	60	85	500	500	6	12	3	71	0.7
6.1	273	10	70	85	500	500	6	14	3	68	0.7
7	335.6	10	70	85	500	500	6	16	4	43	0.7
10	406.4	12.5	70	85	600	600	8	18	5	28	0.7

240 Minutes Integrity Performance (for E240 classification) – Masonry/Concrete
continued

Width (m)	6.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3	273	6.3	60	85	500	500	6	14	3	83	0.7
4.8	273	10	70	85	500	500	6	14	3	84	0.7
9	335.6	10	70	85	600	600	8	16	4	65	0.7

Width (m)	7										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3	273	10	70	85	500	500	6	14	3	95	0.7
6	323.9	10	70	85	500	500	6	16	3	79	0.7
7	335.6	10	70	85	500	500	6	16	3	77	0.7

Width (m)	7.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	273	10	70	85	500	500	6	14	3	108	0.7
4.2	323.9	10	70	85	600	600	8	16	3	90	0.7
5	335.6	10	70	85	600	600	8	16	3	88	0.7

Width (m)	8										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.9	323.9	10	70	85	600	600	8	16	3	104	0.7
3.6	335.6	10	70	85	600	600	8	16	3	101	0.7

**60 and 90 Minutes Integrity Performance (for E60/E90 classification) –
Timber Stud Partition**

Width (m)	2.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	20	0.7
2.4	101	3.6	16.5	40	300	300	5	10	2	25	0.7
5.3	127	3.2	30	65	300	300	5	10	2	24	0.7
7	139.7	5	30	65	400	400	5	10	2	16	0.7

Width (m)	3										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.6	101	3.6	16.5	40	250	250	5	10	2	37	0.7
1.8	101	3.6	16.5	40	300	300	5	10	2	40	0.7
3	127	3.2	30	65	300	300	5	12	2	31	0.7
6	139.7	5	30	65	400	400	5	10	2	28	0.7
7	168.3	5	40	65	500	500	5	12	2	24	0.7

Width (m)	3.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.9	127	3.2	30	65	300	300	5	10	2	41	0.7
4	139.7	5	30	65	300	300	5	10	2	37	0.7
6.9	168.3	5	30	65	400	400	5	10	2	32	0.7
7	193.7	5	50	75	400	400	5	12	2	27	0.7

Width (m)	4										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.2	127	3.2	30	65	300	300	5	12	2	54	0.7
2.7	139.7	5	30	65	300	300	5	12	2	48	0.7
4.5	168.3	5	30	65	400	400	5	12	2	39	0.7
6.9	193.7	5	50	75	500	500	5	12	2	35	0.7
7	193.7	8	50	75	500	500	5	14	2	34	0.7

**60 and 90 Minutes Integrity Performance (for E60/E90 classification) –
Timber Stud Partition continued**

Width (m)	4.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.7	139.7	5	30	65	400	400	5	12	2	60	0.7
2	139.7	6.3	40	65	400	400	5	12	2	58	0.7
3.2	168.3	5	30	65	400	400	5	12	2	49	0.7
4.8	193.7	5	50	75	500	500	5	12	2	43	0.7
7	193.7	8	50	75	500	500	5	12	2	44	0.7

Width (m)	5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.3	139.7	6.3	40	65	400	400	5	12	2	73	0.7
2.2	168.3	5	30	65	400	400	5	12	2	61	0.7
3.5	193.7	5	50	75	400	400	6	12	2	53	0.7
5.5	193.7	8	50	75	400	400	6	12	2	53	0.7
6.3	219	6.3	60	85	500	500	5	14	2	47	0.7
7	273	6.3	60	85	600	600	8	14	3	34	0.7

Width (m)	5.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
1.3	168.3	5	30	65	400	400	6	12	2	71	0.7
2.4	193.7	5	50	75	400	400	6	12	2	64	0.7
4	193.7	8	50	75	400	400	6	12	2	64	0.7
4.7	219	6.3	60	85	500	500	5	14	2	57	0.7
7	273	6.3	60	85	600	600	8	14	3	45	0.7

Width (m)	6										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.2	193.7	8	50	75	500	500	6	12	2	71	0.7
3.3	219	6.3	60	85	500	500	6	14	3	67	0.7
6.6	273	6.3	60	85	500	500	6	16	3	53	0.7
7	273	10	70	85	600	600	8	16	4	52	0.7

**60 and 90 Minutes Integrity Performance (for E60/E90 classification) –
Timber Stud Partition continued**

Width (m)	6.5										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
2.1	219	6.3	60	85	500	500	6	14	2	76	0.7
4.8	273	6.3	60	85	500	500	6	14	2	61	0.7
7	273	10	70	85	600	600	8	16	3	62	0.7

Width (m)	7										
Height (m)	Barrel		Axle diameter (mm)	Max axle length (mm)	End Plate Height (mm)	End Plate Width (mm)	End Plate Thickness (mm)	Endplate Bolts		Barrel Deflection Allowance (mm)	Curtain thickness (mm)
	Diameter (mm)	Thickness (mm)						Size (mm)	Number		
3.7	273	6.3	60	85	500	500	6	14	2	72	0.7
5.8	273	10	70	85	500	500	6	14	3	72	0.7
7	323.9	10	70	85	500	500	6	16	3	50	0.7