

Additional Items Conforming Under this Declaration (If Applicable):

Declaration #: DOC-UFA40010

Declaration Date: 04/18/2016

Declaration of Conformity

In Accordance with ANSI/ISEA 125-2014 and ANSI/ASSP Z359.7-2019

Item #: UFA40010

Description: KStrong® Wrangler™ 100 ft. Adjustable 4-person Capacity Horizontal Lifeline System

Brand Name: KStrong

Manufacturer: KStrong

Address: 150 N. Radnor Chester Road, Suite F200, Radnor, PA 19087

KStrong declares that the product(s) listed above is in conformity with the requirements of the following performance standard(s):





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For the attention of: Prerna Khare

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Customer details:

Karam, PN International C-12 Amausi Industrial Area Nadarganj Lucknow 226008 India

SATRA reference:	SPC0235816 /1525 Issue 4
Your reference:	SATRA/020/2015-16
Date of report:	18 April 2016
Samples received:	15 June 2015, 5 January & 3 February 2016
Date(s) work	Between 28 July 2015
carried out:	& 14 April 2016

TECHNICAL REPORT

Subject:

Testing of horizontal life line described as "PN 3001" (Aluminium and stainless steel version), "PN 3002" (Galvanized version) including different anchor point described as "SA 29" in accordance with EN 795: 2012 & TS 16415: 2013 type C

This replaces report reference SPC0235816/1525 Issue 3 dated 10th March 2016

Conditions of Issue:

This report may be forwarded to other parties provided that it is not changed in any way. It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.

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

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.

The uncertainty of the results (UoM) in this report is based on a standard uncertainty multiplied by a coverage factor k=2, which provides for a confidence level of approximately 95%.

Report signed by: Position: Department: Daniel Harrison PPE Technologist Safety Product Testing

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WORK REQUESTED

TECHNOLOGY

Samples of horizontal anchor line, described as "PN 3001" (Aluminium and stainless steel version), "PN 3002" (Galvanized version) including different anchor point described as "SA 29", were received by SATRA on 15th June 2015, 5th January & 3 February 2016 for testing in accordance with EN 795: 2012 & CEN/TS 16415: 2013 for a type C device.

For the purposes of testing, a combination of both PN 3001 & PN 3002 were used. Also a mixture of anchorage connection point SA29 and the large O-ring supplied with the anchorage line were used – see individual clauses for details on each

A new design of tensioner for PN 3001 was received on the 5th January 2016 for corrosion resistance testing. The only changes to the device is the frame, with all the mechanical elements remaining the same – See figure 5

CONCLUSIONS

SAMPLE REFERENCE	STANDARD	CLAUSE / PROPERTY	PASS / FAIL
		4.1 General	PASS
	EN 795: 2012 CEN/TS 16415: 2013	4.2 Materials	PASS
PN 3001 & PN 3002		4.3 Design and ergonomics	PASS
		4.4 Specific requirements – type C	PASS
		4.1 General	PASS
		4.2 Specific requirements – type C	PASS

TESTING

Testing was carried out in accordance with EN 795: 2012 & CEN/TS 16415: 2013 between 28th July 2015 & 14th April 2016

The anchor device PN 3001 allows up to a maximum of 4 users to be attached simultaneously and the anchor device PN 3002 allows up to a maximum of 2 users to be attached simultaneously

For the purposes of testing, the anchor device was installed on an I beam, with test forces applied in a horizontal direction

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

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Figure 1 – Horizontal anchor line described as "PN 3001" (PN 3002 is identical but components are Galvanized)

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Figure 2 – Horizontal anchor line described as "PN 3002" Galvanised component



Figure 3 – Anchorage attachment point described as "SA 29'

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Figure 4 – D-ring anchorage attachment point



Figure 5 – New tensioner for PN 3001

TEST RESULTS

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Table 1 – Testing of anchor device described as "PN 3001" & "PN 3002" in accordance with EN 795: 2012 as a type C device

EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.1 General	Anchor devices shall be designed so that they can be removed from the structure, without damaging the structure	Anchorage device can be removed without damaging the product or the structure		PASS
	or anchor, thus allowing reuse U-bolt clamps shall not be used for terminations in any part of an anchor device	No U-bolt clamps used	GY	PASS
	It shall not be possible for elements with an anchor point to become detached	Unintentional detachment unlikely during normal use. Any item that can be detached requires a minimum of 2 deliberate actions		PASS
16 1.2010 APRIL 2010 2016 APR	unintentionally. If an element can be removed it shall be designed to have at least 2 separate deliberate manual actions	2016 APRIL 2016 APRIL 20 2016 APRIL 2016 APRIL 2016 A	N/A	APRIL 2016
PRIL 2016	Anchor devices shall allow connectors to rotate freely and sit in the anchor in the preferred load-bearing position	Connectors are free to rotate and sit in the preferred load bearing position	6 AL	PASS
2010 2010 6 APRIL 20 6 APRIL 2016 P	Where an anchor device comprises more than one element, the design shall be such that those elements cannot appear to be correctly assembled without being positively locked together	Incorrect assembly would be visually evident	2 APRIL 20 A	PASS

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EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.1 General (continued)	The mass of any element of an anchor device that is intended to be transported shall be less than 25kg	Mass of anchor device is less than 25kg		PASS
	If a fall indicator is incorporated, the indicator shall clearly show when a fall has	Not applicable – No indicator provided		N/A
	If an anchor device consists of a combination of several types, it shall be tested for each type and for the	Not applicable – Anchor device is type C only	N/A	N/A
16 ^m -016	If the manufacturer permits loading in more than one direction, then each safety critical direction shall be tested	Not applicable – Anchor device can only be loaded in one direction	` 2 ⁵	N/A
4.2.1 Materials – Metal parts	Metallic parts shall show no evidence of any corrosion that could affect the function of the device (white scaling or tarnishing is acceptable) If steel wire ropes are galvanised, this shall be done in accordance with ISO 2232	Corrosion test in accordance with ISO 9227: 2012 - 24 hours Neutral Salt Spray, followed by 1 hour drying, followed by a further 24 hour exposure Temperature: 35 °C Fall out rate: 1.56 ml/hr pH of test solution: 7.6 Specific gravity of test solution: 1.030 See note 4 White scaling present on all metal components. Slight black tarnishing on galvanised clamp. No other visual evidence of any corrosion present	See table 4 See note 2	PASS
4.2.2 Materials – Rope and webbing	Fibre ropes, webbing and sewing threads shall be made from virgin filament or multi- filament synthetic fibres	Declaration provided stating that BRAL160 rope is made from virgin filament/synthetic fibres	N/A	PASS
	Threads shall be of a contrasting shade or colour to the webbing or rope	White thread used with red rope	2016 P	PASS
4.2.3 Materials - Connectors	Connectors shall conform to EN 362	Not applicable	N/A	N/A

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EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.3 Design and ergonomics	Anchor devices shall not have sharp edges or burrs that may cause injury to the user or that may damage itself or any other equipment it may come into contact with	No sharp edges or burrs that could add additional risk to user	N/A	PASS
4.4.3.1 Specific requirements – Type C anchor deformation test	No part of the extremity anchors, intermediate anchors or mobile anchor point, which is intended to deform, shall demonstrate permanent deformation of more than 10mm	0.7kN applied for 1 minute No permanent deformation on release	± 50 N See note 2	PASS
4.4.3.2 Specific requirements – Type C performance	Performance predictions based on calculations or test results shall be available for	See individual dynamics for predictions		
predictions	 configurations of the anchor device, including information on: a) Maximum deflection of the mobile anchor point 	2010 2010 2010 2U	PRIL 2	PRIL
2016 APR 2016 APR 16 APRIL 20 16 APRIL 20	 b) Maximum load applied to the extremity anchor and intermediate or corners that are considered to be in- line fittings. If no extremity anchor 	2016 Ar. 2016 A. 2016 A APRIL 2016 APRIL 2016 A 2016 APRIL 2016 APRIL 2016 2016 APRIL 201	N/A	PASS
PRILEAPR	exists, the maximum load in the anchor line shall be provided	16 APKIL APKIL AF	2016 P	2016

