AS 1891.5:2020

PERSONAL EQUIPMENT FOR WORK AT HEIGHT- MANUFACTURING REQUIREMENTS FOR LANYARD ASSEMBLIES AND POLE STRAPS

THE GOOD, THE BAD & THE UGLY...

CONTENTS

INTRODUCTION

Australian Standards has released a new set of Standards which supersede AS/NZS 1891.1:2007 Industrial fall-arrest systems and devices – Harnesses and ancillary equipment. These Standards include:

- AS/NZS 1891.1:2020 Personal equipment for work at height, Part 1: Manufacturing requirements for full-body combination and lower body harnesses
- AS 1891.5:2020 Personal equipment for work at height, Part 5: Manufacturing requirements for lanyard assemblies and pole straps

This White Paper will review, assess and compare AS 1891.5:2020 with the superseded AS/NZS 1891.1:2007, looking at the positive and adverse impacts this Standard may have on user's of working at heights equipment.

WHAT ARE STANDARDS?

'THE DISTILLED WISDOM OF PEOPLE WITH EXPERTISE IN THEIR SUBJECT MATTER AND WHO KNOW THE NEEDS OF THE ORGANIZATIONS THEY REPRESENT – PEOPLE SUCH AS MANUFACTURERS, SELLERS, BUYERS, CUSTOMERS, TRADE ASSOCIATIONS, USERS, OR REGULATORS'

Standards are defined by the International Organisation for Standardisation (ISO) as 'the distilled wisdom of people with expertise in their subject matter and who know the needs of the organizations they represent – people such as manufacturers, sellers, buyers, customers, trade associations, users, or regulators'.

Another definition is provided by Standards Australia, which defines Standards as 'voluntary documents that set out specifications, procedures and guidelines that aim to ensure products, services, and systems are safe, consistent, and reliable'.

On their own, Standards are voluntary, as there is no requirement for the public to comply with them. However, Standards become mandatory when they are referred to in legislation[1].

Good Standards benefit end-users by supporting the development of consistent, safe and reliable products, services and environments. More specifically, the benefits of Standards include:

- boosting the confidence of users who understand that products and services covered by Standards are safe, reliable and fit-for-purpose.
- enhancing innovation by the development of new or existing Standards to reflect the latest technologies, innovations, and community needs.
- giving products a competitive edge when they conform to Standards.
- reducing barriers to international trade, as Standards allow products to be sold and used around the globe.
- reducing red tape, as Standards offer an alternative to regulation.
- helping businesses to thrive by assisting them in making transactions simpler and more efficient and assisting with risk mitigation and compliance.

TRANSITION FROM AS/NZS 1891.1:2007 TO AS 1891.5:2020

LINQ believes there was little to no fault with the 2007 version of AS/NZS 1891.1; perhaps the only criticism was the unconventional use of the term Working Load Limit (WLL). The intent was for WLL to provide the same meaning as Minimum Breaking Load (MBL), which is problematic, as WLL suggests a safety factor is applied, whereas in reality, MBL rating refers to ultimate strength.

The 2007 Standard deleted TOTAL RESTRAINT EQUIPMENT, BELTS AND LINES from its scope, recommending that total restraint users utilise fall-arrest equipment, complying with 1891.1:2007. This practice was described in AS/NZS 1891.4:2009 as RESTRAINT TECHNIQUE, a uniquely Australian/New Zealand concept, arguably the safest mode of work positioning in the world at the time, and currently.

Another criticism of the 2007 Standard was the suppressing of peak brake load measurement by introducing a 50 millisecond (ms) average. This served to allow energy absorbers into the market that exceeded 6 kN peak breaking force (with the measurement equipment specified, without any averaging being applied).

IF IT WORKS, WHY CHANGE IT?

We agree that if we are to replace the old Standard with a new Standard, the new Standard must at the very least be an improvement over the old Standard.

In regard to the new LANYARD Standard AS 1891.5:2020, we are largely unimpressed with the document. While there are certainly some positive changes, some changes and allowances have been made which could lead to very concerning and dangerous outcomes.

At the risk of rocking the boat and calling out the emperor's nakedness, as a leading Australian manufacturer, we feel we have a duty of care to express reservations to aspects of the Standard which impose real physical risk to workers. However, with these areas highlighted and the known risks identified, LINQ has designed products that exceed the new Standard and mitigate these shortfalls, ever ensuring safety to all who choose the LINQ range of height safety products.

TO BE FAIR,

Before discussing the identified adverse and concerning components of AS 1891.5:2020, we start by presenting some of the Standard's positive aspects and will migrate to the negative aspects thereafter.

AS 1891.5:2020 POSITIVE CHANGES

1. Removing the requirement to undertake unnecessary re-testing
2. A minimum load rating being introduced for safety latches of connecting hardware
3. Peak braking forces are now limited to an absolute peak force of 6 kN
4. Minimum and maximum user weight labelling requirement
5. Dynamic type testing of shock absorbing lanyards using the claimed minimum and maximum mass rating the type testing load
6. User mass definition has been changed
7. Instruction manual requirement to publish a table in regard to the minimum fall clearance (MFC) required for each mass rating.
8. Other label requirement changes

1 **Removing the requirement to undertake unnecessary re-testing** (meaning repeated type testing for same-design products). Doing away with unnecessary re-testing . Type testing is a process the manufacturer follows to demonstrate that their product complies with the Standard. Repeated similar -design type testing was an irritating requirement in the AS/NZS 1891.1:2007 and 1995 versions. Under the new Standard, if a lanyard design is only changed using different hardware, say karabiners instead of snap hooks, but the design is the same, then there will no longer be a need to test all the lanyards. This is due to the hardware strength requirements being the same regardless of the product/equipment being a karabiner or a snap hook, for example (Preface (b)(i); Section 1.6). (Note that Negative aspects of this are dealt with below.)

2 **A minimum load rating being introduced for safety latches of connecting hardware** – Gate resistance and gate side loading is now 6 kN, up from 1.5 kN side and 1.0 kN front face gate loading. This is a welcome change designed to match or exceed the maximum braking force a lanyard will be exposed to (6 kN). Previously, there was a risk of roll out if fall -arrest forces exceeded 1.6 kN. Now, all components are compatible, and 6 kN integrity as a minimum is always present (Section 2.4.3; Section 3.4.3(a)(ii); Section 4.2.2).

a. LINQ has specifically designed new connecting hardware to comply with this enhanced requirement. All LINQ products will state AS 1891.5:2020 and GL>6kN, as well as EN362, so as to remove any confusion to industry users.

Warning: On a side- note, the new Standard allows EN362 hooks and karabiners if they can withstand 6 kN gate resistance. There is no such off -the -shelf product available, which may lead to incorrect products being used in the market.

3 **Peak braking forces are now limited to an absolute peak force of 6 kN** – This removes the capability of reducing reportable braking loads to the 50 ms average previously applied to braking forces. The 2020 Standard reverts to the actual peak force measured by equipment capable of measuring forces from 1.2 kN to 20 kN with an accuracy of ± 2% on a frequency bandwidth of 1,000 Hz. Under the previous standard, some imported products would measure peak forces in excess of 6 kN, but when the 50 ms average was applied, the reportable results would then dip below 6 kN. The new standard reverts to the actual peak force measured by the equipment (Section 3.4.3(s)(ii)).

4 **AS 1891.5:2020 introduces a requirement to label the product with a minimum user weight and a maximum user weight.** Testing criteria now state that while the product is still tested over a 3.8-m free fall, the test load weight must be equal to the maximum user weight, and a further test must be conducted using a test load equal to the minimum user weight stated. For both test loads, the braking forces shall not exceed 6 kN peak force (not average force) on the requisite measuring equipment (Introduction (b); Section 1.4; Section 3.2.2; Section 3.4.3(a); Section 4.2).

5 **Manufacturers must dynamically type test shock-absorbing lanyards using the claimed minimum and maximum mass rating as the test mass:** The dynamic testing specified in the 2020 Standard is very similar in process to the 2007 Standard except that varying test mass loads must be used in place of the previous 100-kg rigid test mass (Introduction (b); Section 1.4; Section 3.2.2; Section 3.4.3(a); Section 4.2; Appendix F).

a. This is an interesting development, as it was generally accepted by the previous British Standards (which led to the European (EN) and South African National Standard (SANS) Standards) that a 100-kg (220-lbs) test mass or rigid test manikin dummy equated to a 136-kg (300-lbs) human worker; there is a detailed summary of this in the American National Standards Institute (ANSI), which in summary states
   i. 'The 220-lbs (100-kg) test mass is based on a commonly accepted principle that a human body will stretch and absorb energy so that the impact forces from a person should be less than those from a rigid test mass of the same weight. The rule adopted by testing standards and some US Occupational Safety and Health Administration (OSHA) regulations specifies a relationship of 1.4 between the impact forces generated by a test mass and those generated by a person of the same weight. This multiplier, established several decades ago, was based on dynamic testing using non-energy-absorbing lanyards'.
   ii. The ANSI and the Canadian Standards Association (CSA) technical committee were concerned by the lack of empirical data, which had anecdotally suggested a multiplier of 1.1 to 1.8 as an applicable worker-to-rigid test mass. ANSI and CSA then defaulted to a 1.1, their current rigid mass for lanyards being 128 kg to represent 140 kg.
   iii. But what does AS 1891.5:2020 intend? The 2020 Standard makes no reference to the reasons for the change in mass range, but it is noted that under the new Standard, the multiplier is now referenced at levels of 1:1, that is, a 150-kg user maximum should be tested using 150-kg test mass.

b. LINQ welcomes this change as it builds in significant safety factors by ignoring inherent energy mitigation of soft tissue, albeit the standard is not in line with any generally accepted international standard.

c. LINQ's range of AS 1891.5:2020 shock absorbers has been completely re-designed to accommodate the new user weight/mass range requirements (LINQ has conducted exhaustive and repeatable tests for 50 kg, for 100 kg, for 125 kg, for 140 kg and for LINQ's maximum rating of 150 kg).

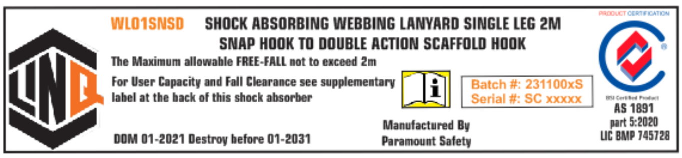
6 **User mass definition** has been changed to 'mass of the user, plus clothing, plus personal protective equipment and carried tools and materials' (Section 1.4).

7 **In the Instruction Manual**, a table is required to be published stipulating Minimum Fall Clearance required 'BELOW' the anchorage point. The table sets out minimum, mid-range and maximum user weights, including clothing and tools (Section 4).

	USER WEIGHT	MFC REQUIRED BELOW ANCHORAGE POINT
MINIMUM RATING	50 kg	5.2 m
USER CHOICE	100 kg	5.4 m
USER CHOICE	125 kg	5.6 m
USER CHOICE	140 kg	5.7 m
MAXIMUM RATING	150 kg	5.8 m

8 **New label marking requirements for lanyard products** – This clearly stipulates the min and max user capacity and associated MFCs (Section 4).

It is also now mandatory to display the equipment's model and type/identification and to display the Standard's number and the year of the Standard (Section 4).



AS 1891.5:2020 Negative Findings – Is this standard a Safety Officer's nightmare? A significant degree of negative changes has been identified in the new Standard, including:

1. Minimum lanyard length
2. Minimum fall clearance (MFC)
3. Adjuster creep
4. Work positioning and total restraint have re-emerged
5. Webbing strength minimum requirement reduced
6. Static testing reduced
7. Font size on labeling
8. Standards conformity (third-party) verification
9. Dynamic testing requirements reduced
10. Standards New Zealand declined to lend their name to part 5
11. Removal of 'unnecessary' re-testing
12. Connectors – Unilaterally rewriting EN Standards without due process

1 Minimum lanyard length – By doing away with 'unnecessary' re-testing, a lanyard that is deemed to have passed the 2-m (± 0.05 m) can be extended to ANY length greater than the length it was tested to WITHOUT THE NEED TO BE RE-TESTED (Preface (b); Section 1.6).

i. In other words, a 4-m, or 6-m, or even 20-m(!) lanyard will be deemed to have passed based on the 2-m initial test.

ii. This is patently dangerous if anchorage points are at such a level that free fall can exceed 3.8 m, which is the distance type testing is conducted at. Forces generated in free falls higher than 3.8 m WILL exceed the capabilities of energy absorbers that have been designed for 3.8-m free fall type testing.

b. Failure to comply or align with other international standards or lanyard lengths – The 2007 Standard implied that the maximum length of a lanyard would be 2 m. Certainly, there was no indication that more than 2 m of length was acceptable; all go-to lengths suggest 2 m as the maximum. In fact, both international standards – EN354 and SANS 50354 – specifically restrict lanyard assembly to a maximum length of 2 m, while ANSI Z359 and CSA Z259 both suggest 1.83 m (6 ft) as the accepted lanyard length, YET this new standard expressly allows for lanyard assemblies to be ANY LENGTH you might want. The new 2020 Standard fails to meet its claim 'to align with International Standards as much as possible'.

c. Excessive lanyard lengths WILL exceed the capabilities of energy absorbers that have been tested for 3.8-m free falls.

2 Minimum fall clearance (MFC) – The term 'fall clearance' is defined as 'the vertical distance below the anchorage point to the first point of impact' (Section 3.4.3(i); Section 4.1).

a. The new Standard now makes redundant the maximum 5.75-m fall distance 'travel requirement' of the previous 2007 Standard.

b. Instead, the new Standard leaves it up to the manufacturer to assign an MFC value specific to their own lanyard product.

c. Under the new Standard, the only requirement is that it is mandatory for the manufacturer to advise the user of the specific minimum clearance required for a particular user weight for their brand (an MFC for the minimum weight and an MFC for the maximum weight rating of the brand).

d. This means, in short, that within the workplace, there is no specific accepted MFC, meaning THAT ANY FALL CLEARANCE will suffice (!) as long as the manufacturer publishes this value in their instruction manual and product labelling.

e. This will result in many varying minimum clearances in the workplace, all differing according to manufacturers' claims.

'A SAFETY OFFICER'S NIGHTMARE'

f. This will be of grave concern for Safety Officers. For example, there are several independent manufacturers in Australia and New Zealand, and who knows how many occasional importers. This will mean that there are several, and so many more, different MFC suggestions floating about – a Safety Officer's NIGHTMARE.

g. Some of the ramifications of a failure to mandate a standardised fall clearance, and the implications of allowing each manufacturer to set their own limits, include:

i. CONFUSION AND MISTAKES BY END-USERS due to differing, non-standardised manufacturer claims.

ii. This confusion might well lead to injury or death…

I. Example: If brand X states that its MFC is 8.7 m (this is an actual MFC example cited for a 160-kg wearer in the new Standard), and let's say a generally competent worker trained in the AS/NZS 1891.1:2007 and AS/NZS 1891.1.4:2009 Standards is, in their own mind, referencing their Safety Officer's 6-m expectation (AS/NZS 1891.4:2009 minus (-) 5.75 m plus a bit), while the manufacturer now has to declare the MFC specific to their lanyard brand, if this worker fails to read the manufacturer's label or instructions, then this same competent worker may well find out the hard way that 6-m clearance was not enough. And then the finger pointing would begin…

II. Is it the Safety Officer's fault? Is it the worker's fault? Is it the manufacturer's fault?

iii. Under the previous 2007 Standard, dynamic type testing verified that the MFC should not exceed 5.75 m. BUT, under the 2020 Standard, any value is allowed.

h. MFC is now a CALCULATION, not a dynamic test. Previously, under 2007, this was validated to a mandatory maximum value of 5.75 m. Now, there is no mandatory value… Anything goes as long as it is tabled in the instructions and the labelling.
   i. To calculate the MFC so as to comply with these mandatory reporting requirements for the user Instruction Manual and product label, an arithmetic equation is used: E+L+2.8=MFC, where
      I. E = Energy absorber extension derived from a free fall test referenced under ASNZS1891.4:2009, utilising empirical real-time data at the maximum and minimum expected user mass
      II. L = Length of lanyard, measured between the load bearing points.
      III. 2.8 m = Additional fall clearance considerations specified in AS/NZS 1891.4:2009, including:
         a) Height of operator (includes D ring slide and harness stretch): 1.8 m
         b) Residual clearance: 1 m
   ii. This simple arithmetic equation is problematic, as it cannot determine an industry-standard fall clearance in any way.
   iii. Some lanyard brands will have longer energy absorber extension lengths and lower peak forces, while other brands might have shorter extension lengths and higher peak forces.
   iv. These differences may result in Safety Officers excluding certain lanyard brands that present with high MFC values (certainly brands exceeding 6 m might be frowned upon).
   v. Another outcome might be that a Safety Officer is forced to increase the popular 6-m clearance most often seen at worksites and mandate much higher MFC requirements so as to accommodate all different brand values.
   i. So, nowhere under the dynamic testing pass requirements in the new Standard is there any reference to a maximum allowable MFC value (previously, it was 5.75 m).

j. Reliance is heavily placed on the manufacturer's claims in regard to the MFC (E+L+2.8) equation:
   i. The value E, however, is derived from a specific test protocol from another Standard, namely AS/NZS 1891.4:2009.
   ii. There should be a dedicated Appendix that sets out the test protocols in order to make value E valid and consistent.
   iii. This test is a series of dynamic drop tests of 2-m free fall, each assessment utilising a test mass consistent with a) minimum, b) optional and c) maximum user mass.
   iv. The new Standard fails to set out the test protocol details in a specific Appendix and merely offers a footnote stating, 'the lanyard is used in accordance with AS/NZS1891.4'.

3 **Adjuster creep** – The new Standard introduces new requirements in the PREFACE to the Standard, where a claim is made in point (b)(iii) referencing 'increased requirements of testing of adjuster creep'. The reality is that the new 'increased requirements' fall significantly below acceptable standards by designating a significant reduction from the previous standard of '5kN for 3 minutes without permanent deformation'. The 2020 Standard now requires a total force of ONLY 2 kN. That is a 40% reduction (Preface (b)(iii); Section 3.4.2; Appendix E)

a. In an abundance of caution, LINQ has substituted this 2 kN with a 6-kN minimum requirement, which is more in line with 6-kN shock absorber peak braking force and the gate resistance gate load requirements. That way, there is no weak link in the LINQ system.

4 **Work positioning and total restraint** have re-emerged after being previously removed from the AS/NZS 1891.1:2007 and AS/NZS 1891.4:2009 Standards. This, unfortunately, counteracts the prudency of AS/NZS 1891.1:2007's fail-safe process that can be applied in the event a total restraint product is inadvertently used in a fall-arrest situation. In reverting to 'Work Positioning' to create a restrained fall-arrest system, the new Standard no longer provides mitigation for the risk of misuse, which can cause a free fall incident that may result in braking forces that lead to injury or even death. The previous Standard covered this risk better than any other standard in the world by introducing the concept of RESTRAINT TECHNIQUE, which is still referenced in AS/NZS 1891.4:2009. The 2020 Standard takes a backward step by removing this term.

5 **Webbing strength minimum requirement reduced** – Despite hinting at wanting to align with international standards, the new Standard fails Australian and New Zealand workplace safety needs by requiring, in Section 2.2.2, that minimum webbing strength should be 15 kN (UV light test). Later in the Standard, this is contradicted by a requirement for a static test to be 12 kN. ANSI and CSA, as well as EN and SANS, all require webbing strength to be more than 22 kN. The new Standard sets a level 54% lower than international standards (Preface; Section 2.2.2; Section 3.4.5). While LINQ can save significant manufacturing costs by reducing the strength of their webbing to this Standard's levels, in the interest of safety, LINQ webbing requirements remain at their current level of 24 kN, which is significantly in excess of the requirements of AS 1891.5:2020.

6 **Static testing** – AS 1891.5:2020 has significantly altered the requirements for static testing. The new levels are lower than the previous Standard and fall short of ANSI, CSA, EN and SANS international standards. (Preface (b); Section 3.4.2; Section 3.4.5; Section 3.4.6)

a. Static testing of a lanyard assembly (with energy absorber fully extended/torn out) is now 12 kN. This is down from the previous Standard's 15 kN and way short of ANSI, CSA, EN and SANS's 22 kN. The kN force is 55% less than other international standards.
b. The twin tail connection test is also reduced by 20% compared to the previous 2007 Standard, from 15 kN down to 12 kN.
c. Static testing of the adjuster creep at a load of just 2 kN has been mentioned already, but in comparison, the EN and SANS Standards require 6 kN for three minutes. Additionally, ANSI and CSA require 8.8 kN for one minute, which is merely 2 kN for adjusters (a 67% reduction!).
d. LINQ has prudently substituted the new Standard's very low 12-kN requirements for static testing to 22 kN, which is more in line with international standards. This is written into LINQ's auditable batch testing process (British Standards Institute Licence applies).
e. To purchase a LINQ lanyard is to have the comfort and assurance of knowing that best practice supersedes diminished standards.
f. It should be noted that static tests for pole straps under the new Standard remain the same as the 2007 Standard, but there is no limit to the length of the pole strap, which may prove problematic.

7 Font size:

The new Standard does not require a minimum lettering and FONT size anymore, stating merely that labelling shall be able to be read and be identifiable throughout the life of the product. The failure to require a minimum FONT size is a step backwards. (Section 4.2.3).

8 Standards conformity (third-party) verification

– In the old Standard, any claims of 'standard conformity or compliance' were made following independent verification. Such verification required third-party notifying body confirmation, which was evidenced by the attaching of the notifying body's mark on the manufacturer's product label (Preface (b) supposed to align with international standards).
a. This is no longer an implicit or stated requirement in the new Standard.
b. In response, LINQ only supplies products with a third-party notification body approval certification mark, proving product veracity and compliance.

9 Dynamic testing requirements reduced

– The dynamic performance testing of lanyards, in (Appendix F), requires reporting of:
a. The fall displacement value H in Figure F.1
b. The highest force measured
c. Whether the test mass was retained
i. The reporting of H, however, does not form part of a pass or fail criteria as was the case in the 2007 Standard and is currently the case with international standards ANSI, CSA, EN and SANS. See the MFC discussion.

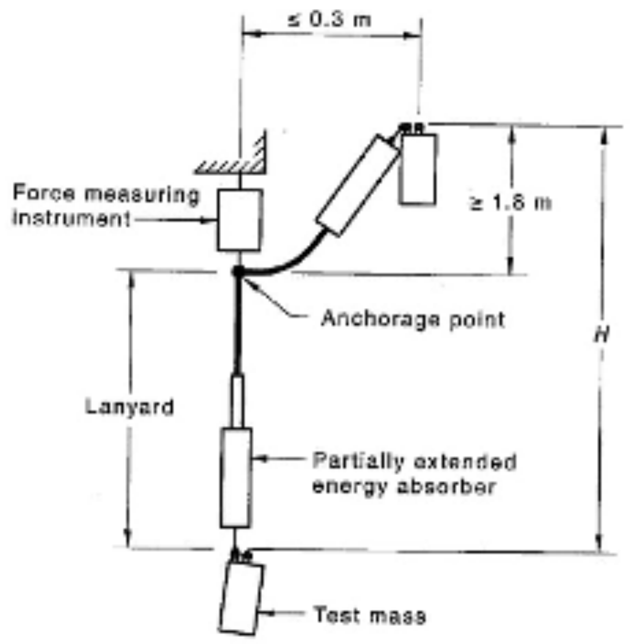


Figure F.1 — Dynamic performance test for a lanyard

10 Standards New Zealand declined to lend their name to part 5

a. What will also be of concern to the discerning Safety Officer is that Standards New Zealand removed reference to NZS in the AS 1891.5:2020, yet AS/NZS 1891.1:2020 retains the NZS reference.
b. No explanation is offered by the writers of the 2020 Standard except to state that 'Standards New Zealand decided to develop this as an Australian Standard'. Could this be a kinder way for New Zealand to say they did not want to put their name on this standard (Preface para 2)?

11 Removal of 'unnecessary' re-testing

– Another adverse finding from the Standard, though positive in one sense, is the removal of unnecessary re-testing (Section 1.6):
a. The removal of 'unnecessary' re-testing is problematic when a lanyard has been deemed to have passed the 2-m (±0.05 m) length. The lanyard can then be 'extended' to any length greater than the length it was tested to without the need to be re-tested. In other words, a 4-m, or 6-m, or even 20-m lanyard will be deemed to have passed based on the 2-m initial test.
b. This is patently dangerous if anchorage points are at such a level that free fall can exceed 3.8 m (which is the distance type testing is conducted at). Forces generated in a free fall higher than 3.8 m may exceed the capabilities of energy absorbers that have been designed for 3.8-m free falls, which may lead to injury or death.

12 **Lanyard length:** In regard to the maximum length of a lanyard, the old Standard implied that the maximum length would be 2 m the new standard does not limit lanyard length (Terms & definitions 1.4.6; Clause 1.6; Table 4.2).

a. Certainly, there was no indication in the 2007 Standard that more than 2 m of length was acceptable.
b. Furthermore, both the international standards EN354 and SANS 50354 specifically restrict lanyard assembly to a maximum length of 2 m, while ANSI Z359 and CSA Z259 both suggest 1.83 m (6 ft) as the accepted lanyard length.
c. Yet, the new AS 1891.5:2020 Standard expressly allows for lanyard assemblies to be 'any length', and as a result, this Standard fails to meet its claim to align with international standards.
d. For type testing purposes, the new Standard has kept the mandatory test length for lanyards the same as the old Standard, which is between 1.95 m and 2.05 m in undeployed length.
e. LINQ is concerned that the absence of a specific mandated maximum lanyard length will
   I. Cause confusion and may result in an injury or a fatality due to excessive forces being generated in free falls in excess of 3.8 m.
   ii. In response to this,
      I. LINQ lanyards are only available up to 2 m in length.
      II. LINQ lanyards keep MFC to the shortest distance possible, even in a misuse situation of free fall greater than 2 m where a user anchors at foot level (1.8-m user height + 2-m lanyard length = 3.8-m free fall).
f. Further lanyard length issues: To add to the above, the new Standard references an example of a 4-m lanyard being allowable, which ignores the very real possibility of a user anchoring at foot level (1.8-m user height + 4-m lanyard length = 5.8-m free fall) (Section 3.4.3(i); Example pg 11; Table 4.2).
   i. The worker could free fall as much as 7.8 m with the energy absorber extended/deployed, and with increased fall forces, the breaking force would far exceed the energy absorber's ability to prevent significant harm to the user.
   ii. This would result in serious injury or even death. Whose fault would this then be – the workers, the employer, the manufacturer?

13 **Connectors** - Unilaterally rewriting EN Standards without due process – (Section 2.4.3; Section 3.4.3(a)(ii); Section 4.2.2)

a. The Standard allows hooks and karabiners, which comply with EN 362:2004 Personal protective equipment against falls from a height, to be used if they can withstand 6 kN of gate resistance force.
b. However, there is no such off-the-shelf product available, as EN requirements are 1.6 kN and 1.0 kN for side and front face gate loading.
c. Therefore, this can lead to incorrect product use in the market in which a brand chooses EN360 hardware without first assessing whether gate loading exceeds 6 kN.
d. In response to this, LINQ has specifically designed new connecting hardware to comply with this enhanced requirement.
e. All LINQ products using EN 362:2004 will state GL > 6 kN, AS 1891.5:2020, to remove any confusion with industry users.

14 **Back hooking:** There is no longer a requirement to issue a warning about back hooking onto the wearer for the free tail of a twin-tailed lanyard. The standard no longer requires the instructions to offer free tail stowage advice. This could have fatal consequences (Section 4).

AS 1891.5:2020 NEUTRAL CHANGES

1.	Withdrawal of product
2.	Manufacturing instructions
3.	Inspection and maintenance intervals

1 **Withdrawal of product:** The previous 2007 Standard required an instruction booklet to state that lanyards should be destroyed or discarded if energy absorbers are deployed. However, the new Standard merely requires such a lanyard to be removed from service. The previous wording was better practice, and as such, is preferred by LINQ (Section 4).

2 **Manufacturing instructions:** The new Standard does away with words such as 'Manufacturer's instructions must be followed'. These words are replaced with a pictogram of a book encompassing a bold 'I' on the right hand side page to represent the 'need to read instructions before using' (Section 4).

3 **Inspection and maintenance intervals:** The new Standard has no provision for withdrawal from use if a competent person does not deem the product to be suitable for continued use. While this may be an obvious action undertaken at a workplace where they are committed to best practice, the absence of this wording may create liability problems (Section 4).

CONCLUSION

The adoption of AS 1891.5:2020 is in many ways a step backwards regarding ultimate worker safety, as it opens the market to all kinds of problems.
LINQ believes there is already a significant degree of misinformation present regarding height safety, and the new AS 1891.5:2020 is simply going to add to the confusion in the market.
This Standard is a Safety Officer's nightmare.
How will the industry ensure that products are not blindly developed with complete reliance on Standards, particularly when the Standard fails to ensure the end-user's safety?

After assessing the above, it is evident that Standards, and all other requirements, must be well understood by the manufacturer to enable the manufacturer to truly meet best practice.

LINQ understands the risks Part 5 of the 1891 Standard presents, and so it has adopted design protocols and quality control procedures that exceed this new Standard.

This is endorsed by stringent third-party compliance audits (by British Standards Institute under license numbers BMP 745726 and BMP 745728).

ABOUT LINQ HEIGHT SAFETY

LINQ is a renowned personal protective equipment (PPE) brand, respected in Australia and New Zealand for premium quality products certified beyond requirements and sold at affordable prices. Hard-won integrity and trust have been developed through years of delivering safety without compromise and are reinforced through strong product design, packaging and general branding. When people see LINQ, they see a better product.

TERMS AND DEFINITIONS

Adjuster:
<Lanyards> Device used to change the effective length of a rope or webbing component.

Adjuster creep:
Slippage of the material through the adjuster.

Connector:
Load-bearing, openable device used to connect components, which enables the user to assemble a system in order to link directly or indirectly to an anchor.

Fall clearance:
Vertical distance below the anchorage point to the first point of impact.

Free fall:
Unimpeded downward movement under the influence of gravity.

Lanyard assembly:
Assembly of a line, of either fixed or adjustable length, and components which enable a connection between a harness and an anchorage, the intent of which is to limit the declaration during the arrest of a fall.

Personal energy absorber:
Device or component which, by design, limits deceleration during the arrest of a fall.

Pole strap:
Positioning strap designed to be placed around a pole or other vertical structure member and attached at two points, one on each side of the harness, while the wearer is working on the pole or structure member in order to create a restrained fall system.

Pull-out force:
Minimum force required to initiate permanent deformation of the personal energy absorber.

Shall:
Indicates that a statement is mandatory.

Should:
Indicates a recommendation.

User mass:
Mass or load of the lanyard assembly user, which includes the user's body, clothing, PPE and carried tools and materials.

Work positioning system:
A system that enables a person to work supported by a harness under tension in such a way that a fall is prevented.

REFERENCES

[1]What is a Standard? 2021 Standards Australia, viewed 23/07/2021 https://www.standards.org.au/standards-development/what-is-standard

ASNZS 1891.1:2007; Industrial fall-arrest systems and devices, Part 1: Harnesses and ancillary equipment

ASNZS 1891.4:2009; Industrial fall-arrest systems and devices, Part 4: Selection, use and maintenance

AS 1891.5:2020; Personal equipment for work at height, Part 5 Manufacturing requirements for lanyard assemblies and pole straps

EN 362:2004; Personal protective equipment against falls from a height – Connectors

AS/NZS 1891.1:2020; Personal equipment for work at height, Part 1 Manufacturing requirements for full body combination and lower body harness.

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