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SATRA reference: SPC0326349 /2206

Your reference:

Date of report: 29 April 2022

Samples received: 7 February 2022

Date(s) work carried out: Between 7 March & 12 April 2022

TECHNICAL REPORT

Subject: Testing of a range of anchor devices in accordance with EN 795: 2012 & #CEN/TS 16415: 2013 type A static strength only

Conditions of Issue:

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Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

Tests marked # fall outside the UKAS Accreditation Schedule for SATRA.

All opinions and interpretations of results, and the comments based upon them are outside the scope of UKAS accreditation and are based on current SATRA knowledge.

A satisfactory test report in no way implies that the product tested is approved by SATRA and no warranty is given as to the performance of the product tested. SATRA shall not be liable for any subsequent loss or damage incurred by the client as a result of information supplied in the report.

Where values for uncertainty of measurement are included within the report then the uncertainty of the corresponding results are based on a standard uncertainty multiplied by a coverage factor $k=2$, which provides a coverage probability of approximately 95%.

When reporting results against a conformance statement (Pass/Fail or the allocation of a class or level) then uncertainty of measurement is taken into account based on a non-binary acceptance which itself is based on the guard band being equal to the expanded uncertainty.

Where the result corrected for uncertainty falls within the tolerance of the conformance statement then the risk of the conformance statement being a false accept or false reject is up to 2.5% and SATRA will in this instance quote a Pass/Fail, class or level.

Where the result corrected for uncertainty falls outside of the tolerance of the conformance statement then the risk of the conformance statement being a false accept or false reject is up to 50%. In this instance SATRA will not provide a Pass/Fail statement or a class or level but will include information in the notes in relation to the result obtained.

Please note that where uncertainty of measurement values have not been included then uncertainty has not been applied to these results. SATRA uncertainty of measurement values are however available upon request.

Report signed by: Daniel Harrison
Position: Business Area Manager
Department: Safety Product Testing

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WORK REQUESTED

Samples of anchor device, as described below in conclusion table, were made available to SATRA between 7th March & 12 April 2022, for testing in accordance with EN 795: 2012 & #CEN/TS 16415: 2013 type A, static strength

CONCLUSIONS

SAMPLE REFERENCE	STANDARD	CLAUSE / PROPERTY	PASS / FAIL
ESP-450 (Square base)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
ESP-450 (Circle base)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
ESP-450 (Post 2)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 2.5 x 2.5	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 1.5 x 1.5	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 1.5 x 1.5	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 1.5 x 1.5 (Added bracket)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 1.5 x 1.5 (Added reinforcement 17/3/22)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
Davit 1.5 x 1.5 (Added reinforcement 12/4/22)	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	PASS
[REDACTED]	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	[REDACTED]
[REDACTED]	EN 795: 2012	4.4.1.3 Specific requirements – Type A anchor static strength test	[REDACTED]
	#CEN/TS 16415: 2013	4.2.1.2 Specific requirements – Type A anchor static strength test	[REDACTED]
Mobile device	EN 795: 2012	4.4.5.7 Specific requirements – Type E anchor static strength test	PASS
	#CEN/TS 16415: 2013	4.2.6.5 Specific requirements – Type E anchor static strength test	PASS

TEST RESULTS

Table 1 – Testing of anchor devices in accordance with EN 795: 2012 as a type A device

EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM	PASS / FAIL			
4.4.1.3 Specific requirements – Type A anchor static strength test	Metallic elements shall sustain a force of at least 12kN for 3 minutes without release, and non-metallic elements shall sustain a force of at least 18kN for 3 minutes without release	Anchor device: ESP-450 (Square base)	± 50 N See note 1	PASS			
		See table 2, clause 4.2.1.2		Anchor device: ESP-450 (Circle base)	PASS		
		See table 2, clause 4.2.1.2			Anchor device: ESP-450 (Post 2)	PASS	
		See table 2, clause 4.2.1.2		Anchor device: Davit 2.5 x 2.5		PASS	
		See table 2, clause 4.2.1.2				Anchor device: Davit 1.5 x 1.5	PASS
		See table 2, clause 4.2.1.2			Anchor device: Davit .1		PASS
		See table 2, clause 4.2.1.2				Anchor device: Davit 1.5 x 1.5 (Added bracket)	PASS
		See table 2, clause 4.2.1.2		Anchor device: Davit 1.5 x 1.5 (Added reinforcement 17/3/22)	PASS		
		See table 2, clause 4.2.1.2			Anchor device: Davit 1.5 x 1.5 (Added reinforcement 12/4/22)		PASS
		See table 2, clause 4.2.1.2		Anchor device: GRB 550 Aviator roof post		PASS	
		See table 2, clause 4.2.1.2			Anchor device: GRB 750 Aviator roof post	FAIL	
				Peak force of 8.0kN reached before test was stopped			
		4.4.5.7 Specific requirements – Type E anchor static strength test			Anchor device: Mobile anchor		PASS
					See table 2, clause 4.2.1.2		

Table 2 – Testing of anchor devices in accordance with #CEN/TS 16415: 2013 as a type A device

#CEN/TS 16415: 2013 CLAUSE / TEST	#CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM	PASS / FAIL
4.2.1.2 Specific requirements – Type A anchor static strength test	Metallic elements shall sustain a force of at least 12kN + 1kN for each additional user claimed, for 3 minutes without release, and non-metallic elements shall sustain a force of at least 18kN + 1kN for each additional user claimed, for 3 minutes without release	Anchor device: ESP-450 (Square base) 13kN sustained for 3 minutes without failure Force then increased to 21kN for 3 minutes without failure See note 2	± 50 N See note 1	PASS
		Anchor device: ESP-450 (Circle base) 13kN sustained for 3 minutes without failure Force then increased to 21kN for 3 minutes without failure See note 2		PASS
		Anchor device: ESP-450 (Post 2) 13kN sustained for 3 minutes without failure Force then increased to 21kN for 3 minutes without failure See note 2		PASS
		Anchor device: Davit 2.5 x 2.5 13kN sustained for 3 minutes without failure See note 2		PASS
		Anchor device: Davit 1.5 x 1.5 13kN sustained for 3 minutes without failure Force then increased to 16.5kN before failure See note 2		PASS

#CEN/TS 16415: 2013 CLAUSE / TEST	#CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM	PASS / FAIL
4.2.1.2 Specific requirements – Type A anchor static strength test	Metallic elements shall sustain a force of at least 12kN + 1kN for each additional user claimed, for 3 minutes without release, and non-metallic elements shall sustain a force of at least 18kN + 1kN for each additional user claimed, for 3 minutes without release	Anchor device: Davit .1 13kN sustained for 3 minutes without failure Force then increased to 18.5kN before failure See note 2		PASS
		Anchor device: Davit 1.5 x 1.5 (Added bracket) 13kN sustained for 3 minutes without failure Force then increased to 19.9kN before failure See note 2		PASS
		Anchor device: Davit 1.5 x 1.5 (Added reinforcement 17/3/22) 13kN sustained for 3 minutes without failure Force then increased to 21.0kN before failure See note 2	± 50 N See note 1	PASS
		Anchor device: Davit 1.5 x 1.5 (Added reinforcement 12/4/22) 13kN sustained for 3 minutes without failure Force then increased to 21kN for 3 minutes without failure See note 2		PASS
		Anchor device: GRB 550 Aviator roof post 13kN sustained for 3 minutes without failure See note 2		PASS

#CEN/TS 16415: 2013 CLAUSE / TEST	#CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM	PASS / FAIL
4.2.6.5 Specific requirements – Type E anchor static strength test	Metallic elements shall sustain a force of at least 12kN + 1kN for each additional user claimed, for 3 minutes without release, and non-metallic elements shall sustain a force of at least 18kN + 1kN for each additional user claimed, for 3 minutes without release	Anchor device: Mobile anchor Note – Without fixing to ground, maximum force recorded of 3.0kN before slipping and back weights lifting Anchor was then held down as allowed in CEN/TS 16415: 2013 13kN sustained for 3 minutes without failure See note 2	± 50 N See note 1	PASS

ADDITIONAL INFORMATION / NOTES

Note 1 – 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 2 – 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)