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6	EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
ſ	4.4.3.3 & 4.4.3.4	The values at the	Test 1 – PN 3001 with SA 29		
	Specific	extremities and the	Span length: 5m		
	requirements -	maximum dynamic	Initial line tension: 1.0kN		
	Type C Single	deflection of the anchor	Position of mobile anchor point: Centre		
	span and multi	line shall not vary by	of span		
	span dynamic	more than ± 20% from			
	strength and integrity test	those predicted	100 kg test mass arrested		
	3 ,	The anchor device shall	Peak force at lanyard: 5.3kN		
		not release the test	(see figure 6)		
		mass and no part of the	Peak force at anchor: 8.3kN		
		anchor device shall	(see figure 7)		
		break.	Prediction: 9.5kN (12.6%)		
			Peak line deflection: 1.22m		
			Prediction: 1.18m (-3.4%)	GY	
			Residual strength: 300kg held for 3		
			minutes without failure	See	DAGO
			Test 2 – PN 3002 with O-ring	table 4	PASS
			Span length: 25m		
			Initial line tension: 1.0kN		
			Position of mobile anchor point: Centre		
		1 010' 01	of span	1, 2	
Q		20.00	100 kg test mass arrested	pRIL	
D		" APK" AP	Peak force at lanyard: 2.9kN	010	
		101 2101	(See figure 8)	00	
		$)^{\prime}$ 0^{\prime} 0^{\prime}	Peak force at anchor: 4.4kN	5 0	
			(see figure 9)	, on	
		OKIN PHI	Prediction: 4.9kN (10.2%)	$\sim P^{\prime}$	
		×	Peak line deflection: 4.64m		
1		010,010	Prediction: 4.19m (-10.8%)	2	
-		LE ONLE	Residual strength: 300kg held for 3	DYIN .	
4	PRIL PRI	r phin p	minutes without failure	1.6P	1

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EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.4.3.5 Specific requirements –	With the mobile anchor point:	See table 2, clause 4.2.3.4		
Type C static	 Immediately adjacent 			
strength test	On an intermediate			
	anchor			
	On a corner anchor			
	On an entry/exit line fitting and on a joint in		± 50 N	D400
	the flexible anchor line		See note	PASS
	Where these are part of		2	
	anchor including all load			
	bearing elements shall			
	A noid a load of 12kN for	CFINOLO	GY	
	metallic elements the			
	static load shall be			
4.4.3.6 Specific	During dynamic strength	Mobile anchor points remained attached		
requirements –	and integrity tests and	throughout testing		
anchor point	mobile anchor point	2° 22° 201° 201°	N/A 🔿	PASS
10.0010	shall not become	201 20 20 20 20	all	
alta	detached from the	SIL OPIL OPIN	2 mil	
4.4.3.7 Specific	Where the flexible	Not applicable – No intermediates or	010	-01
requirements –	anchor line is fixed in	corners used	20.	
Type C multi span	the intermediate or corner anchor	all all all all	1. OR	
of the second seco	(intermediate or corner	SPEC SPECE PL.		
GAT G	anchors become	1 10^{10}		
10,010	span anchor devices		all	
alling	shall be tested as single	211- OPIL PHIL NE	N. D	
on" pr	span anchor devices	a pri a pri a pri	-161	

Table 2 – Testing of anchor device described as "PN 3001" & "PN 3002" in accordance with CEN/TS 16415: 2013 as a type C device

