FIXINGS & FASTENERS

Declaration of Performance

F&F Nails

Document Number:
DOPNL120

1. Unique identification code of the product-type:

F&F Nails

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

Round head, lost head, oval head, spring head, twist, slab, ring shank, plasterboard. Material 10B21

3. Intended use or uses of the construction product, in accordance with the applicable harmonised/designated technical specification, as forseen by the manufacturer:

Load-bearing structural timber products

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

ForgeFix Ltd. Galleon Blvd, Crossways Bus. Park, Dartford, Kent DA2 6QE, UK.

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

Tucks Fasteners Ltd. Century Bus. Park, 10 St Margaret's Rd, Dublin, D11 TN80, IE.

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

a. CE - AVCP System 3

7. Harmonised / Designated standard:

EN 14592:2008+A1:2012

8. Notified body/ies:

TUV Rheinland. Notified Body Number: 0044

European Technical Assessment: N/A

9. Declared performance/s:

F&F Nails - Geometry

2.0mm/25mm	Requirement (mm)	Measured Value				
Characteristic		1	2	3	4	5
Length *(l)*	≥1.00mm	23.52	24.30	23.99	23.62	24.26
Nominal Diameter *(d)*	1.90 ~ 8.00mm	2.00	2.00	2.00	2.00	2.00
Head Cross sectional area *(A_h)*	≥10.00mm²	20.42	21.06	20.66	20.26	20.42
Thickness of head *(h_t)*	≥0.50mm	0.66	0.64	0.67	0.67	0.68
Length of point *(l_p)*	≥5.00mm	0.66	0.64	0.67	0.67	0.68

2.65mm/50mm	Requirement (mm)	Measured Value				
Characteristic		1	2	3	4	5
Length *(l)*	≥1.33mm	48.84	47.93	47.83	48.50	47.87
Nominal Diameter *(d)*	1.90 ~ 8.00mm	2.69	2.69	2.69	2.70	2.69
Head Cross sectional area *(A_h)*	≥17.56mm²	29.02	29.50	28.83	28.54	28.54
Thickness of head *(h_t)*	≥0.66mm	0.90	1.19	0.93	1.28	1.22
Length of point *(l_p)*	≥6.63mm	0.66	0.64	0.67	0.67	0.68

4.50mm/100mm	Requirement (mm)	Measured Value				
Characteristic		1	2	3	4	5
Length *(l)*	≥2.25mm	98.43	98.98	98.60	98.89	98.90
Nominal Diameter *(d)*	1.90 ~ 8.00mm	4.51	4.52	4.51	4.51	4.51
Head Cross sectional area *(A_h)*	≥50.63mm²	68.63	67.02	67.75	68.33	67.89
Thickness of head *(h_t)*	≥1.13mm	1.74	1.78	1.86	1.76	1.77
Length of point *(l_p)*	≥11.25mm	7.41	7.44	6.98	7.07	7.09

F&F Nails - Yield Moment

2.65mm	Single Measured Values					
Characteristic	1	2	3	4	5	6
Yield Moment M_y at 45° (Nmm)	99	97	99	98	100	95

2.65mm	Single Measured Values				Characteristic Yield Moment My,*k* (Nmm)
Characteristic	7	8	9	10	
Yield Moment M_y at 45° (Nmm)	99	97	99	98	86

Remark: All tested nails were continually bent up to 45° without their breaking or another failure.
Characteristic value calculation was carried out according to EN14358:2006

4.5mm	Single Measured Values					
Characteristic	1	2	3	4	5	6
Yield Moment M_y at 45° (Nmm)	6330	5590	5790	5810	6290	6180

2.65mm	Single Measured Values				Characteristic Yield Moment My,*k* (Nmm)
Characteristic	7	8	9	10	
Yield Moment M_y at 45° (Nmm)	6270	6460	5220	6010	5387

Remark: All tested nails were continually bent up to 45° without their breaking or another failure.
Characteristic value calculation was carried out according to EN14358:2006

F&F Nails - Withdrawal Parameter

2.0mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	269	8.41
2	216	6.74
3	289	8.97
4	303	9.46
5	289	9.05
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**6.09**

2.0mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	313	9.78
2	276	8.63
3	312	9.76
4	264	8.25
5	349	10.9
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**8.33**

2.65mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	469	7.89
2	421	7.08
3	484	8.14
4	587	9.88
5	617	10.38
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**5.79**

2.65mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	473	7.97
2	370	6.23
3	407	6.84
4	384	6.47
5	473	7.97
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**5.31**

4.5mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	1101	6.61
2	987	5.93
3	1112	6.68
4	967	5.81
5	948	5.69
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**4.17**

4.5mm Sample no.	F_{max} (N) Load parallel to the grain	Withrawal parameter f_{ax} (N/mm²)
1	779	4.68
2	759	4.56
3	780	4.68
4	738	4.43
5	725	4.36
Characteristic withdrawal parameter $f_{ax,k}$ (N/mm²)		**3.44**

F&F Nails - Head Pull-through Parameter

2.0mm	Single measured values					
Characteristic	**1**	**2**	**3**	**4**	**5**	**6**
F_{max} (N)	674	687	665	610	651	663
Head pull-through parameter f_{head} (N/mm²	25.70	26.19	25.38	23.25	24.84	25.28

2.0mm	Single measured values				Characteristic head pull-through parameter $f_{head,k}$ (N/mm²)
Characteristic	**7**	**8**	**9**	**10**	
F_{max} (N)	623	644	716	694	
Head pull-through parameter f_{head} (N/mm²	23.77	24.55	27.32	26.49	**22.73**

2.65mm	Single measured values					
Characteristic	**1**	**2**	**3**	**4**	**5**	**6**
F_{max} (N)	1031	816	976	1051	1233	1046
Head pull-through parameter f_{head} (N/mm²	28.00	22.16	26.48	28.54	33.45	28.40

2.65mm	Single measured values				Characteristic head pull-through parameter $f_{head,k}$ (N/mm²)
Characteristic	**7**	**8**	**9**	**10**	
F_{max} (N)	1141	879	1005	851	
Head pull-through parameter f_{head} (N/mm²	30.98	23.85	27.28	23.10	**24.33**

4.5mm	Single measured values					
Characteristic	**1**	**2**	**3**	**4**	**5**	**6**
F_{max} (N)	1031	816	976	1051	1233	1046
Head pull-through parameter f_{head} (N/mm²	28.00	22.16	26.48	28.54	33.45	28.40

4.5mm	Single measured values				Characteristic head pull-through parameter $f_{head,k}$ (N/mm²)
Characteristic	**7**	**8**	**9**	**10**	
F_{max} (N)	1141	879	1005	851	
Head pull-through parameter f_{head} (N/mm²	30.98	23.85	27.28	23.10	**24.33**

F&F Nails - Tensile Capacity

2.0mm	Single measured values					
Characteristic	1	2	3	4	5	6
F_{max} (kN)	2.588	2.701	2.737	2.505	2.608	2.578

2.0mm	Single measured values				Characteristic tensile capacity $f_{tens,k}$ (kN)
Characteristic	7	8	9	10	
Fmax (kN)	2.547	2.689	2.548	2.634	**2.35**

Remark: Nails were broken in the shank.

2.65mm	Single measured values					
Characteristic	1	2	3	4	5	6
Fmax (kN)	4.616	4.324	4.043	4.227	3.992	4.034

2.65mm	Single measured values				Characteristic tensile capacity $f_{tens,k}$ (kN)
Characteristic	7	8	9	10	
Fmax (kN)	4.171	4.292	4.037	3.938	**3.75**

Remark: Nails were broken in the shank.

4.5mm	Single measured values					
Characteristic	1	2	3	4	5	6
Fmax (kN)	9.632	9.021	10.421	10.715	10.827	10.484

4.5mm	Single measured values				Characteristic tensile capacity $f_{tens,k}$ (kN)
Characteristic	7	8	9	10	
Fmax (kN)	9.722	10.244	10.303	9.92	**9.11**

Remark: Nails were broken in the shank.

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of:

ForgeFix Ltd.

Place of issue:

ForgeFix Ltd. Galleon Blvd, Crossways Bus. Park, Dartford, Kent DA2 6QE, UK.

Date of issue:

01/01/2021

Name:

Anthony Armitt

Position:

Commercial Director

Signature: