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## Grade T(80) & V(100) Chain Slings



# New Chain Sling Standards "Key Points Explained"



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# New Standards For Chain Slings

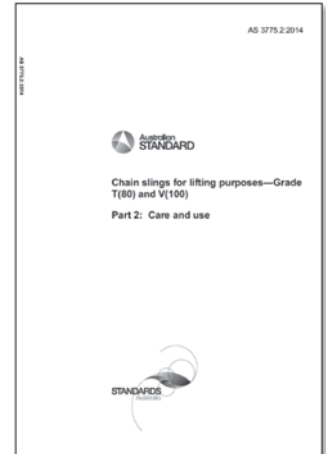
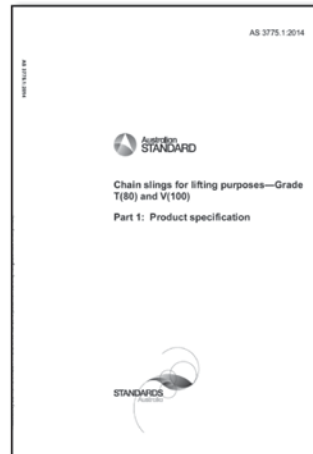
In December 2014 Standards Australia released the new Standards For Chain Slings.

- > AS3775.1:2014 Chain Slings for Lifting Purposes - Grade T (80) and V (100). Part 1: Product Specification.
- > AS3775.2:2014 Chain Slings for Lifting Purposes - Grade T (80) and V (100). Part 2: Care and Use.

This guide has been designed to highlight and summarise the 12 key points of the new standards for those using chain slings in the lifting and rigging industry.

## 12 Key Points

1. Competent Person' Definitions – clearly defined.
2. Periodic Inspection Guide – now included.
3. Grade V (100) WLL's – up to 32mm now included.
4. Proof Testing – each sling shall be proof tested after manufacture, when damaged & when missing tags.
5. In-Line Shortening Sling Assemblies - may be used in certain circumstances.
6. Leg Length Tolerances - have changed.
7. Safety Hooks – requirements on spring loaded latches.
8. Ramshorn Hooks – 2 leg assemblies to be rated as 1 x 4 leg sling.
9. New Deration Guide – for corner loading.
10. Reeving Angle – maximum angle is now 60 degrees.
11. Self Locking Hook Inspection - guidelines on clearance between hook and latch.
12. Engineered Lifts – detailed guidance for the design.



**NOTE:** This brochure has been produced as a 'guide' only to the key points within the new Standard AS3775.1:2014 & AS3775.2:2014 and does not replace that document. It is imperative that you refer to the complete Standard for detailed information.

## 'Competent Person' – Clearly Defined

'Competent Persons' need to be trained on:

- The use and selection of chain slings.
- Inspection of chain slings.

The Standards clearly defines that a person using or inspecting chain slings shall:

1. Follow the procedures included in the Standards.
2. Complete an established competency-based training course.
3. Maintain documentation of competency standards and procedures.



## Competent Person Requirements

4.1 The new Standards state the following:

### General

'Competent persons, shall be suitably trained, qualified by knowledge and practical experience, and with the necessary instruction to correctly assemble and test Grade T(80) and V(100) chain slings. They shall be able to detect and evaluate defects and weaknesses that may affect the intended performance of the equipment and carry out work as specified in this Standard.'

Please refer to AS3775.1:2014 for further detailed information.



- ✓ Robertsons lifting equipment inspectors are deemed competent in accordance with the standards.
- ✓ Robertsons Inspectors are LEEA (Lifting Equipment Engineers Association) trained & accredited.
- ✓ Inspectors are issued with the LEEA TEAM card as proof of competency.
- ✓ The TEAM (Test, Examine, Assess, Manage) card is issued to those who have passed LEEA's rigorous Diploma examination.
- ✓ Training and competency records are maintained for all Robertsons inspectors.

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# Periodic Inspection Guide

The Standards now include a guide on how often periodic inspections should take place on Grade 80 & 100 chain slings.

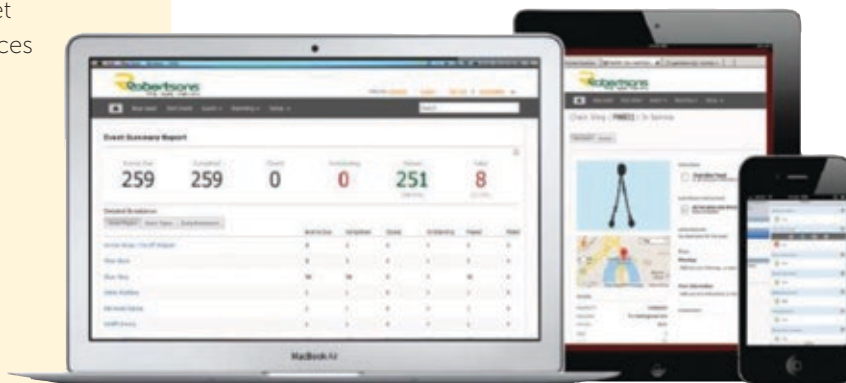
**1 Lift Cycle = a chain sling in use, that is lifting and then lowering a load once.**

PERIODIC INSPECTION GUIDE FOR ALLOY CHAIN SLINGS - T(80) OR V(100) (Informative)				
Number of lift cycles per week	Inspection monthly	Inspection 3 monthly	Inspection 6 monthly	Inspection 12 monthly
1 to 5	-	-	-	Yes
6 to 25	-	-	Yes	-
26 to 200	-	Yes	-	-
201 plus	Yes	-	-	-

NOTE: The above is a guide and the inspection schedule has to be determined by the end user based on the duty cycle (of M3 as specified in AS 1418.1) and the environmental conditions of use.

### Robertsons offer electronic periodic inspections:

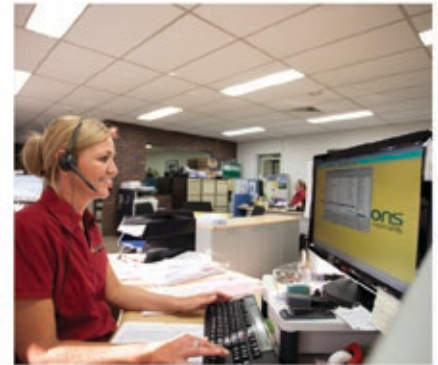
- ✓ We offer On-site Inspection Services on all lifting equipment.
- ✓ We contact you when inspection is due.
- ✓ 1, 3, 6 or 12 monthly inspections are completed by our LEEA trained inspectors.
- ✓ Inspectors use iPads with our electronic Inspection & Asset Management System, Field ID.
- ✓ Customers can access reports and asset details online, and through mobile devices such as iPads and iPhones.



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# Robertsons Asset Management Cycle

## The Lifting & Height Safety Asset Management Cycle



**Lifting Equipment in Service**

- > In our NATA certified labs items are:
  - ✓ tested
  - ✓ certified
  - ✓ repaired

- > We contact you when inspections are due
- > 1, 3 or 6 monthly inspections are scheduled

**Repair, Test &/or Replace Equipment**



**Booking Schedule**

- > Customers can access their reports online:
  - ✓ Summary Report
  - ✓ Detailed Asset Reports
  - ✓ Certificates
- > Customers can also access Field ID via mobile devices such as iPads or iPhones.

**Field ID Reporting**

**Inspection of Assets**



- > Our LEEA qualified inspectors perform the inspection using Field ID on their iPad
- > Items are passed, failed or recorded when missing
- > The results are synced in real time!










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# Grade V (100) Components - WLL's

## New WLL's for Grade V (100) Chain Slings

AS 3775.2:2014

**TABLE 2  
WORKING LOAD LIMIT (GRADE V)\***

Chain size mm	Working load limit under general conditions of use, t								
	Single leg slings				Slings of 2, 3 or 4 legs			2 leg slings	
	 Straight sling or adjustable sling with no deration	 Adjustable sling with deration see Note 1	 Reeved sling	 Basket sling Max 60°	 Straight sling see Note 2			 Reeved sling see Notes 2 & 3	 Basket sling see Notes 2, 3 & 4
Loading factors	1	0.75	0.75	1.3	1.73	1.41	1	1.3	2.25
Chain size, mm									
4	0.63	0.5	0.4	0.8	1.1	0.9	0.63	0.8	1.4
5	1	0.8	0.6	1.3	1.7	1.4	1	1.3	2.3
6	1.4	1.1	0.8	1.8	2.4	2.0	1.4	1.8	3.2
7	1.9	1.4	1.1	2.5	3.3	2.7	1.9	2.5	4.3
8	2.5	1.9	1.4	3.3	4.3	3.5	2.5	3.3	5.6
10	4	3.0	2.3	5.2	6.9	5.6	4	5.2	9.0
13	6.7	5.0	3.8	8.7	11.6	9.4	6.7	8.7	15.1
16	10	7.5	5.6	13.0	17.3	14.1	10	13.0	22.5
18	12.5	9.4	7.0	16.3	21.6	17.6	12.5	16.3	28.1
19	14	10.5	7.9	18.2	24.2	19.7	14	18.2	31.5
20	16	12.0	9.0	20.8	27.7	22.6	16	20.8	36.0
22	19	14.3	10.7	24.7	32.9	26.8	19	24.7	42.8
23	21	15.8	11.8	27.3	36.3	29.6	21	27.3	47.3
26	26.5	19.9	14.9	34.5	45.8	37.4	26.5	34.5	59.6
28	31.5	23.6	17.7	41.0	54.5	44.4	31.5	41.0	70.9
32	40	30.0	22.5	52.0	69.2	56.4	40	52.0	90.0

## Grade V (100) Chain Slings

Robertsons can provide pre-made Grade 100 chain slings complete with shorteners and hooks for your convenience.

### Features:

- ✓ Superior resistance to wear.
- ✓ Pre-made for convenience, & complete with shorteners.
- ✓ 25% higher load capacity over Grade 80.
- ✓ 30% weight saving over Grade 80.
- ✓ All fittings and chain clearly marked for easy identification.
- ✓ All Grade 100 chain and fittings meet and exceed Australian Standards.
- ✓ All chain slings are NATA proof tested and tagged.



1 Leg Chain Sling With Shorteners and Self Locking Hooks



2 Leg Chain Sling With Shorteners and Self Locking Hooks



3 Leg Chain Sling With Shorteners and Self Locking Hooks



4 Leg Chain Sling With Shorteners and Self Locking Hooks



Other 1,2,3 & 4 leg chain slings available by special order.

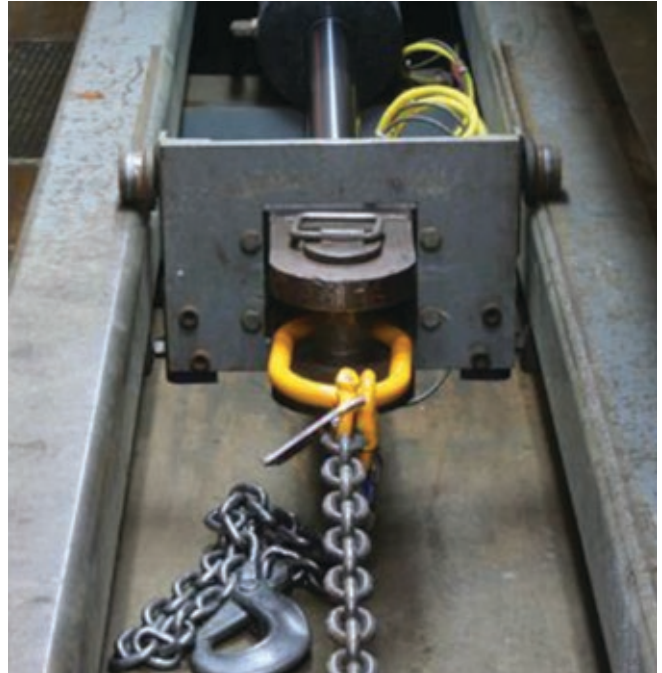
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## Proof Testing Of Chain Slings

The new Australian Standard AS3775.2:2014 clearly states that each Grade 80 & 100 chain sling shall be proof tested and examined by a competent person):

- a) After manufacture.
- b) When damaged and when load bearing components have been replaced.
- c) When it is missing its tag.



### NATA Accredited Testing Services

- ✓ All Robertsons Branches have NATA Accredited repair and test laboratories to ISO 17025.
- ✓ The laboratories are set up for servicing a wide range of lifting equipment including chain slings.
- ✓ We also have vertical and horizontal test trailers that come to your site to save on down time.
- ✓ We have testing capabilities up to 1000 tonnes.



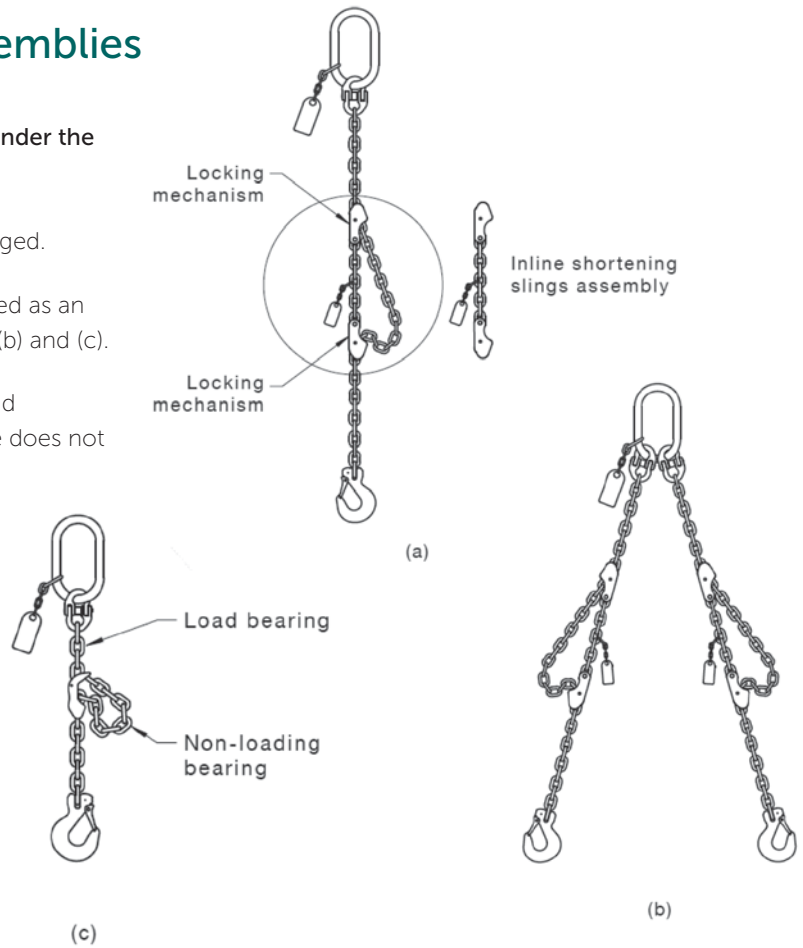
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# Inline Shortening Sling Assemblies & Leg Length Tolerances

## Inline Shortening Sling Assemblies

Inline Shortening Assemblies can now be used under the following conditions:

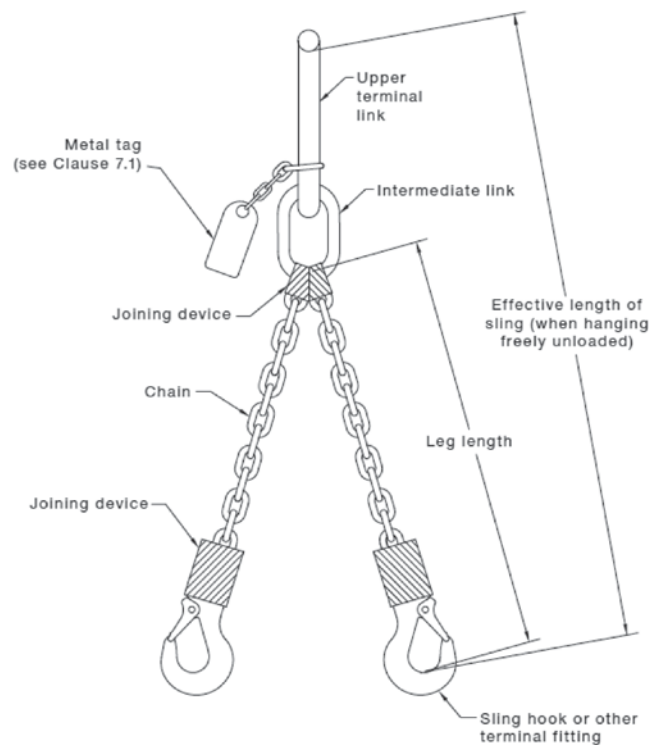
1. As long as the sling assembly is tested and tagged.
2. Up to 16mm - locking shorteners are to be used as an integral part of the assembly - see Figures (a), (b) and (c).
3. Over 16mm - A Risk Assessment is required and additional measures taken ensuring the device does not become detached.
4. Slings without locking mechanisms – must be accompanied by a Warning Advice.



## Leg Length Tolerances

The new Standards state that the difference between shorter and longer legs should be no more than:

- a) 10mm for lengths up to 2 metres.
- b) 5mm/m for lengths over 2 metres.



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## Safety Hooks & Ramshorn Hooks

### Safety Hooks

In the design and manufacture of lifting hooks:

- Chain Slings With Safety Hooks - shall have latches to ensure loads do not become accidentally unhooked.
- Hooks Without Latches – can be used for specific 'non-general use' applications only.\*

**\*Note:** A Risk Assessment shall be conducted and the chain sling shall be tagged to identify the specific 'non-general use' application.

Self Locking Hook



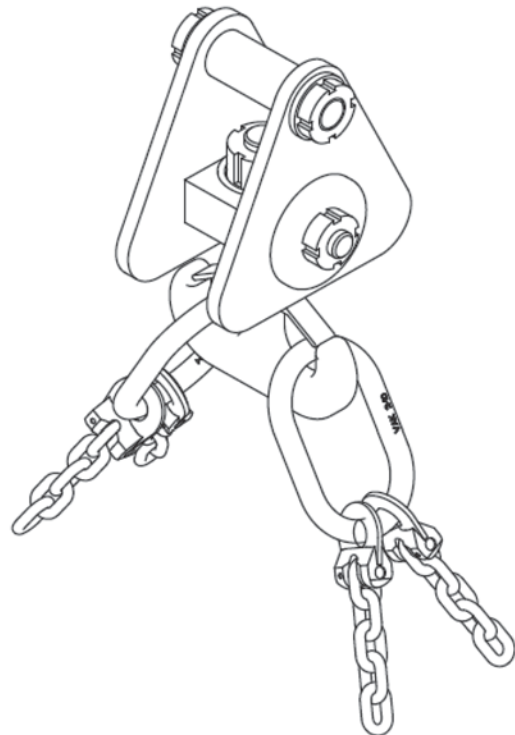
Safety Hook



### Ramshorn Hooks

When two individual 2 leg assemblies are used on a ramshook:

- It shall be classed as a 1 x 4 leg sling, and;
- The WLL shall be rated as 1 x 4 leg sling.



(a) Two individual two-leg assemblies on a ramshorn hook

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# Corner Loading Deration Guide & Reeving Angle

## Corner Loading Deration Guide

The following deration applies for using chain slings when lifting objects with sharp corners of metal or hard material.


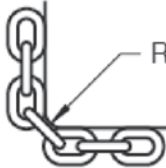

	R = larger than 2 x d	R = larger than d	R = smaller than d
Edge load*			
Load factor	1	0.7	0.5

FIGURE 10 DERATION GUIDE FOR CORNER LOADING

## Reeving Angle

The maximum reeving angle for lifting shall be 60 degrees.



**Note:** 90 and 120 angles are no longer allowed when reeving a load and therefore are not applicable on tags.

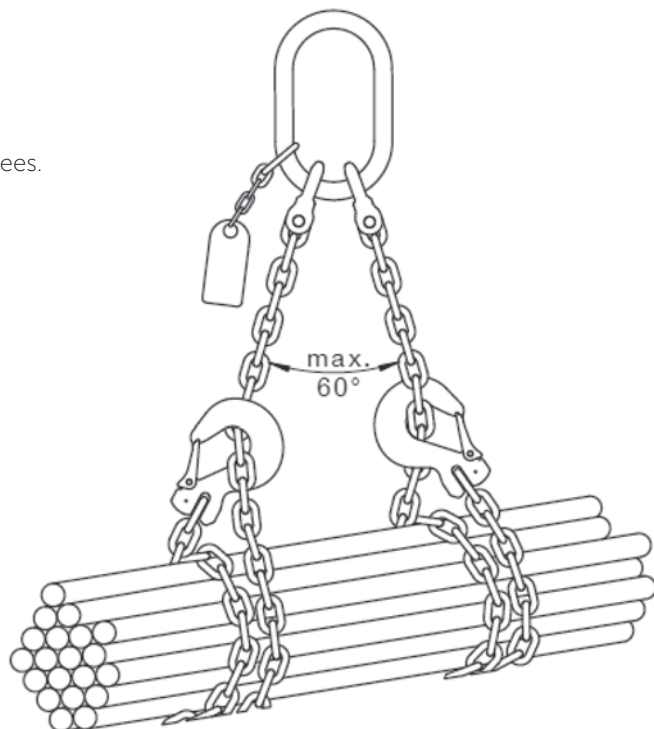


FIGURE 13 TWO-LEG DOUBLE WRAP CHOKE HITCH

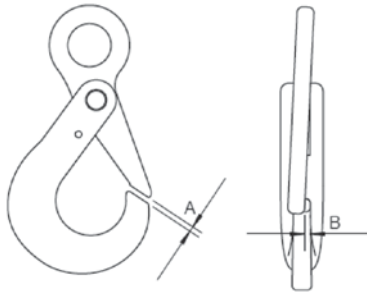
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## Self Locking Hooks Inspection & Engineered Lifts

### Self Locking Hooks Inspection

Allowable tolerances for maximum clearances between hook and latch of self locking hooks.

#### MAX CLEARANCE BETWEEN HOOK AND LATCH FOR INSERVICE



millimetres

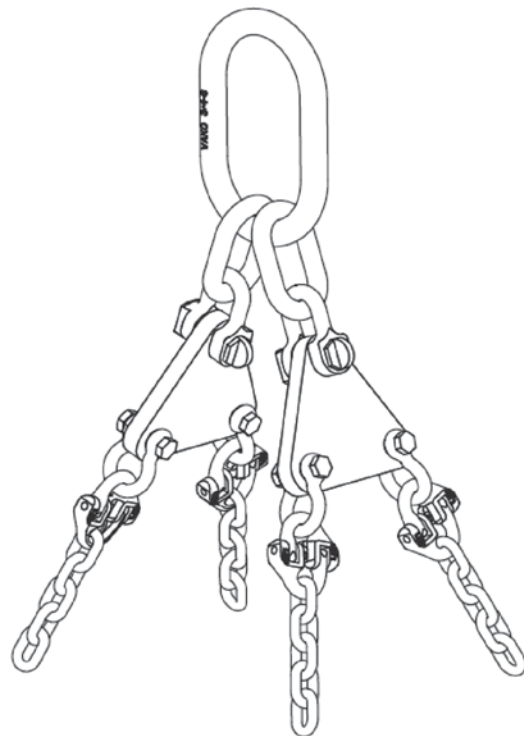
Size	Max. A	Max. B
6	2.4	3.5
7/8	3.2	4.5
10	4	6
13	5.2	7
16	5	9
18	5	11
19	6	11
20	6	12
22	7	13
26	8	16
32	10	19

NOTE: The tolerances are allowable after use and not to be considered as a manufacturer's tolerance.



### Engineered Lifts

- The new Standard includes detailed guidance for the design of engineered lifts (Appendix A 3775.2:2014).
- It also provides details on the use of equalisation beams/ plates or ramshorn hooks.



(b) Typical equalisation assembly

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Includes  
New Chain Sling  
Standard  
AS3775:2014

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Also refer to Robertsons Riggers Pocket Guide & Wall Charts for WLL's. V1: April 2015