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CEN/TS 16415: 2013 CLAUSE / TEST	CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.1 General	Anchor devices intended for use by more than one person simultaneously shall conform to	See table 1	N/A	PASS
	EN 795: 2012			
4.2.3.1 Specific requirements – Type C anchor dynamic strength & integrity test	When tested dynamically with a rigid steel mass of 200 kg (2 users), the test mass shall be arrested. A further dynamic test shall be carried out on the same system in accordance with EN	Position of mobile anchor point: Centre of span 200 kg test mass arrested Reak force at lanyard: 6.1kN	GY	
	795: 2012, for each	(see figure 10)		
16 h. 2016 PRIL 2016 PRIL 2016 APR 2016 APR 2016 APR	additional user claimed. The tests masses, or an equivalent force shall be applied to the line to simulate the number of users already fallen. The anchor must then hold an increased mass of 600kg (2 users) + 150kg for each additional user for 3 minutes	Peak force at anchor: 8.4kN (see figure 11) <i>Prediction: 8.6kN (2.3%)</i> Peak line deflection: 1.12m <i>Prediction: 1.32m (15.2%)</i> Residual strength: 600kg held for 3 minutes without failure Test 2 – PN 3001 with SA 29 Span length: 25m Initial line tension: 1.0kN Position of mobile anchor point: Centre	See table 4	PASS
16, 2016	2010, 2010	of span 200 kg test mass arrested	PIL 2	
PRIL APRI 2016 APRIL 20 6 APRIL 20 6 APRIL 20	16 APKIL 6 AP PRIL 2016 AP PRIL 2016 APRIL 2 0016 APRIL 2016	Peak force at lanyard: 3.5kN (See figure 12) Peak force at anchor: 5.1kN (see figure 13) <i>Prediction: 5.7kN (10.5%)</i> Peak line deflection: 4.83m <i>Prediction: 4.56m (-5.9%)</i>	2016 P APRI 0 APRI	
PRIL PRI	PRIL APP	Residual strength: 600kg held for 3 minutes without failure	TIG A	

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CEN/TS 16415: 2013 CLAUSE / TEST	CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2.3.1 Specific	When tested	Test 3a – PN 3001 with O-ring		
requirements –	dynamically with a rigid	Span length: 5m		
Type C anchor	steel mass of 200 kg (2	Initial line tension:		
dynamic strength &	users), the test mass	Position of mobile anchor point: Centre		
integrity test	shall be arrested. A	of span		
(continued)	further dynamic test			
	shall be carried out on	200kg test mass arrested		
	the same system in			
	accordance with EN	Peak force at lanyard: 6.6kN		
	795: 2012, for each	(see figure 14)		
	additional user claimed.	Peak force at anchor: 9.2kN		
	The t <mark>e</mark> sts masses, or an	(see figure 15)		
	equivalent force shall be	Prediction: 9.5kN (3.2%)		
	applied to the line to	Peak line deflection: 1.45m		
	simulate the number of	Prediction: 1.31m (-10.7%)		
	users already fallen. The			
	anchor must then hold	Test 3b – Same sample used as in test		
	an increased mass of	3a with 200kg force left on system to		
	600kg (2 users) + 150kg	simulate first 2 users still hanging on		
	for each additional user	system.		
	for 3 minutes			
. Gr . 10	1 240' 21	100kg mass arrested	~ 0	
10 0010	00, 00,	Deals forme at law and 5 OLM	21-6	
		Peak force at lanyard: 5.9KN		
apil of	IL OHIN P	(See ligure 16)	See	PASS
LY' LY'	GAT GAT	Peak force at anchor: 8.5kh	table 4	
- 10 C	10' -010'	(See ligure 17) Prodiction: 0.5kN (10.5%)	20°	
$00^{1}, 2^{1}$	2° 2° 3°	Peak line deflection: 1.22m	2	
all all	-BIL BRIL	Prediction: 1 18m (-3.4%)	NPT	
, ohis	Phi NY		Sr.	
GP GI	~ 10 m -10	Test 3c – Same sample used as in test		
10, 010,	0^{1}	3b with 300kg force left on system to	-N F	
1. 20 .	1 Constants	simulate first 3 users still hanging on	RIL	
altar	1 ORIL OI	system.		
DLI. VLI	AF' GAI	1.6 1 .6 1 .16	~10'	
° .6 m	101 AV	100kg mass arrested	00	
00^{\prime} 00	$\sim 20^{\circ}$		6 2	
it and	all'all'	Peak force at lanyard: 6.8kN	, pri	
- opin	oh" phi	(see figure 18)		
- DY' GP	N . G PN . 6	Peak force at anchor: 9.1kN		
6' 20'		(see figure 19)	. 2	
201	201	Prediction: 9.5kN (4.2%)	all.	
all all	- SRIL OP	Peak line deflection: 1.26m	N D	
phi phi	NY' NY'	Prediction: 1.18m (-6.8%)	-16r	
A A A	6 m 26 m	10' - 10' - 000' - 00' - 00'	0	
-010 O	$\sim 0^{1/2}$	Residual strength: 900kg held for 3		
20		minutes without failure	, okin	
- apile -	BIL OHIN	or pri pri	Dr.	
		See note 5	$b' \rightarrow b$	0' 0

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CEN/TS 16415: 2013 CLAUSE / TEST	CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2.3.1 Specific	When tested	Test 4a – PN 3001 with O-ring		
requirements –	dynamically with a rigid	Span length: 25m		
Type C anchor	steel mass of 200 kg (2	Initial line tension:		
dynamic strength &	users), the test mass	Position of mobile anchor point: Centre		
integrity test	shall be arrested. A	of span		
(continued)	further dynamic test			
	shall be carried out on	200kg test mass arrested		
	the same system in			
	accordance with EN	Peak force at lanyard: 4.4kN		
	795: 2012, for each	(see figure 20)		
	additional user claimed.	Peak force at anchor: 6.6kN		
	The tests masses, or an	(see figure 21)		
	equivalent force shall be	Prediction: 5.7kN (-15.8%)		
	applied to the line to	Peak line deflection: 4.40m		
	simulate the number of	Prediction: 4.56m (3.5%)		
	users already fallen. The	Test the Come completioned as in test		
	anchor must then hold	1 est 40 – Same sample used as in test		
	an increased mass of	4a with 200kg force left on system to		
	for each additional user	simulate mist 2 users still hanging on		
	for 3 minutes	System.		
Gr ib		100kg mass arrested	۰ o	
	$00^{10} 00^{1}$		211-6	
		Peak force at lanyard: 4.7kin	See	
opil of	IL DAIL D	(See ligule 22) Dock force at enchar: 6 2kN	See	PASS
XY' AY'	GPI GPI	(coo figuro 22)	lable 4	
~10'	10, 010	Prediction: 5.7kN(-10.5%)	20 .	
00^{1} , 2^{1}	D. 20	Peak line deflection: 4.59m	- 2	
L'all	all spir	Prediction: 4.12m (-11.4%)	NY'	
APRIL I	Stick is	B 6 6 6 6 6	6 ~ _	
10' ~10'		1 est 4c – Same sample used as in test	1,2	
100 ·	20 . 20	4D with 300kg force left on system to	all	
211-5-21	L'all'a	simulate first 3 users still hanging on	DX D	
ohin voh	NY NY		1-161	
16 m	10,010,0	100kg mass arrested	20, ~"	
20	allall	Peak force at lanyard: 5.1kN	PRI	
OKIN N	pri ppri	(see figure 24)	ar I	
Ar GP	N .6 M 6	Peak force at anchor: 6.6kN	N 201	
10' -NO'	a^{1}	(see figure 25)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
1 20° a	12 and the	Prediction: 5.7kN (-15.8%)	RIV	
altall	- opil of	Peak line deflection: 4.68m		
KL. PLL	GAT' GAT'	Prediction: 4.12m (-13.6%)	0101	
010 0	1000000000000000000000000000000000000	Residual strength: 900kg held for 3		
12 all	all all		NPh.	
pphi N	Phil Phil	See note 5	sr a	61

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CEN/TS 16415: 2013 CLAUSE / TEST	CEN/TS 16415: 2013 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2.3.2 Specific requirements – Type C anchor dynamic strength & integrity test	The maximum load measured at the extremity anchor during all dynamic strength and integrity tests should not exceed 50% of the minimum breaking strength of the flexible anchor line	Maximum load measured in dynamic strength and integrity test: 9.2kN Minimum breaking strength: 18.4kN 19kN sustained for 3 minutes without failure	± 50 N See note 2	PASS
4.2.3.3 Specific requirements – Type C anchor dynamic strength & integrity test	The values at the extremities and the maximum dynamic deflection of the anchor line shall not vary by more than ± 20% from those predicted	See individual dynamic tests for predications	± 1%	PASS
4.2.3.4 Specific requirements –	With the mobile anchor point:	Test 1 – PN 3001 with SA 29 Span length: 5m		
Type C anchor static strength test	 Immediately adjacent to an extremity anchor On an intermediate anchor On a corner anchor On a corner anchor On an entry/exit line fitting and on a joint in the flexible anchor line Where these are part of the anchor device, the anchor including all load bearing elements shall hold a load of 12kN + 1kN for each additional user claimed, for 3 minutes. For non- metallic elements the static load shall be 18kN + 1kN for each additional user claimed. 	Position of mobile anchor point: Centre of span 21kN sustained for 3 minutes without failure <u>See notes 3 & 5</u> Test 2 – PN 3002 with O-ring Span length: 25m Position of mobile anchor point: Centre of span 21kN sustained for 3 minutes without failure See notes 3	± 50N See note 2	PASS

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Table 3 – Testing of new tensioner for "PN 3001" in accordance with EN 795: 2012 as a type C device, corrosion resistance only

EN 795: 2012 CLAUSE / TEST	EN 795: 2012 REQUIREMENT	RESULT / COMMENT	UoM (See note 1)	PASS / FAIL
4.2.1 Materials – Metal parts	Metallic parts shall show no evidence of any corrosion that could affect the function of the device (white scaling or tarnishing is acceptable) If steel wire ropes are galvanised, this shall be done in accordance with ISO 2232	Corrosion test in accordance with ISO 9227: 2012 - 24 hours Neutral Salt Spray, followed by 1 hour drying, followed by a further 24 hour exposure Temperature: 35 °C Fall out rate: 1.50 ml/hr pH of test solution: 6.97 Specific gravity of test solution: 1.030 White scaling present on rivets only. No	See table 4 See note 2	PASS
		other visual evidence of any corrosion present	GY	



Figure 6 – Dynamic performance test: Graph of force vs. time

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Figure 7 – Dynamic performance test: Graph of force vs. time





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Figure 10 – Dynamic performance test: Graph of force vs. time

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Figure 11 – Dynamic performance test: Graph of force vs. time





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Figure 21 – Dynamic performance test: Graph of force vs. time





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Figure 23 - Dynamic performance test: Graph of force vs. time





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ADDITIONAL INFORMATION / NOTES

Table 4 – Additional uncertainty of measurement information (see note 1)

CLAUSE	TEST / COMPONENT	UoM (see note 1)
Dynamic performance & strength	Dynamic force recording	± 4.4 %
	Length measurement (deflection)	± 18 mm
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 – pH value of test solution were found to exceed the tolerances specified in ISO 9227: 2012. This was not considered to significantly influence results however

Note 5 – Testing carried out under job reference SPC0242582/1606

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TERMS AND CONDITIONS OF BUSINESS

GENERAL

Work done or services undertaken are subject to the terms and conditions detailed below and all other conditions, warranties and representations, expressed or implied are hereby excluded.

