

FLAT WOVEN STEEL SLINGS



*The various designs, based on flat woven steel cable
Heavy duty slings for general lifting purposes requiring reduced contact pressure*

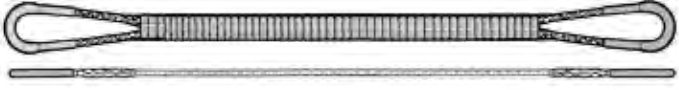
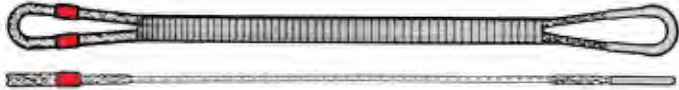





ANDROMEDA
INDUSTRIES Pty Ltd
Plaited and Woven Products Division

Office: 19-45 Charles Street, Moonbi NSW 2340
Postal address: PO Box 5, Moonbi NSW 2340
Fax: 02 6760 3831
Time zone: GMT + 10 hours
ABN: 60 002 126 678
Email: enquiries@andind.com.au
Web: www.andromedaindustries.com.au
Phone: **02 6760 3773**

Flat woven Steel Slings

Type 1 – Cradle lift applications – typical configurations

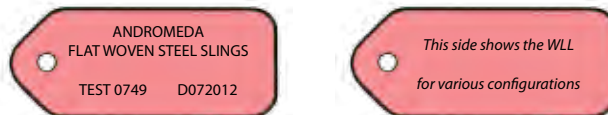
Design Number	Graphic representation of sling	Description and usage
1-A	Type 1 Standard, (1-A, 1-B, 1-C,) machine made woven flat cable 	U Termination both ends. This provides the slimmest woven steel sling. Slides easily under loads. Made from machine woven flat cable. For general lifting of bundles of tubes, bars, timber, roofing steel in cradle lift.
1-B		U Termination one end and lapped eye with ferrules on the other end. Economical sling with slim end to slide easily under loads. Made from machine woven flat cable and used for general work. End with ferrules remains on the crane hook during rigging.
1-C		Lapped eye with ferrules both ends. Lowest cost sling where clearances under loads are adequate. Made from machine woven flat cable. For general lifting of steel bars etc. in cradle lift.
1-E	Type 1 Special, (1-E, 1-G) hand made – cost more, longer delivery, lower WLL 	U Termination one end and hand formed soft eye other end. Very thin sling, the soft eye is useful where clearance between bundles is limited. Hand made form cord feedstock. More expensive, slow delivery.
1-G		Lapped eye with ferrules one end, and other end hand formed soft eye. Entirely hand made from cord feedstock. More expensive, slow delivery.

General information about Andromeda Flat Woven Steel Slings**1. Ferrules:**

Unless otherwise specified all FWS are fitted with aluminium alloy ferrules to EN 13411 standard. These have a chamfer at both ends to make for easier handling in tight places. This is accomplished by use of special dies.

Also available are our low deformation (LD) steel ferrules as fitted to Superflex sling.

- 2. Fibre jackets:** The standard jacket is tightly woven Polyester sleeve that looks very much like a fire hose, and provides a good level of protection for the wires in the sling. Double thickness jackets can also be provided for extra heavy duty applications. For heavy duty work lay-flat hose can also be specified. These are available in a number of different grades. Jackets are fitted loosely over the slings, and can be removed for inspection.

3. The tag system:

The standard tags are made from 1.0mm steel, and permanently fixed by means of steel cord swaged into the ferrule.

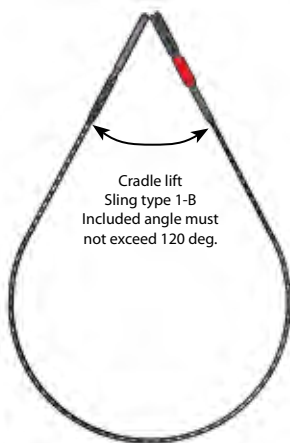
The following information is provided on each tag: a) Manufacturers name (Andromeda – no phone number), b) size and type of the sling, i.e. nominal width, c) WLL in various applications, d) Test number and the date of test if proof loaded. Tags are strongly and permanently attached.

- 4. Proof Loading:** Carried out at extra cost when requested by the customer. Performed to the requirements of AS 1666.1 and treating these slings as wire rope slings. Usually carried out with the sling in Single Fall configuration and loaded to the force as shown in the relevant table. When proof loaded, the sling tag will carry the Test Number for the batch, as well as the date. The Test Certificate will show the invoice number, proof load applied, date of test, declaration of compliance with NATA and AS 1666.1 the WLL of the woven strap, the size of the sling, number of slings in test series, the manufacturer and the test house.
- 5. Stainless Steel Slings:** Available in some sizes, usually fitted with copper ferrules, although steel ferrules are available for some sizes.
- 6. U Terminations:** This fitting provides a hard and very durable termination for frequently used slings. Its associated manufacturing and assembly methods, has been developed by Andromeda over the last fifteen years. It is usually made in alloy steel, but some sizes can be made in Stainless Steel.
- 7. Nominal size:** this is a calculated width and depends on the cord size (eg 24x3=76). The width can vary depending on the tightness of the weft (whether made by hand or machines). However the strengths of the cable depend on the cord diameter and not the width of the strop.

Flat woven Steel Slings

Type 1 – Cradle lift standard – **WLL and weight tables** - Designs # 1-A, 1-B, 1-C

Size Nominal size of sling = width mm	Woven flat cable					Sling WLL in tonnes			
	24 ply warp, fine cords, 2 ply weft, fine cords					Cradle lift Included angle at the hook			Proof load
	Flat cable thickness mm	Generic cord size mm	Weight Kg/m	Woven jacket nom. dia	WLL in single fall kN	< 30 deg	60 deg	120 deg	Straight pull in single fall kN
50	5	2.0	0.4	32	10.2	1.9	1.7	1.0	20.4
64	7	2.5	0.6	38	16.0	3.0	2.7	1.6	32.0
76	8	3.0	1.0	52	23.8	4.5	4.0	2.3	47.6
88	10	3.5	1.3	62	31.6	6.0	5.3	3.1	63.2
100	11	4.0	1.6	70	42.5	8.1	7.1	4.1	85.0
112	12	4.5	2.1	76	53.4	10	9.0	5.2	107
125	14	5.0	2.7	102	71.4	13	12	7.0	143
160	17	6.5	4.3	120	114	21	19	11	228
200	20	8.0	6.9	150	170	32	28	17	340
250	25	10.0	10.3	170	255	48	43	25	510

**Weight table for completed slings in Kgs**

Sling width mm	Sling length in metres									
	1	2	3	4	5	6	7	8	9	10
50	0.7	1.1	1.5	1.9	2.3	2.7	3.1	3.5	3.9	4.3
64	0.9	1.5	2.1	2.7	3.3	3.9	4.5	5.1	5.7	6.3
76	1.6	2.6	3.6	4.6	5.6	6.6	7.6	8.6	9.6	11
88	2.3	3.6	4.9	6.2	7.5	8.8	10	11	13	14
100	3.0	4.6	6.2	7.8	9.4	11	13	14	16	17
112	4.2	6.3	8.4	11	13	15	17	19	21	23
125		9	11	14	17	19	22	25	27	30
160		14	18	22	27	31	35	39	44	48
200			32	39	45	52	59	66	73	80
250			55	65	75	85	95	105	115	125

Notes

The nominal size of these slings is just that, a nominal size. It is calculated from 24 plies laid parallel as a warp. That is the nominal size 24 x X (being the generic cord size in millimetres). Variations inevitably occur in the tension applied to the weft (transverse cords) and this in turn leads on to variations in width. A nominal size can vary from actual nominal to nominal minus 10% and will still possess the same UTS and WLL.

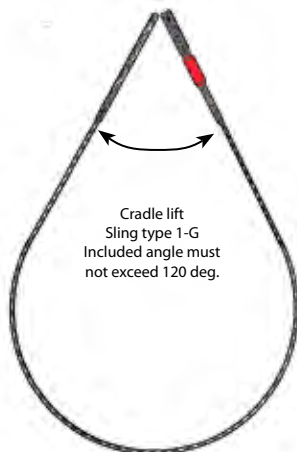
Proof loading FWS with trapezoidal links requires a proof loading rig that transfers the force into the outer corners of the link. This is important because if the force is applied at a single point in centre of link it will bend.

Flat woven Steel Slings

Type 1 – Cradle lift (special) – WLL and weight tables

Designs # 1-E, 1-G (hand made flat cables, with a soft eye in one end)

Size Nominal size of sling = width mm	Woven flat cable					Sling WLL in tonnes			
	24 ply warp, fine cords, 2 ply weft, fine cords					Cradle lift Included angle at the hook			Proof load
	Flat cable thickness mm	Generic cord size mm	Weight Kg/m	Woven jacket nom. dia	WLL in single fall kN	< 30 deg	60 deg	120 deg	Straight pull in single fall
50	5	2.0	0.4	32	9.0	1.6	1.5	0.9	kN 18.0
64	7	2.5	0.6	38	14.1	2.7	2.4	1.4	28.2
76	8	3.0	1.0	52	21.0	4.0	3.5	2.1	42.0
88	10	3.5	1.3	62	28.5	5.4	4.8	2.8	57.0
100	11	4.0	1.6	70	37.5	7.1	6.3	3.7	75.0
112	12	4.5	2.1	76	46.5	8.7	7.8	4.6	93.0
125	14	5.0	2.7	102	63.0	11.8	10.6	6.2	126
160	17	6.5	4.3	120	100	18.8	16.8	9.8	200
200	20	8.0	6.9	150	150	28.2	25.2	14.7	300
250	25	10.0	10.3	170	225	42.3	37.8	22.1	450

Weight table for completed slings in Kgs

Sling width mm	Sling length in metres									
	1	2	3	4	5	6	7	8	9	10
50	0.7	1.1	1.5	1.9	2.3	2.7	3.1	3.5	3.9	4.3
64	0.8	1.4	2.0	2.6	3.2	3.8	4.4	5.0	5.6	6.2
76	1.4	2.4	3.4	4.4	5.4	6.4	7.4	8.4	9.4	10
88	2.0	3.3	4.6	5.9	7.2	8.5	10	11	12	13
100	2.6	4.2	5.8	7.4	9.0	11	13	14	16	17
112	3.6	5.7	7.8	10	12	14	16	18	20	22
125		8.0	10	13	16	18	21	24	26	29
160		12	16	20	25	29	33	37	42	46
200			28	35	41	48	55	62	69	76
250			46	56	66	76	86	96	106	116

Notes

The nominal size of these slings is just that, a nominal size. It is calculated from 24 plies laid parallel as a warp. That is the nominal size 24 x X (being the generic cord size in millimetres). Variations inevitably occur in the tension applied to the weft (transverse cords) and this in turn leads on to variations in width. A nominal size can vary from actual nominal to nominal minus 10% and will still possess the same UTS and WLL.

Proof loading FWS with trapezoidal links requires a proof loading rig that transfers the force into the outer corners of the link. This is important because if the force is applied at a single point in centre of link it will bend.

Flat woven Steel Slings

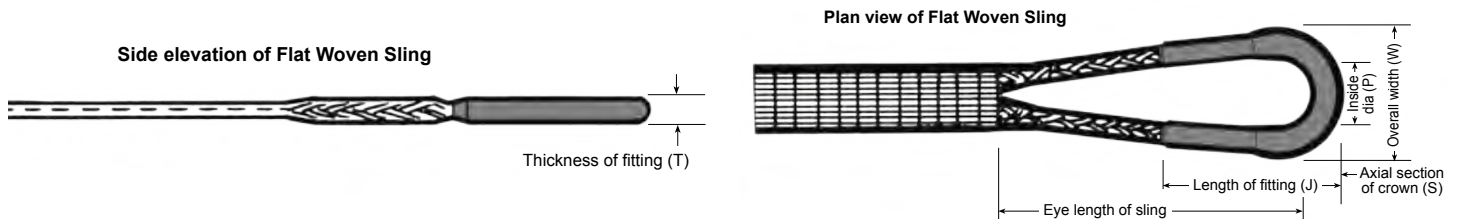
Type 2 – for Choker lift applications – typical configurations

Design Number	Graphic representation of sling	Description and usage
2-R		<p>U Termination in reeving end and semi-trapezoidal link in other end. Link fitted with thimbles and ferrules. Made from machine made flat cable. Provides a thin working end for sliding easily under loads. Used for general lifting where a choker lift is needed.</p>
2-T		<p>U Termination in the reeving end, and trapezoidal link fitted with leather sleeve in the other end. The slimmest of the type 2 slings. Hand made from cord feedstock, so is more costly and has longer lead time for delivery.</p>
2-W		<p>Lapped eye with ferrules in the reeving end, and trapezoidal link fitted with leather sleeve other end. Hand made from cord feedstock. This is Raymond McLarens original type 2 design of 1974.</p>

U Terminations – as used in the range of flat woven slings

Notes for guidance of users and distributors

U Terminations are low deformation swaging fittings designed and manufactured by Andromeda. They are used to provide a **thin and durable** termination for flat woven slings. The fitting is no thicker than the cable that it is attached to, and provides a very easily handled end to slide easily under loads. They have been designed to replace the hand made soft eyes of the Type 1 Special slings, enabling faster delivery and higher WLL. They are described and dimensioned in the drawings and table below.



Size of Flat Woven Slings	Inside Diameter (P)	Overall Width (W)	Axial section of crown (S)	Thick-ness of fitting (T)	Length of fitting	Mass of fitting (kg)
50	43	68	16	11	104	0.15
64	54	90	20	13	128	0.34
76	65	100	23	16	156	0.55
88	76	123	28	19	178	0.82
100	86	135	32	22	210	1.3
112	97	153	35	24	234	1.9
125	108	170	39	27	260	2.4
160						
200						
250						

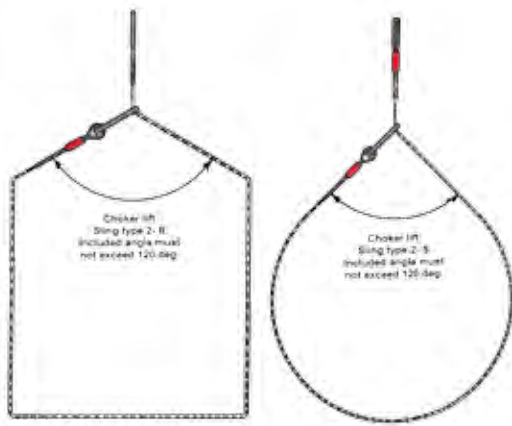


Typical Application. Flat woven sling can be fitted with Andromeda Low Deformation (L.D) ferrules. These all steel fittings provide a slim and smooth ferrule for easy handling

Flat woven Steel Slings

Type 2 – Choker lift – **WLL and weight tables** - Designs # 2-R, 2-S, 2-T, 2-U, 1E

Size Nominal size of sling = width mm	Woven flat cable					Slings		
	24 ply warp, fine cords, 2ply weft, fine cords					WLL in tonnes	WLL	Proof load
	Flat cable thickness mm	Generic cord size mm	Weight Kg/m	Woven jacket nom. dia	WLL in single fall kN	< 30 deg	60 deg	Straight pull in single fall
50	5	2.0	0.4	32	10.2	0.7	0.5	kN 20.4
64	7	2.5	0.6	38	16.0	1.2	0.8	32.0
76	8	3.0	1.0	52	23.8	1.7	1.1	47.6
88	10	3.5	1.3	62	31.6	2.3	1.5	63.2
100	11	4.0	1.6	70	42.5	3.1	2.0	85.0
112	12	4.5	2.1	76	53.4	3.8	2.6	107
125	14	5.0	2.7	102	71.4	5.1	3.4	143
160	17	6.5	4.3	120	114	8.2	5.5	228
200	20	8.0	6.9	150	170	12	8.2	340
250	25	10.0	10.3	170	255	18	12	510

**Weight table for completed slings in kgs**

Sling width mm	Sling length in metres									
	1	2	3	4	5	6	7	8	9	10
50	1.1	1.5	1.9	2.3	2.7	3.1	3.5	3.9	4.3	4.7
64	1.5	2.1	2.7	3.3	3.9	4.5	5.1	5.7	6.3	6.9
76	2.6	3.6	4.6	5.6	6.6	7.6	8.6	9.6	11	12
88	4.0	5.3	6.6	7.9	9.2	11	12	13	14	16
100	6.4	8.0	10	11	13	14	16	18	19	21
112	8.2	10	12	15	17	19	21	23	25	27
125		13	16	18	21	23	26	29	31	34
160		22	26	31	35	39	44	48	53	57
200			47	54	61	68	75	82	89	96
250			83	94	104	114	124	134	144	154

Notes

Sling type 2-W. Slings 2-W have a WLL 12% lower than types 2-R, 2-S, 2-T and 2-U. This is because of the single ply eye in the working end. (See slings type 1-E and 1-G)

The nominal size of these slings is just that, a nominal size. It is calculated from 24 plies laid parallel as a warp. That is the nominal size 24 x X (being the generic cord size in millimetres). Variations inevitably occur in the tension applied to the weft (transverse cords) and this in turn leads on to variations in width. A nominal size can vary from actual nominal to nominal minus 10% and will still possess the same UTS and WLL.

Proof loading FWS with trapezoidal links requires a proof loading rig that transfers the force into the outer corners of the link. This is important because if the force is applied at a single point in centre of link it will bend.