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TECHNICAL REPORT

Sayfa Group (Europe) Ltd Unit B1 Research Point Shepshed Leicestershire LE19 1WH United Kingdom	SATRA reference:	SPC0352363	
		2327	1
	Report ID/Issue number:	31920/5	
	Your reference:		
	Date samples received:	04/07/2023	
	Date(s) work carried out:	01/08/2023 to 30/01/2024	
	Date of report:	31/01/2024	

Testing Requirements

Testing of a horizontal rail system described as "EdgeSeil Rail" in accordance with BS 8610:2017 Types D2, D3 & D5 for 3 users

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Report Signed by:

Laura Croft

Report Signatory

WORK REQUESTED

Samples of “EdgeSeil Rail” were received by SATRA on the 1st August 2023 & 30th January 2024, for testing in accordance with BS 8610:2017 types D2, 3 & 5 for up to 3 users

CONCLUSIONS

SAMPLE REFERENCE	STANDARD	CLAUSE / PROPERTY	PASS / FAIL
EdgeSeil Rail	BS 8610:2017	4.1 General requirements	PASS
		4.2 Pre-testing verification and recording requirements	PASS
		4.3 Materials	PASS
		4.4 Design and ergonomics	PASS
		4.5.3.3 Type D2, Type D3 & Type D5 – Non-load-limiting rigid anchor rail	PASS

TESTING

Testing was carried out in accordance with BS 8610:2017 between the 1st August & 9th October 2023

The anchor device is intended as a type D (rigid anchor rail) device

The anchor device allows up to a maximum of three users to be attached simultaneously

For the purposes of testing, the anchor device was installed onto concrete, with test forces applied in a direction parallel to the ground

Samples were tested as received, and were not subject to any pre-conditioning processes other than those stated in individual test clauses

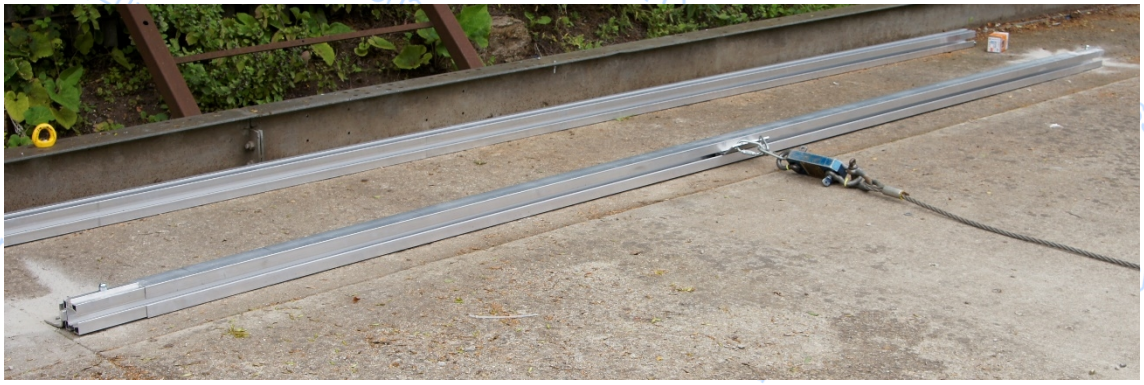

Figure 1 – Anchor described as “EdgeSeil Rail”

Figure 2 – Anchor described as “EdgeSeil Rail”

TEST RESULTS

Table 1 – Testing of “EdgeSeil Rail” in accordance with BS 8610:2017, Type D2, 3 & 5 Non-load-limiting anchor

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.1 General requirements	Anchor systems shall be tested in the base materials that the manufacturer permits, unless otherwise specified in the relevant test methods	The anchor device was tested in concrete		PASS
	Where the manufacturer permits loading in more than one direction, anchor systems shall be tested in each relevant principal safety critical direction	Testing was carried out in 1 direction on each relevant safety critical position		PASS
	Where alternative configurations of the same type of anchor device are to be made available, the worst configuration shall be tested, ensuring the limit is set for the configuration that could be offered	Not applicable – no alternative configurations	N/A	N/A
	If the geometry, configuration, or material of an anchor device, including the structural anchor, differs from the one that has been tested as part of the anchor system, the anchor system shall be verified by testing to clause 5, or proven by calculation with the results recorded	Not applicable – no alternative configuration, geometry or materials used		N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2 Pre-testing verification and recording requirements	It shall not be possible for elements of the anchor system to become unintentionally detached	Unintentional detachment is unlikely during normal use		PASS
	If an element can be removed it shall be designed to have at least 2 separate, consecutive, and deliberate manual actions	Greater than 2 deliberate actions are required in order to remove the traveller from the rail		PASS
	For anchor systems which include removable elements, those shall be such that they cannot appear to be positively locked together when they are not, due to incorrect assembly	Incorrect assembly would be visually evident	N/A	PASS
	Anchor points shall be designed to ensure easy engagement and free rotation of connectors and that connectors align in the preferred load-bearing position	Connectors can rotate freely and sit in their preferred load bearing position		PASS
	If a fall or overload indicator is incorporated, the indicator shall clearly show that a fall has occurred upon completion of the dynamic and static tests	Not applicable – no fall indicators included		N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2 Pre-testing verification and recording requirements	The mass of any element of an anchor system that is intended to be transported shall be less than 25kg	Maximum weight of transportable parts of anchor: 24.5kg		PASS
	The maximum rated load (RL_{max}) shall be a minimum of 100kg and shall be round ed to nearest 0.1kN	Maximum rated load per user: 100kg	N/A	PASS
4.3 Materials	Metallic parts shall show no evidence of any corrosion that could affect the function of the device (white scaling or tarnishing is acceptable)	Corrosion test in accordance with ISO 9227: 2017 - 96 hours Neutral Salt Spray, with a break for 1 hour at 24-hour intervals Temperature: 35 °C Fall out rate: 1.93ml/hr pH of test solution: 6.5 Specific gravity of test solution: 1.032 Rust and white scaling present on nuts of fixture elements. No effect to device function	See table 2	PASS
	Wire ropes shall be made from stainless steel, or galvanized steel conforming to BS EN 12385-4	Not applicable – no wire ropes	See note 2	N/A
	Steel wire ropes shall be galvanized in accordance with ISO 2232. Other steel elements shall be galvanized in accordance with BS EN ISO 1461	Not applicable – no wire ropes		N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.3 Materials	Load-bearing textile elements shall only be used if the manufacturer can demonstrate that they incorporate sufficient protection against Ultraviolet degradation for their foreseeable life	Not applicable – no textile elements		N/A
	Textile elements shall be made from virgin mono-filament or multi-filament synthetic fibres	Not applicable – no textile elements		N/A
	The breaking tenacity of synthetic fibres shall be a minimum of 0.6 N/tex	Not applicable – no textile elements	See table 2	N/A
	Threads shall be of a contrasting shade or colour to the webbing or rope	Not applicable – no textile elements	See note 2	N/A
	Connectors shall conform to EN 362	Connectors are marked as compliant with EN 362		PASS
	Wire rope terminations shall not include U-bolt wire rope grips in any part of the anchor system	Not applicable – no wire ropes		N/A
	Materials used for the wire rope termination shall be compatible with the materials used for the wire rope	Not applicable – no wire ropes		N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.4 Design and ergonomics	The load-bearing edges of anchor points that are holes shall have a minimum radius of 1mm	Load bearing edges have a minimum radius of 1mm		PASS
	Anchor systems shall not have sharp edges or burrs that may cause injury to the user. Exposed edges or corners shall be relieved either with a minimum radius of 0.5mm or a chamfer of no less than 0.5mm x 45°	Exposed edges are rounded to prevent injury	N/A	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.5.3.3 Type D2 – fall arrest – non-load-limiting, Type D3 – rope access and work positioning – non-load-limiting & Type D5 – rescue – remotely or self-operated – direct attachment – non-load-limiting	4.5.3.3.1 The maximum number of users permitted shall be no more than three	Maximum number of users: 3	N/A	PASS
	4.5.3.3.2 When tested for deformation with the load applied via the anchor point on each traveller to: a) the rigid anchor line at the centre of the longest span permitted by the manufacturer; b) extremity anchors; c) intermediate anchors, where fitted; d) corner anchors, where fitted; and e) entry/exit line fittings and joints, cantilevers, and end stops, where fitted, the anchor system shall hold the load and no part of the anchor system shall demonstrate permanent deformation of more than 10mm	Position: Centre of longest span Required force: 9kN 9kN sustained for 3 minutes without failure Peak force: 9.1kN Deformation: 0mm	± 50 N See note 2	PASS
		Position: Extremity anchor Required force: 9kN 9kN sustained for 3 minutes without failure. Peak force: 12.7kN Deformation: 0mm		

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.5.3.3 Type D2 – fall arrest – non-load-limiting, Type D3 – rope access and work positioning – non-load-limiting & Type D5 – rescue – remotely or self-operated – direct attachment – non-load-limiting	4.5.3.3.3 When tested for dynamic performance with the load applied via the anchor point on each traveller to: a) the rigid anchor line at the centre of the longest span permitted by the manufacturer; b) extremity anchors: c) intermediate anchors, where fitted; d) corner anchors, where fitted; and e) entry/exit line fittings and joints, cantilevers, and end stops, where fitted, the anchor system shall hold the load clear of the ground.	Position: Centre of longest span 1st user dynamic 100kg test mass arrested Peak arrest force: 8.3kN Deformation of anchor: 145mm Slippage of traveller: 325mm Residual strength dynamic 100kg test mass arrested 2nd user dynamic (100kg applied statically to rail) 100kg test mass arrested Peak arrest force: 8.7kN Deformation of anchor: 145mm Slippage of traveller: 76mm 3rd user dynamic (200kg applied statically to rail) 100kg test mass arrested Peak arrest force: 8.8kN Deformation of anchor: 147mm Slippage of traveller: 45mm See note 4	± 40 mm See note 2	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.5.3.3 Type D2 – fall arrest – non-load-limiting, Type D3 – rope access and work positioning – non-load-limiting & Type D5 – rescue – remotely or self-operated – direct attachment – non-load-limiting	4.5.3.3.3 When tested for dynamic performance with the load applied via the anchor point on each traveller to: a) the rigid anchor line at the centre of the longest span permitted by the manufacturer; b) extremity anchors: c) intermediate anchors, where fitted; d) corner anchors, where fitted; and e) entry/exit line fittings and joints, cantilevers, and end stops, where fitted, the anchor system shall hold the load clear of the ground.	Position: Extremity anchor 1st user dynamic 100kg test mass arrested Peak arrest force: 9.3kN Deformation of anchor: 11mm Slippage of traveller: 105mm Residual strength dynamic 100kg test mass arrested 2nd user dynamic (100kg applied statically to rail) 100kg test mass arrested Peak arrest force: 9.6kN Deformation of anchor: 0mm Slippage of traveller: 0mm 3rd user dynamic (200kg applied statically to rail) 100kg test mass arrested Peak arrest force: 11.1kN Deformation of anchor: 0mm Slippage of traveller: 0mm See note 4	± 40 mm See note 2	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.5.3.3 Type D2 – fall arrest – non-load-limiting, Type D3 – rope access and work positioning – non-load-limiting & Type D5 – rescue – remotely or self-operated – direct attachment – non-load-limiting	4.5.3.3.4 When tested for static strength with the load applied via the anchor point on each traveller to: a) the rigid anchor line at the centre of the longest span permitted by the manufacturer; b) extremity anchors: c) intermediate anchors, where fitted; d) corner anchors, where fitted; and e) entry/exit line fittings and joints, cantilevers, and end stops, where fitted, the anchor system shall hold the load.	Position: Centre of longest span 27kN sustained for 3 minutes without failure See notes 3 & 4	± 50 N See note 2	PASS
		Position: Extremity anchor 27kN sustained for 3 minutes without failure See notes 3 & 4		

ADDITIONAL INFORMATION / NOTES

Table 2 – Additional uncertainty of measurement information (see note 1)

CLAUSE	TEST / COMPONENT	UoM (see note 1)
Corrosion resistance	Temperature	± 0.99 °C
	Fall-out rate of collected solution	± 2.25 ml (± 0.04 ml/hour for 24 hours)
	Specific gravity of collected solution	± 0.0010 g/ml
	pH value of collected solution	± 0.1
	Angle of sample mounting (if applicable)	± 1.44°

Note 1 – 'UoM' denotes estimated Uncertainty of Measurement for stated test results. This uncertainty value is based on a standard uncertainty multiplied by a coverage factor k = 2, which provides for a confidence level of approximately 95%

Note 2 – Estimated uncertainty of measurement applied at point of test (e.g. to applied force or to tolerance limits) to ensure product meets requirements of the standard

Note 3 – Static strength testing carried out by manually increasing loading, therefore rate of stressing / crosshead velocity as per EN 364: 1992 Clauses 4.1.2.1 & 4.1.2.2 cannot be accurately determined (see VG11 recommendation for use sheet CNB/P/11.023 dated 25.10.2007)

Note 4 – Testing carried out under job reference SPC4304X3D2

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