2. PRICES

Prices are based on current material and production costs, exchange rates, duty and freight and are subject to change without notice.

3. DELIVERY ESTIMATES

Delivery estimates are made in good faith and date from receipt of a written order and full information to enable us to proceed. While SATRA or its subsidiaries (hereafter referred to as "SATRA") make every effort to fulfil them, such estimates are subject to unforeseen events and if not maintained, cannot give rise to any claim. Offers "ex stock" are subject to prior sale.

4. CANCELLATION AND RETURNS

Cancellation of orders for goods, services, training or consultancy is only acceptable by prior agreement of SATRA and a charge will normally be made.

5. CLAIMS

Claims for errors, shortages etc should be notified within 10 days of date of receipt. In the event of goods damaged in transit, packing materials should be retained for examination; otherwise no liability can be accepted.

6. PAYMENT TERMS

Payment terms are net 21 days from date of invoice. Failure to comply with the terms of payment may result in delayed delivery of goods and services and a review of the Customer's credit account. Should the customer become subject to an administration order, or becomes bankrupt or goes into liquidation, SATRA has a right to cancel any contract and discontinue any work. SATRA reserves the right to adjust US Dollar and Euro sales price where customer exceeds credit terms and where the exchange rate has moved more than 10% since invoicing.

7. RETENTION OF TITLE

All goods remain the property of SATRA until paid in full. Under no circumstances will a customer's purchase order override SATRA's Retention of Title clause. In the case of software, the ownership of the software remains with SATRA. Payment of invoices in full will entitle the customer to use the software under licence until (a) they cease to be a member of SATRA or (b) they cease trading. In both instances, the licence shall then revert to SATRA.

. GUARANTEE

All goods manufactured by SATRA are guaranteed both as regards material and workmanship. Any part returned carriage paid, within twelve months from date of supply and found defective, will be repaired or replaced at SATRA's option free of charge. SATRA admits no liability for loss, damage or delay consequent on any defect in any goods supplied by SATRA.

9. TEST REPORTS

Results given in test reports refer only to samples submitted for analysis and tested by SATRA. 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 Customer as a result of information supplied in a test report.

10. TEST SAMPLES

Unless otherwise agreed in advance, test samples will be disposed of 6 weeks after the date of the final report. If required, samples can be returned at the Customer's expense.

11. RESPONSIBILITY

Every effort is made to ensure accuracy in description, drawings and other information in correspondence, catalogues, etc but no warranty is given in this respect and SATRA shall not be liable for any error therein. SATRA carries out all tests and/or advises only on the basis that the same are carried out, made or given without any responsibility whether for negligence or otherwise. SATRA and its servants or agents will not be liable for any damage or loss direct or indirect of whatsoever kind, whether or not the same results directly or indirectly from negligence on the part of SATRA or its servants or agents.

12. CONFIDENTIALITY

Unless specifically excluded in the terms of an individual contract between SATRA and its Customer, the following shall apply to all reports, advice, drawings, photographs, specifications or data:

- The above shall not be disclosed to third parties or used in litigation without the consent of SATRA.
- Where SATRA has given consent to disclosure, the Customer shall draw the attention of the third party to these terms of business and the basis on which SATRA undertakes test, reporting and advising. The Customer shall indemnify SATRA for any failure to do so.
 The above items are submitted to the Customer as confidential documents. Confidentiality shall continue to apply after completion of the
- business, but shall cease to apply to information or knowledge which may come into the public domain.

3. CONSTRUCTION AND ARBITRATION

The laws of England shall govern all contracts and the parties submit to exclusive jurisdiction of the courts of England, unless otherwise agreed.

Issue Date: 1st October 2009

Harson

Signed: