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Firefly Fixings Product Data Sheet

Product Range	Firefly Fixings - FCMS
Description	Self-Tapping Masonry Screw for fixing Firelfy clips to trunking, timber track and general components into concrete and masonry
Key Features	Direct into substrate Countersunk Philips 2 head
Dimensions	4.7mm x 37mm & Washers
Material(s)	Carbon Steel AISI C1022 500hr Evosheild®
Compliance / Standards(s)	See page 3 of this document
Packaging	Recyclable

Image for reference only

Size mm	Fixture Thickness mm	Minimum Drill Depth mm	Minimum Embedment Depth mm	Pilot Hole
4.7 x 37	5.0 ~ 20.0	35.0	25.0	4.35

Characteristic pull out loads				
Embedment Depth mm	35N / mm² concrete kN	Concrete Masonry kN	Dense Block kN	Hollow Block kN
25	2.3	1.3	1.4	n/a
30	4.3	1.5	2.0	5.0
35	5.2	2.3	2.8	5.4
40	6.1	3.2	4.9	n/a

Hardness Rating (Vickers scale)	
Surface Hardness HV	Core Hardness HV
630.0	430.0

Ultimate mechanical performance	
Tensile strength kN	Shear strength kN
10.8	13.0

Influence of concrete Strength on Performance								
Concrete Strength (As per BS EN 206-1:2000)	Nominal Embedment Depth mm	Concrete Grade						
		C20/25	C25/30	C30/37	C34/45	C40/50	C50/60	>C50/60
30N/mm²	32.0	0.70	1.00	1.00	1.10	1.15	1.20	1.25

Advanced Setting Data		
Substrate Type	Category	
n/a	Nominal embedment depth	32.0mm
Non cracked concrete (>30N/mm²)	Minimum base material thickness	100.0mm
	Minimum Screw Spacing	50.0mm
	Minimum edge distance	50.0mm
Cracked concrete (>30N/mm²)	Minimum base material thickness	100.0mm
	Minimum Screw Spacing	50.0mm
	Minimum edge distance	50.0mm

Influence of edge distance on performance										
% of stated minimum	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Reduction factor	0.45	0.55	0.65	0.70	0.70	0.75	0.80	0.85	0.90	1.0

Influence of anchor spacing on performance										
% of stated minimum	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Reduction factor	0.45	0.55	0.65	0.70	0.70	0.75	0.80	0.85	0.90	1.0

Testing

All tests were derived from empirical testing performed by ETAS (Evolution testing & Analytical Services) a UKAS (United Kingdom Accreditation Service) accredited testing laboratory (Accreditation No.7485).

Testing Procedures

Test / Parameter	Standard / Method / Procedure
Ultimate Tensile	**ISO 6892-1:2009** “Metallic materials – tensile testing – Part 1: Method of test at room temperature.”
Ultimate Shear	**MIL-STD-1312-13** “Military Standard: fastener test method (method 13) Double shear test.”
Pull Out (Withdrawal force)	**EN 14566:2009** “Mechanical fasteners for gypsum plasterboard systems. Definitions, requirements and test methods.”
Pull Over	**EN 14592:2008** “Timber structures. Dowel type fasteners. Requirements.”
Hardness	**ISO 650 7-1:2005** “Metallic materials – Vickers hardness test – Part 1: Test Method.”
Corrosion Resistance	**EN ISO 9227:2012** “Corrosion tests in artificial atmospheres. Salt spray tests.”
Drilling Time Test	**EN 14566:2009** “Mechanical fasteners for gypsum plasterboard systems. Definitions, requirements and test methods.”

Sustainability
Firefly Fittings are manufactured from 100% recyclable material and offer excellent fire performance.