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TECHNICAL REPORT

Sayfa Group (Europe) Ltd Unit B1 Research Point Shepshed Leicestershire LE19 1WH United Kingdom	SATRA reference:	SPC10467W6M9	
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	Date of report:	19/06/2024	

Testing Requirements

Testing of a rail mounted davit arm described as "ERD.3500.0500" in accordance with BS 8610:2017 type D2, D3 & D5 for up to 2 users

This report replaced the previous issue, dated the 26th March 2024

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Report Signed by:

Edward Brooks

Report Signatory

WORK REQUESTED

Samples of an anchor rail described as “ERD.3500.0500” were made available to SATRA on the 6th March 2024, for testing in accordance with BS 8610:2017 types D2 Fall arrest – Non-load-limiting, D3 Rope access and work positioning – Non-load-limiting & D5 Rescue – remotely or self-operated – direct attachment – Non-load-limiting

CONCLUSIONS

SAMPLE REFERENCE	STANDARD	CLAUSE / PROPERTY	PASS / FAIL
ERD.3500.0500	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 Types D2 Fall arrest – Non-load-limiting, D3 Rope access and work positioning – Non-load-limiting & D5 Rescue – remotely or self-operated – direct attachment – Non-load-limiting	PASS

TESTING

Testing was carried out in accordance with BS 8610:2017 between the 6th March & 14th June 2024 and was witnessed by representatives from Sayfa Group

The anchor device is intended as a type D device

The anchor device allows up to a maximum of 2 users to be attached simultaneously

For the purposes of testing, the anchor device was installed onto concrete using M10 concrete screws, with test forces applied in a vertical direction

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 rail described as “ERD.3500.0500”

TEST RESULTS

Table 1 – Testing of "ERD.3500.0500" in accordance with BS 8610:2017, Types D2, D3 & D5 – Non-load-limiting anchor

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.1 General requirements	4.1.1 Anchor systems shall be tested in the base materials that the manufacturer permits, unless otherwise specified in the relevant test methods	The anchor system has been tested in concrete	PASS
	4.1.2 Where the manufacturer permits loading in more than one direction, anchor systems shall be tested in each relevant principal safety critical direction	Not applicable – only 1 permitted direction of loading	N/A
	4.1.3 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 of loading	N/A
	4.1.4 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 geometry, configuration or materials	N/A
	4.1.5 During deformation tests, cracks, ruptures, or unintended tears of any part of the anchor system shall not be permitted	No evidence of cracks, ruptures or unintended tears of the anchor during deformation tests	PASS
	4.1.6 Where deformation and static strength tests are carried out simultaneously, cracks, ruptures, or unintended tears of any part of the system shall not be permitted	Not applicable – deformation and static tests were not carried out simultaneously	N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.1 General requirements	4.1.7 During dynamic performance tests and static strength tests, any sign or evidence of partial failure of the anchor system, e.g. cracks, ruptures or unintended tears shall not be classed as a failure, but shall be detailed in the test report	No evidence of cracks, ruptures or unintended tears of the anchor during deformation tests	PASS
4.2 Pre-testing verification and recording requirements	4.2.2 It shall not be possible for elements of the anchor system to become unintentionally detached	Unintentional detachment is unlikely during normal use	PASS
	4.2.3 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 anchor	PASS
	4.2.4 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	PASS
	4.2.5 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
	4.2.6 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 indicators included	N/A
	4.2.7 The mass of any element of an anchor system that is intended to be transported shall be less than 25kg	Maximum mass of transportable parts of anchor: 24kg	PASS
	4.2.8 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	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3 Materials	4.3.1.1 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 - 24 hours Neutral Salt Spray, followed by 1 hour drying, followed by a further 24 hour exposure, repeated for a total exposure of 96 hours Temperature: 35 °C Fall out rate: 1.65 ml/hr pH of test solution: 7.8 Specific gravity of test solution: 1.034 See notes 4, 5 & 6	
		Mild spots of rust across components. No effect to device function	PASS
	4.3.1.2 Wire ropes shall be made from stainless steel, or galvanized steel conforming to BS EN 12385-4	Wire ropes are made from stainless steel	PASS
	4.3.1.3 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 – wire rope is stainless steel	N/A
	4.3.2.1 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
	4.3.2.2 Textile elements shall be made from virgin mono-filament or multi-filament synthetic fibres	Not applicable – no textile elements	N/A
	4.3.2.3 The breaking tenacity of synthetic fibres shall be a minimum of 0.6 N/tex	Not applicable – no textile elements	N/A
	4.3.2.4 Threads shall be of a contrasting shade or colour to the webbing or rope	Not applicable – no textile elements	N/A

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.3 Materials (continued)	4.3.3 Connectors shall conform to EN 362	Not applicable – no connectors supplied	N/A
	4.3.4.1 Wire rope terminations shall not include U-bolt wire rope grips in any part of the anchor system	U-bolt clamps are not used to form terminations	PASS
	4.3.4.2 Materials used for the wire rope termination shall be compatible with the materials used for the wire rope	The materials used in the wire rope terminations are physically compatible with the wire rope	PASS
4.4 Design and ergonomics	4.4.1 The load-bearing edges of anchor points that are holes shall have a minimum radius of 1mm	The load bearing edged have a radius of >1mm	PASS
	4.4.2 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°	No sharp edges or burrs which could cause injury. Exposed edges are rounded and chamfered	PASS
	4.4.3 The anchor point shall not allow inadvertent release of any personal fall protection equipment	Unintentional detachment is unlikely during normal use	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.5.3.3 Types D2 Fall arrest – Non-load-limiting, D3 Rope access and work positioning – Non-load-limiting & 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: 2	PASS
	4.5.3.3.2 Following the static deformation load of: (n x 3 x RM_{max}) with a minimum of n x 3kN for 3 minutes applied via the anchor point on each traveller to: a) The rigid anchor line at the centre of the longest span; 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 rail Required force: 6kN 6kN sustained for 3 minutes without failure Deformation of anchor: 1mm	PASS
		Position: End of rail Required force: 6kN 6kN sustained for 3 minutes without failure Deformation of anchor: 4mm	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.5.3.3 Types D2 Fall arrest – Non-load-limiting, D3 Rope access and work positioning – Non-load-limiting & D5 Rescue – remotely or self-operated – direct attachment – Non-load-limiting	4.5.3.3.3 When tested in accordance the relevant dynamic performance test, with the load applied via the anchor point on each traveller to: a) The rigid anchor line at the centre of the longest span; b) Extremity anchors; c) Intermediate anchors, where fitted; d) Corner anchors, where fitted; and e) Entry/exit line fitings and joints, cantilevers and end stops, where fitted, the anchor system shall hold the test mass clear of the ground	Position: Centre of rail 1st user 100kg test mass arrested Peak arrest force: 8.7kN Deflection of anchor line: 3mm Displacement of traveller: 0mm Residual strength 100kg test mass arrested 2nd user (100kg mass suspended on anchor line) 100kg test mass arrested Peak arrest force: 8.5kN Deflection of anchor line: 51mm Displacement of traveller: 0mm	PASS
		Position: End of rail 1st user 100kg test mass arrested Peak arrest force: 9.8kN Deflection of anchor line: 9mm Displacement of traveller: 0mm Residual strength 100kg test mass arrested 2nd user (100kg mass suspended on anchor line) 100kg test mass arrested Peak arrest force: 8.2kN Deflection of anchor line: 37mm Displacement of traveller: 0mm	PASS

BS 8610:2017 CLAUSE / TEST	BS 8610:2017 REQUIREMENT	RESULT / COMMENT	PASS / FAIL
4.5.3.3 Types D2 Fall arrest – Non-load-limiting, D3 Rope access and work positioning – Non-load-limiting & D5 Rescue – remotely or self-operated – direct attachment – Non-load-limiting	4.5.3.3.4 When tested in accordance with the relevant static strength test, with the load applied via the anchor point on each traveller to: a) the centre of the longest span; b) extremity anchors; c) intermediate anchors, where fitted; d) corner anchors, where fitted; e) entry/exit line fittings and joints, cantilevers and end stops, where fitted, the anchor system shall hold the load.	Position: Centre of rail Required force: 21kN 21kN sustained for 3 minutes without failure See note 3 Position: End of rail Required force: 21kN 21kN sustained for 3 minutes without failure See note 3	PASS

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 – 4.7 Corrosion resistance. Samples were placed in a horizontal orientation during testing

Note 5 – pH value of test solution was found to exceed the tolerances specified in ISO 9227: 2017. This was not considered to significantly influence results however

Note 6 – Testing carried out under job reference SPC2004907

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