



SATRA Technology Centre Ltd
Wyndham Way, Telford Way, Kettering,
Northamptonshire, NN16 8SD United Kingdom
Tel: +44 (0) 1536 410000
email: info@satra.com
www.satra.com

TECHNICAL REPORT

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|---|---------------------------|--------------------------|---|
| Sayfa Group (Europe) Ltd Unit B1 Research Point Shepshed Leicestershire LE19 1WH United Kingdom | SATRA reference: | SPC2002428 | |
| | | 2415 | 2 |
| | Report ID/Issue number: | 39178/2 | |
| | Your reference: | | |
| | Date samples received: | | |
| | Date(s) work carried out: | 09/04/2024 to 14/06/2024 | |
| | Date of report: | 21/06/2024 | |
| | | | |

Testing Requirements

Testing of a rail mounted davit arm described as "ERD.1500.1500 EdgeReil Davit" in accordance with BS 8610:2017 type D2, D3 & D5 for 1 user

This report replaces the previous issue, dated the 30th April 2024

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Report Signed by:

Edward Brooks


Report Signatory

WORK REQUESTED

Samples of an anchor rail described as “ERD.1500.1500 EdgeReil Davit” were received by SATRA on the 9th April 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.1500.1500 EdgeReil Davit | BS 8610:2017 | 4.1 General requirements | Not fully assessed |
| | | 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 9th April & 14th June 2024 in the presence of representatives from Sayfa Group

The anchor device is intended as a type D device

The anchor device allows up to a maximum of 1 user to be attached.

For the purposes of testing, the anchor device was installed onto a stack of 6 davit bases and mounted on concrete using M10 concrete screws, with test forces applied in a vertical direction. Following installation, as per an agreement with the customer, the anchor was subjected to a 6kN settling load

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.1500.1500 EdgeReil Davit” mounted on a stack of 4 davit bases



Figure 2 – Anchor rail described as “ERD.1500.1500 EdgeReil Davit” mounted on a stack of 6 davit bases

TEST RESULTS

Table 1 – Testing of “ERD.1500.1500 EdgeReil Davit” 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 | Not assessed | Not assessed |
| | 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 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 of the anchor | 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 during the deformation test | 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 test and static strength tests were carried out independently | N/A |



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| 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 during the dynamic performance and static strength 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 required 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 indicator 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 | Mass of transportable parts of anchor: <25kg | PASS |
| | 4.2.8 The maximum rated load (RL_{max}) shall be a minimum of 100kg and shall be rounded to nearest 0.1kN | Maximum rated load: 100kg | PASS |



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| BS 8610:2017 CLAUSE / TEST | BS 8610:2017 REQUIREMENT | RESULT / COMMENT | PASS / FAIL |
|-------------------------------|---|---|---|
| 4.3 Materials | <p>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)</p> <p>4.3.1.2 Wire ropes shall be made from stainless steel, or galvanized steel conforming to BS EN 12385-4</p> <p>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</p> <p>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</p> <p>4.3.2.2 Textile elements shall be made from virgin mono-filament or multi-filament synthetic fibres</p> <p>4.3.2.3 The breaking tenacity of synthetic fibres shall be a minimum of 0.6 N/tex</p> <p>4.3.2.4 Threads shall be of a contrasting shade or colour to the webbing or rope</p> | <p>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</p> <p>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</p> <p>Mild spots of rust across components. No effect to device function</p> <p>Wire ropes are made from stainless steel</p> <p>Not applicable – wire rope is stainless steel</p> <p>Not applicable – no textile elements</p> <p>Not applicable – no textile elements</p> <p>Not applicable – no textile elements</p> <p>Not applicable – no textile elements</p> | <p>PASS</p> <p>PASS</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |

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| 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 included | 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 for the wire rope terminations are compatible with the materials used in 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 | Load bearing edges have a radius greater than 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° | The anchor device is free from any sharp edges or burrs which could cause injury | 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: 1 | 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: <ul style="list-style-type: none"> 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 longest span Required force: 3kN 6kN sustained for 3 minutes without failure Peak deformation of anchor: 7mm | PASS |
| | 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: <ul style="list-style-type: none"> 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 test mass clear of the ground | Position: Extremity anchor Required force: 3kN 6kN sustained for 3 minutes without failure Peak deformation of anchor: 6mm | PASS |
| | | Position: Centre of longest span 1 st user 100kg test mass arrested Peak arrest force: 7.5kN Deflection of anchor line: 31mm Residual strength 100kg test mass arrested | PASS |
| | | Position: Extremity anchor 1 st user 100kg test mass arrested Peak arrest force: 9.8kN Deflection of anchor line: 29mm Residual strength 100kg test mass arrested | 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 longest span Required force: 15kN 15kN sustained for 3 minutes without failure See note 3 Position: Extremity anchor Required force: 15kN 15kN sustained for 3 minutes without failure See note 3 | PASS |

ADDITIONAL INFORMATION / NOTES

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

***** END OF REPORT *****

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