



Working Load Limits for **Superflex Slings** and Strops

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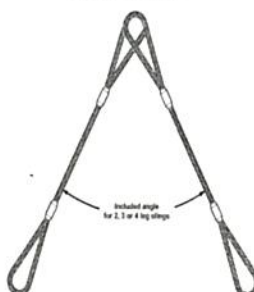
Plaited & Woven Division Brochure # 056-22

Working Load Limits of Superflex Single Slings

Andromeda Technical Sheet # SF101-02



Superflex Single Slings are used for general lifting purposes where a flexible steel sling is needed. The WLL is shown in the table in tonnes of 1000 kgsf – the standard Factor of Safety is 5

Basic cable details							WLL for various included angles of two, three or four leg slings			
Cable Size or number	Minimum Breaking Force (MBF) kN	Cable nominal diameter (D) mm								
			Single Fall WLL	Cradle lift, angle <30°	Choked on round load	Choked on rectangular load with edge radius > 1.0 D	<30°	60°	90°	120°
Two-5	50	10	1.0	2.0	0.7	0.5	2.0	1.7	1.4	1.0
Three-0	75	12	1.5	2.9	1.1	0.8	2.9	2.6	2.1	1.5
Three-5	95	14	1.8	3.5	1.4	0.9	3.5	3.1	2.5	1.8
Four-0	125	16	2.4	4.7	1.8	1.2	4.7	4.2	3.4	2.4
Four-5	157	18	3.0	5.9	2.3	1.5	5.9	5.2	4.2	3.0
Five-0	210	20	4.1	8.0	3.1	2.1	8.0	7.1	5.8	4.1
Five-5	270	22	5.2	10.2	3.9	2.6	10.2	9.0	7.3	5.2
Six-5	345	26	6.7	13.1	5.0	3.4	13.1	11.6	9.4	6.7
Eight-0	530	32	10.3	20.2	7.7	5.2	20.2	17.8	14.5	10.3
Ten-0	790	40	15.3	30.0	11.5	7.7	30.0	26.5	21.6	15.3
Twelve-0	1110	48	21.6	42.1	16.1	10.8	42.1	37.2	30.3	21.5
Fourteen-0	1460	56	28.3	55.5	21.2	14.2	55.5	49.0	39.9	28.3
Seventeen-0	2168	68	42.1	82.5	31.6	21.1	82.5	72.8	59.4	42.1
Twenty-0	3015	80	58.5	114.7	43.9	29.3	114.7	101.2	82.5	58.5
TwentyFour-0	4340	96	84.3	165.2	63.2	42.1	165.2	145.8	118.9	84.3
Loading factors for various configurations based on the single fall WLL			1.0	1.96	0.75	0.5	1.96	1.73	1.41	1.0

These WLL figures are derived in accordance with AS 1666.1

Notes on these calculations: to convert the list MBF of Superflex cable in kNs to WLL of a Superflex sling in tonne (1000kgsf) made from that cable, use the following procedure – divide the MBF by 49.05 (9.81 x 5), then multiply this result by 0.95 to allow for the 5% reduction for sling assembly as required by AS 1666.1. (the all up divisor = 51.5)

This provides the WLL for a sling in single fall configuration, and from this all the other configurations are calculated.

Please note – figures are rounded to the closest decimal point

Working Load Limits of Superflex Strops

Andromeda Technical Sheet #SF101-03



Superflex Strops are slings made especially as chokers. They are designed to choke onto and safely lift things like poles and piles, steel bars, drill rods and bundles of tube. They are very versatile slings with great gripping power and can often solve lifting problems. Various versions are available.

The WLL is shown in tonnes of 1000 kgf – the standard Factor of Safety is 5

Basic cable details			Strop terminated one end only (very slim one end, easy fitting in tight places)						
Cable Size or number	Minimum Breaking Force (MBF) kN	Cable nominal diameter (D) mm							
			Single fall WLL	<30°	60°	90°	120°	Choked on round load	Choked on square load
Two-5	50	10	1.5	2.9	2.6	2.1	1.5	1.1	0.8
Three-0	75	12	2.3	4.5	4.0	3.2	2.3	1.7	1.1
Three-5	95	14	2.7	5.3	4.7	3.8	2.7	2.0	1.4
Four-0	125	16	3.6	7.1	6.2	5.1	3.6	2.7	1.8
Four-5	157	18	4.5	8.8	7.8	6.3	4.5	3.4	2.3
Five-0	210	20	6.1	11.9	10.5	8.6	6.1	4.6	3.0
Five-5	270	22	7.8	15.3	13.5	11.0	7.8	5.9	3.9
Six-5	345	26	10.0	19.6	17.3	14.1	10.0	7.5	5.0
Eight-0	530	32	15.4	30.2	26.6	21.7	15.4	11.6	7.7
Ten-0	790	40	23.0	45.0	39.8	32.4	23.0	17.3	11.5
Twelve-0	1110	48	32.4	63.5	56.0	45.7	32.4	24.3	16.2
Fourteen-0	1460	56	42.5	83.3	73.5	59.9	42.5	31.9	21.3
Seventeen-0	2168	68	63.1	123.7	109.2	89.0	63.1	47.3	31.6
Twenty-0	3015	80	87.8	172.1	151.9	123.8	87.8	65.8	43.9
TwentyFour-0	4340	96	126.5	247.9	218.8	178.4	126.5	94.9	63.3
Loading factors for the various configurations based on the single fall WLL			1.0	1.96	1.73	1.41	1.0	0.75	0.50

Notes on the WLL figures for strops

The derivation of the WLL for Superflex Strops is based on the WLL for single fall Superflex Slings.

For a strop terminated one end only, the factor is 1.5 x the WLL for a single fall sling.

For a strop terminated at both ends, the factor is 2.0 x the WLL for a single fall sling.

Please note – figures are rounded to the closest decimal point

Working Load Limits of Superflex Double Ended Strops

Andromeda Technical Sheet #SF101-03.1



Superflex Strops are slings made especially as chokers. They are designed to choke onto and safely lift things like poles and piles, steel bars, drill rods and bundles of tube. They are very versatile slings with great gripping power and can often solve lifting problems. Various versions are available.

The WLL is shown in tonnes of 1000 kgf – the standard Factor of Safety is 5

Basic cable details			Strop terminated both ends						
Cable Size or number	Minimum Breaking Force (MBF) kN	Cable nominal diameter (D) mm							
			Single fall WLL	<30°	60°	90°	120°	Choked on round load	Choked on square load
Two-5	50	10	2.0	3.9	3.5	2.8	2.0	1.5	1.0
Three-0	75	12	3.0	5.9	5.2	4.2	3.0	2.3	1.5
Three-5	95	14	3.6	7.1	6.2	5.1	3.6	2.7	1.8
Four-0	125	16	4.8	9.4	8.3	6.8	4.8	3.6	2.4
Four-5	157	18	6.0	11.8	10.4	8.5	6.0	4.5	3.0
Five-0	210	20	8.2	16.1	14.2	11.6	8.2	6.2	4.1
Five-5	270	22	10.4	20.4	18.0	14.7	10.4	7.8	5.2
Six-5	345	26	13.4	26.3	23.2	18.9	13.4	10.1	6.7
Eight-0	530	32	20.6	40.4	35.6	29.0	20.6	15.5	10.3
Ten-0	790	40	30.6	60.0	52.9	43.1	30.6	23.0	15.3
Twelve-0	1110	48	43.2	84.7	74.7	60.9	43.2	32.4	21.6
Fourteen-0	1460	56	56.6	110.9	97.9	79.8	56.6	42.5	28.3
Seventeen-0	2168	68	84.2	165.0	145.7	118.7	84.2	63.2	42.1
Twenty-0	3015	80	117.0	229.3	202.4	165.0	117.0	87.8	58.5
TwentyFour-0	4340	96	168.6	330.5	291.7	237.7	168.6	126.45	84.3
Loading factors for the various configurations based on the single fall WLL			1.0	1.96	1.73	1.41	1.0	0.75	0.50

Notes on the WLL figures for strops

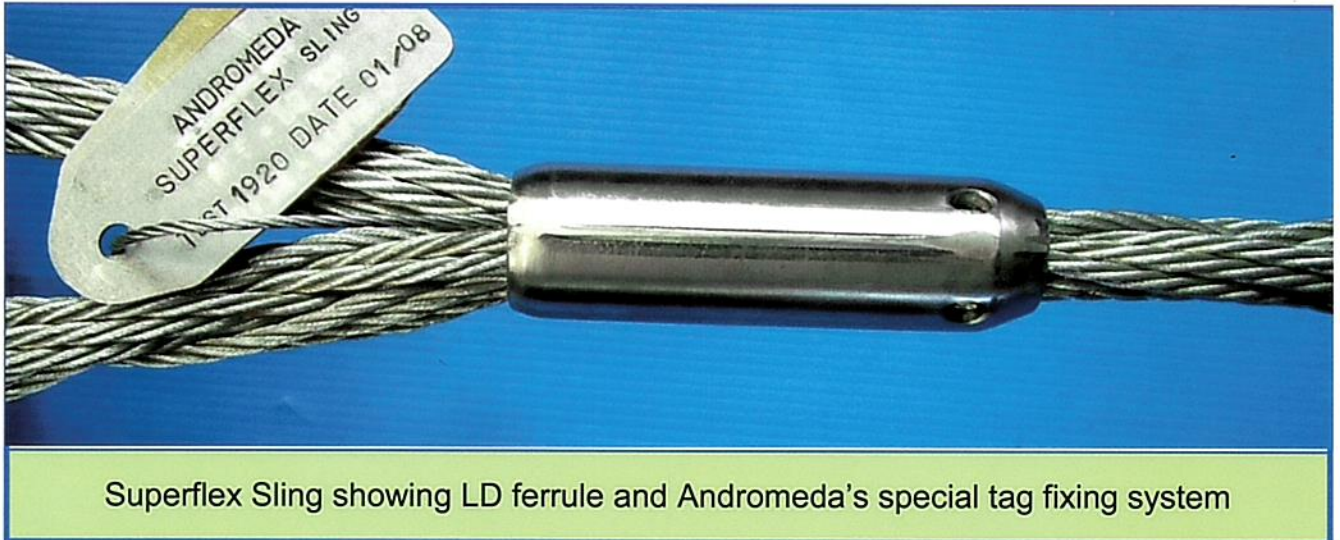
The derivation of the WLL for Superflex Strops is based on the WLL for single fall Superflex Slings.

For a strop terminated one end only, the factor is 1.5 x the WLL for a single fall sling.

For a strop terminated at both ends, the factor is 2.0 x the WLL for a single fall sling.

Please note – figures are rounded to the closest decimal point

Superflex Slings with steel ferrules



Andromeda's Low Deformation technology now applied to turn back eyes for Superflex Slings and Flat Woven Slings

This steel ferrule system has the following advantages:

- The ferrule is 18 percent smaller in diameter than equivalent aluminium ones (EN13411 or similar).
- The sling is **entirely made of steel**. Thus it can be used in maritime and caustic environments such as found in alumina smelters, salt water and similar.
- The tapered end **neatly covers the wire ends**, eliminating the main hazard in using slings that is cutting hands on the sharp wire ends protruding from the ferrule.
- Four inspection holes provide the capability to see the wire ends from any side of the ferrule, as per the requirements of AS 1666.
- The ferrule is also **tapered at the working end**, and chamfered at the throat end, thus providing a sling that has no sharp edges to snag in tight places.
- Stainless steel ferrules can be made to the same dimensions when required for special purposes.
- The system is scalable, so providing the capability for the manufacture of **larger Superflex Slings in future**.
- The Double Swage Process delivers an **extremely secure termination** as well as a high resultant strength – it is at least as secure as a hand splice, but the mechanical joint can provide a higher UTS than a splice can.
- It provides a centreline exit from the ferrule, improving mechanical and aesthetic design resolution.



Some typical applications for Superflex Slings

AGRICULTURE INDUSTRY - General purpose slings, tow cables

AIRCRAFT - Engine lifting slings, component handling

BRIDGE BUILDING - Handling concrete piles, beams, formwork

CIVIL CONSTRUCTION - Non-spin slings on high buildings

CONCRETE TANKS - Mould stripping, tank installation

CRANE HIRE - Multi-leg assemblies and slings for lifting

DEMOLITION - Handling scrap metal, timber, dismantling machines

ELECTRICITY DISTRIBUTORS - Pole strops, general slings

ELECTRICITY INDUSTRY - Transformer and large parts rigging

ENGINEERING SUPPLIES - Case handling, machine lifting

EXPLORATION - Sled towing and recovery in Antarctica

FORESTRY - Log and post handling; vehicle recovery, general slings

HELICOPTER - Non-spinning cargo slings

IRON ORE - Dragline dismantling, machine maintenance

IRRIGATION - Pump and windmill installation

MACHINING SHOPS - General parts handling, workshop rigging

MARITIME - Pile pulling, pile installations, busy mooring lines

MILITARY - General lifting and recovery

OFFSHORE DRILLING - Buoy catcher slings, general rigging

ONSHORE DRILLING - Pipe handling, machine maintenance

ONSHORE RIGGING - Slings, lashing, block falls

PLANT MAINTENANCE - Industrial and mining, dismantling and assembling

PLASTICS - Heavy die handling

POWER GENERATION - Turbine shaft rotation and lifting

POWER LINE STRINGING - Equaliser slings, anchor strops

RAILWAYS - Locomotive suspension travel limiters, general slings

RECREATION - Tow cables for 4WD vehicles, recovery rigging

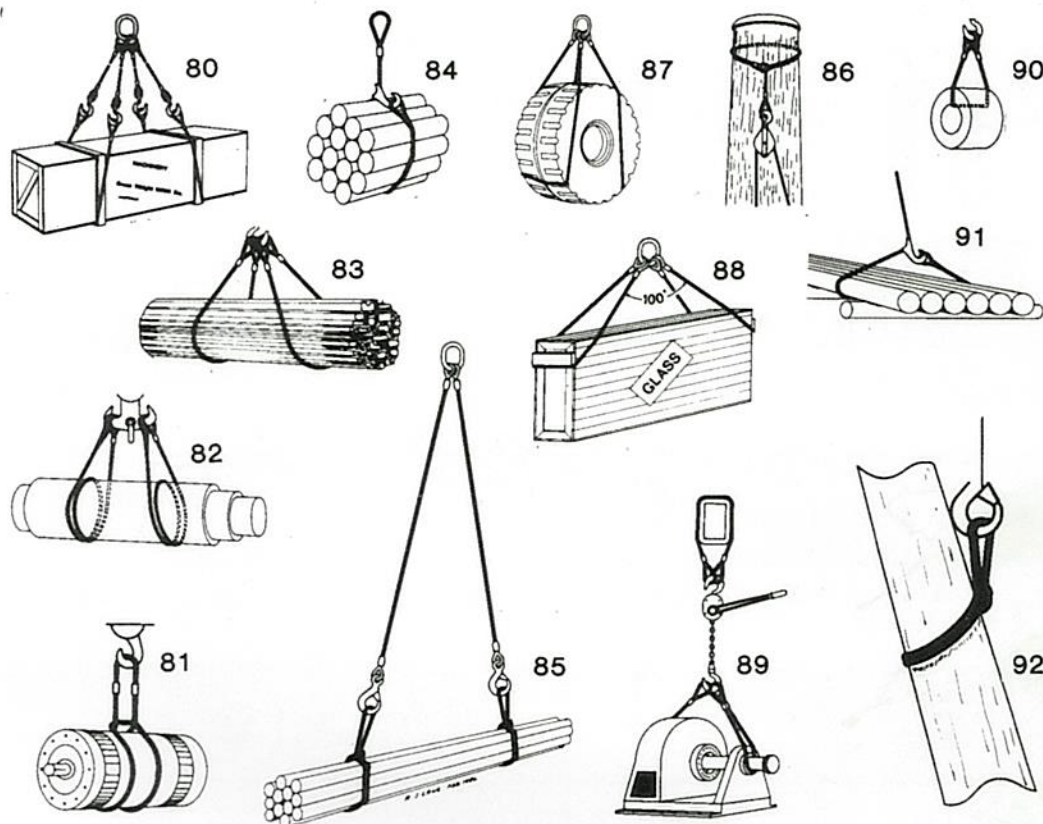
SHIPPING - Cargo slings, lashings

SHIP REPAIRS - Chain block anchorage, parts lifting

SHIRE COUNCILS - Heavy tow cables, workshop slings, crane slings

TIMBER - Sawn timber handling, log handling, machine maintenance

UNDERGROUND MINING - Long hole stope safety lines, general sling



80. A pair of slings used with four leg sling to lift a heavy case. Made with Superflex cables, this entire assembly can be stowed in a small box, and is very easy to handle.

81. A Superflex strop choked round an electric motor lifts very safely, and is easily cleaned.

82. A pair of slings used to lift heavy, slippery roll. Double wraps provide sure, yet gentle grip.

83. Soft round Superflex slings reduce marking of softwood mouldings and other delicate materials.

84. Fitted with a sliding sling hook of manganese steel, a Superflex Sling safely lifts bars of steel, pit props, tubes, drill rod, logs.

85. This two leg assembly, fitted with latching hooks, uses Superflex strops to choke onto and safely lift drill rods aboard offshore oil drilling rigs.

86. Superflex slings are ideal for general pole and line rigging. Shown is a pole top sling, with a thimble in one end for repeated choking around poles.

87. Heavy Wheel and Tyre Sling. Superflex cable is easily positioned and does not fight back like ordinary wire rope. A light, strong assembly.

88. Fitted with Superflex cable, this Glass Case Sling lifts by jamming action, not by the lugs on the case, and is quite safe.

89. For general rigging associated with heavy fitting operations. Superflex slings are the ultimate in ease of handling, long life and gripping power. Also very easy to clean and store.

90. Fast to fit for simple lifting jobs like this roll of skelp.

91. Fitted with manganese steel sliding hook, this sling is gathering up a spread out load, with minimum damage to sling or materials.

92. A Superflex strop used to stand power and telephone poles. Grips the smoothest, slipperiest pole with ease.

Superflex Cable (AS 3569 - 2010) and Superflex Slings (AS 1666.1 - 2009) were originated by, and are manufactured by Andromeda Industries Pty Ltd

Discard Criteria: A Superflex sling should be discarded when either there is more than one cord (small wire rope) broken at one place or when more than 80 wires are broken in any length equal to 4 diameters of the cable, or if there is detrimental corrosion, signs of heavy impact loads, it is known to have been severely overloaded, or heated above 400 deg C. Brochure updated October 2019

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