SpanSet®

02

Height Safety
Lifting
Load Control
Safety Management

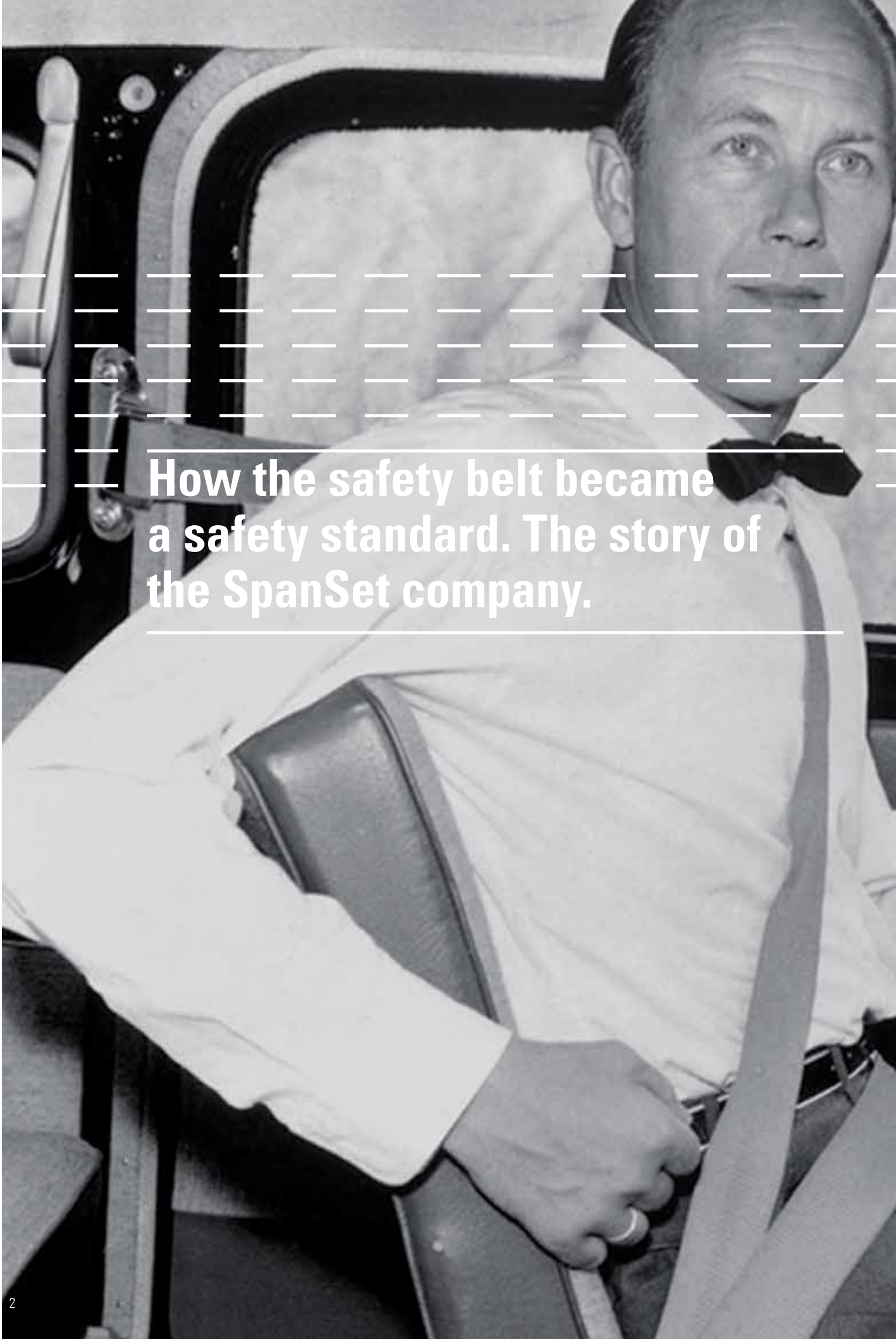
SpanSet GROUP

50 YEARS

SpanSet Certified Safety

SpanSet is here for you:
Switzerland, Australia, Austria, Brazil, China, France, Germany, Hungary, UK, Indonesia, Italy, Poland, Spain, Taiwan, USA.

Contents



How the safety belt became a safety standard. The story of the SpanSet company.

01.0 HISTORY OF SPANSET

Fifty years ago the world was very different, cars had no seat belts. But the hour had come for a small Swedish ribbon weaving company.

Today it is hard to imagine that a few decades ago, most cars were shipped without seat belts. In other respects too, little attention was paid to accident prevention at that time, and so many collisions from which today one would emerge unscathed, had fatal consequences.

In order to counter this, the Swedish car company Volvo approached the ribbon weaving companies AB Textilkonst and Klippan at the end of the 1950s, with instructions to develop a safety belt for its vehicles.

Volvo was already building very sturdy cars that withstood the harsh Swedish winters and other tests, but it wanted to continue to improve the safety of the occupants.

Together with Volvo engineers, Klippan developed the first car safety belt in the world, made of high-strength fabric ribbon. It was installed in models Amazon and 544 for the 1st time in 1959 and caused a lot of astonishment in the public, but also ensured an enduring image of Swedish inventions as both pioneering and durable.

How we replaced ropes and chains

The car safety belt was a great success, and soon other manufacturers had also installed it. Thanks to the great demand, Erik Ehnimb, co-owner of Klippan, was able to found the SpanSet company in Malmö in 1966.

The ribbons produced by SpanSet were quickly and enthusiastically employed in many other areas, where up to that point chains and wire ropes had been used, as in the case of the transport of paper. The customers appreciated the enormous load-bearing capacity of the new lashing and lifting belts.

In 1967, Mr. Ehnimb founded SpanSet AG in Hombrechtikon in the Zurich highlands and additional companies in Germany, Italy, France and England. Later, companies in Asia, America and Australia were added, thus forming a global distribution network.

How we ensure our name will still be highly regarded tomorrow

SpanSet Australia is based in a modern, purpose-built factory in Emu Plains NSW and has been in operation for over 25 years. The company's vast experience in webbing based products provided the perfect background to develop over 15 years ago the innovative range of height safety equipment in evidence today. This evolved from the introduction of the first Euro style, lightweight harness, which was a dramatic departure from the American influenced heavy and cumbersome harnesses. From our best selling ERGO and ERGOplus ranges through to our solution ranges for heat, corrosive, and high wear applications we always offer genuine value to our end user customers. The range covers all applications from Fall Arrest and Work Positioning to Rope Access and the Gotcha™ Rescue Range.

SpanSet continue to live up to their international heritage of innovations in design with new developments in products and services. The new developments enable us to push beyond the basic Australian Standards for design in Height Safety equipment.

How our inventions became the norm...

The SpanSet products with their load capacity have gained such a good reputation around the world that international safety standards have been orientated to it.

The development of standards for Height Safety equipment has been significantly influenced by SpanSet. This is how something becomes the norm: by setting a standard. And doing so repeatedly for more than 40 years.

...and our norm influenced new inventions

This also means that we are often called on during the development of a new product (after all, it will eventually be transported by our belts) and also increasingly offer support as a partner for safety training and consultation.

This is how SpanSet went from small ribbon weaving company to international forerunner when it comes to Height Safety, transportation and safety – through exceptional performance and recognition.

How we let one world first follow the next

In 1987, SpanSet Australia pioneered the use of synthetic slings in Australia, into a market that previously used wire and chain as the primary materials in lifting assemblies. Manual handling risks were subsequently reduced and the use of synthetic slings today is second nature. Here once again our round slings are regularly referred to generically as "SpanSets".

In 1992, the Horizontal Safety Line – the first temporary horizontal anchorage line to employ a webbing and ratchet system for pretension and to give a predictable deflection during a fall.

The ABS tensioning ratchet, another world first, appeared in 1995. This allows a gradual release of the tensioned ratchet, so that goods at risk of falling could be unloaded safely.

2001, The Gotcha™ range of rescue equipment. The first pre-assembled rescue kits offering remote attachment and recovery of a suspended worker. This has led the way in demystifying the rescue function and the Gotcha™ kit is now regularly used as a generic name for rescue kits.

In 2002, SpanSet launched the Tension Force Indicator (TFI) which is integrated in the tensioning ratchet and indicates the pre-tensioning force. Thus, the use of lashing equipment became safer and more economical. The TFI is now incorporated into the premium Horizontal Safety Line above, demonstrating the synergy between synthetic applications in fall protection, lifting and load restraint.

In 2007 SpanSet established the Modular Height Safety Training Courses. Moving training away from generic, non relevant courses, towards industry recognised standard qualifications to which trainees can relate to.

This 2012/13 Lifting catalogue showcases the progressive development of knowhow into our commitment to industry specific lifting and safety solutions.

SpanSet – a way to success that always results from being one step ahead!

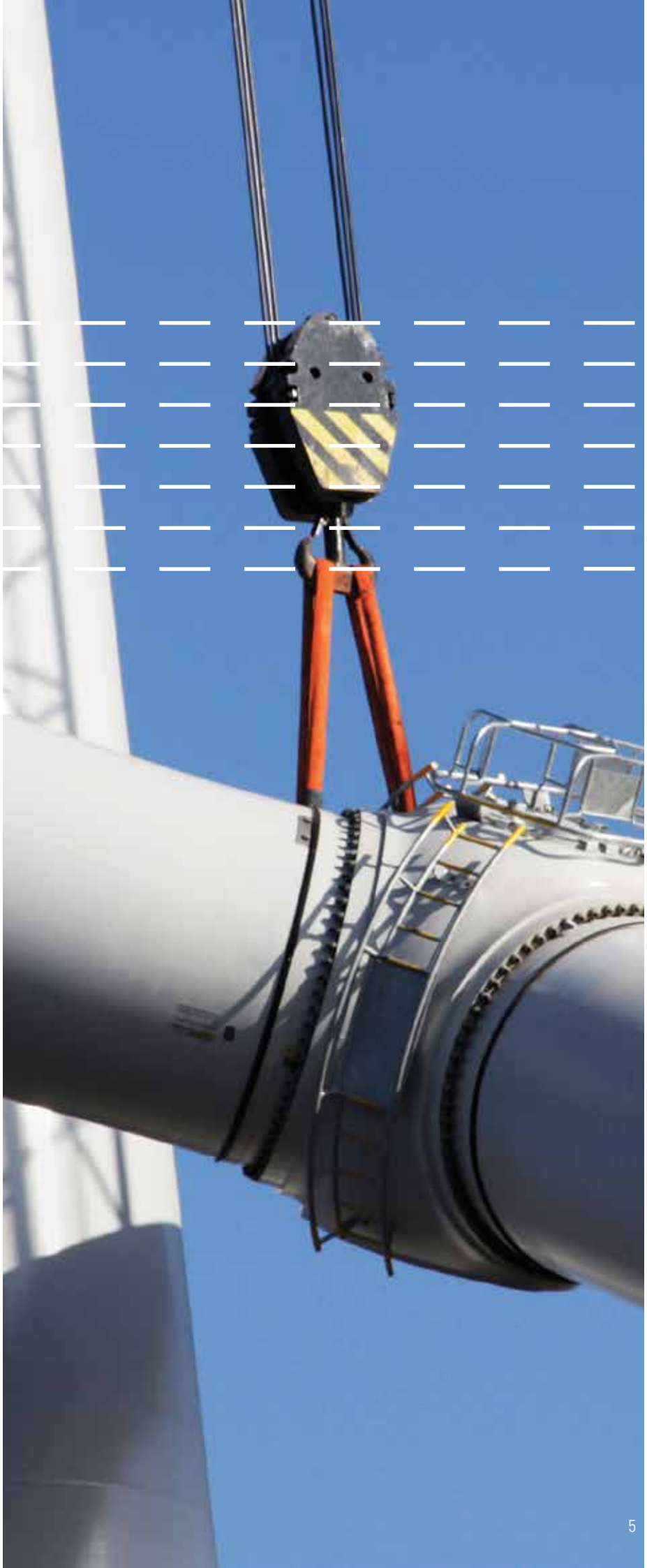
We are quite proud of our achievements. After all, they have contributed to safer and easier working conditions around the world – and thus to fewer accidents and lower operating costs.

Meeting standards is good. Setting standards is better. The SpanSet brand stands for something. Not only for meeting international safety standards, but for raising them again and again.

This is exactly what we stand for with our products, services and consultancy: for more security than is demanded today – namely, as much as is possible tomorrow.

That is our goal, that is our job and that is our passion. So those working with SpanSet can also fully entrust their safety to our products in the future.

SpanSet Certified Safety



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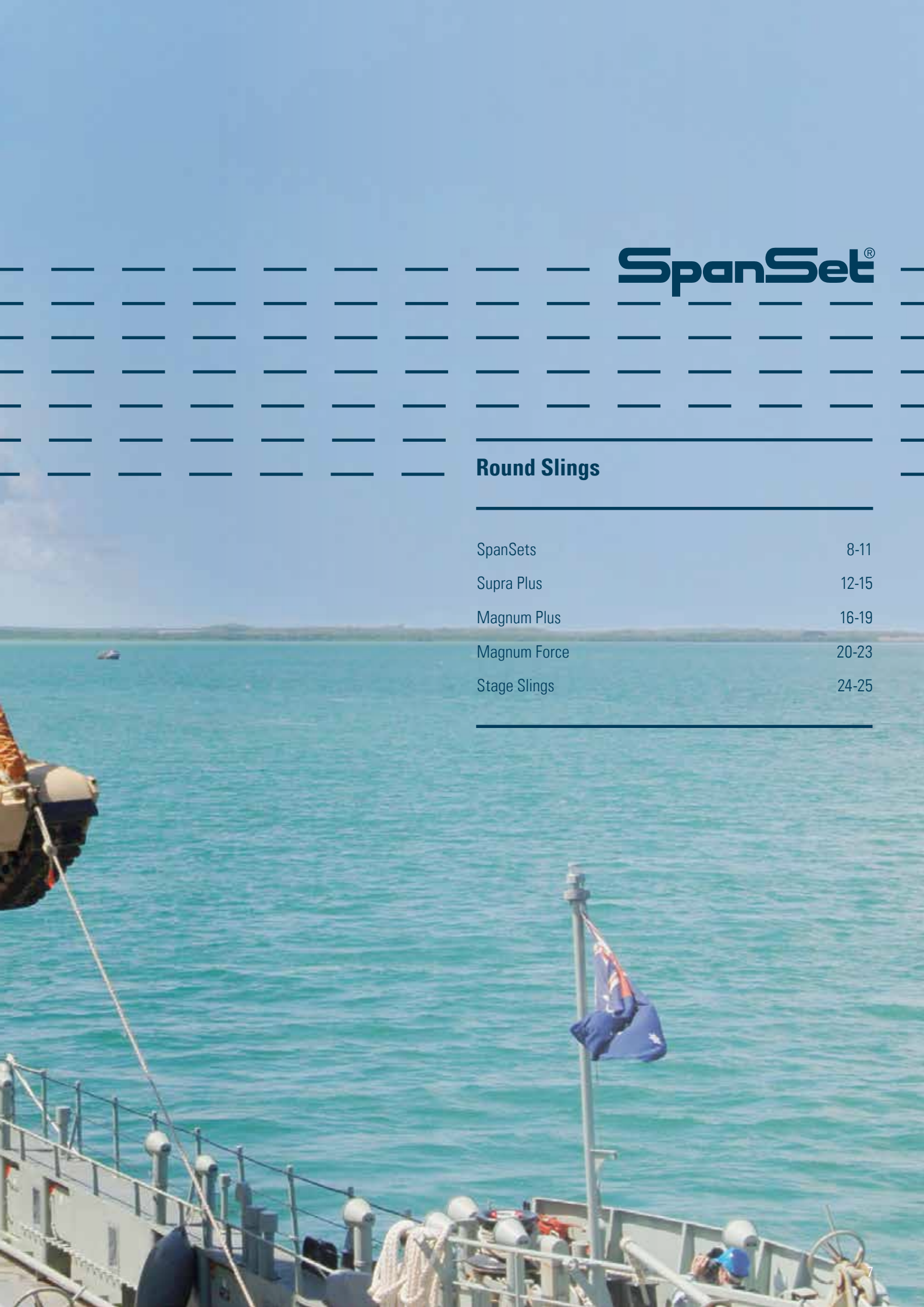


Round Slings

SpanSets
Supra Plus
Magnum Plus
Magnum Force
Stage Slings

SpanSets

The Original SpanSet, Now a Generic Term for Round Slings

- Variable load bearing point for more even wear
- Ideal for choke lifting cylindrical objects
- Lifts smooth objects without damage
- Lightweight and soft – reduced manual handling injuries
- High strength to weight ratio
- Load bearing fibres protected by the outer sleeve
- Wide choice of lifting modes
- Tuff Tag, webbing reinforced encapsulated compliance labels
- Certified to AS.4497.1.

E1000—Violet

E2000—Green

E3000—Yellow

E4000—Grey

E5000—Red

E6000—Brown

E8000—Blue

SpanSets
Supra Plus
Magnum Plus
Magnum Force
Stage Slings

SpanSets

SpanSets Round Sling Technical Data

Colour/ Code	Rated WLL (kg)	Thickness Under Load (mm approx.)	Width Under Load (mm approx.)	Minimum Load Edge Radius (mm)	Minimum Load Edge Diameter with secutex® Sleeve	Maximum Length (metres)	Minimum Length (metres)	Weight Per Metre (kg)
E1000	1000	6	45	18	N/A	60	0.5	0.3
E2000	2000	7	48	21	N/A	60	0.5	0.5
E3000	3000	8	60	24	N/A	60	0.5	0.80
E4000	4000	10	65	30	N/A	60	1.0	1.00
E5000	5000	10	75	30	N/A	60	1.0	1.20
E6000	6000	13	80	39	N/A	60	1.0	1.40
E8000	8000	15	80	45	N/A	60	1.0	1.80

SpanSets Ordering Codes

Colour/ Code	Rated WLL (kg)	1 metre	2 metre	3 metre	4 metre	5 metre	6 metre	8 metre
E1000	1000	E1000-0x1.0	E1000-0x2.0	E1000-0x3.0	E1000-0x4.0	E1000-0x5.0	E1000-0x6.0	E1000-0x8.0
E2000	2000	E2000-0x1.0	E2000-0x2.0	E2000-0x3.0	E2000-0x4.0	E2000-0x5.0	E2000-0x6.0	E2000-0x8.0
E3000	3000	E3000-0x1.0	E3000-0x2.0	E3000-0x3.0	E3000-0x4.0	E3000-0x5.0	E3000-0x6.0	E3000-0x8.0
E4000	4000	E4000-0x1.0	E4000-0x2.0	E4000-0x3.0	E4000-0x4.0	E4000-0x5.0	E4000-0x6.0	E4000-0x8.0
E5000	5000	E5000-0x1.0	E5000-0x2.0	E5000-0x3.0	E5000-0x4.0	E5000-0x5.0	E5000-0x6.0	E5000-0x8.0
E6000	6000	E6000-0x1.0	E6000-0x2.0	E6000-0x3.0	E6000-0x4.0	E6000-0x5.0	E6000-0x6.0	E6000-0x8.0
E8000	8000	E8000-0x1.0	E8000-0x2.0	E8000-0x3.0	E8000-0x4.0	E8000-0x5.0	E8000-0x6.0	E8000-0x8.0
E10000	10000	E10000-0x1.0	E10000-0x2.0	E10000-0x3.0	E10000-0x4.0	E10000-0x5.0	E10000-0x6.0	E10000-0x8.0
E15000	15000	E15000-0x1.0	E15000-0x2.0	E15000-0x3.0	E15000-0x4.0	E15000-0x5.0	E15000-0x6.0	E15000-0x8.0
E20000	20000	E20000-0x1.0	E20000-0x2.0	E20000-0x3.0	E20000-0x4.0	E20000-0x5.0	E20000-0x6.0	E20000-0x8.0
E30000	30000	E30000-0x1.0	E30000-0x2.0	E30000-0x3.0	E30000-0x4.0	E30000-0x5.0	E30000-0x6.0	E30000-0x8.0
E40000	40000	E40000-0x1.0	E40000-0x2.0	E40000-0x3.0	E40000-0x4.0	E40000-0x5.0	E40000-0x6.0	E40000-0x8.0
E50000	50000	E50000-0x1.0	E50000-0x2.0	E50000-0x3.0	E50000-0x4.0	E50000-0x5.0	E50000-0x6.0	E50000-0x8.0

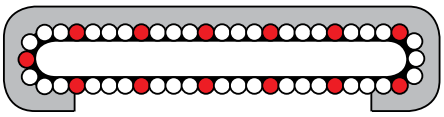
SpanSets
Supra Plus
Magnum Plus
Magnum Force
Stage Slings

SpanSets

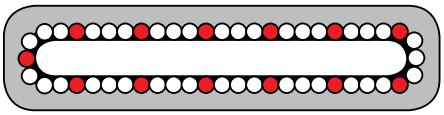
secutex® Cut Resistant Sleeves for SpanSets - Single Leg

Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
E1000	SF1-50	50	70	22	0.9	SF2-50	50	70	70	1.2	SC-50	50	70	70	1.1
E2000	SF1-75	75	95	22	1.3	SF2-75	75	95	95	1.8	SC-75	75	95	95	1.6
E3000	SF1-100	100	120	22	1.5	SF2-100	100	120	120	2.1	SC-100	100	120	120	1.8
E4000	SF1-150	140	160	22	2.1	SF2-150	140	160	160	3.0	SC-150	140	160	160	2.6
E5000	SF1-150	150	170	22	2.1	SF2-150	150	170	170	3.0	SC-150	150	170	170	2.6
E6000	SF1-200	180	200	35	2.7	SF2-200	180	200	35	3.3	SC-200	180	200	35	3.3
E8000	SF1-250	240	260	35	3.2	SF2-250	240	260	35	4.2	SC-250	240	260	35	4.2

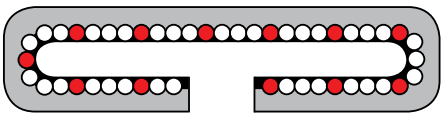
Fully encapsulated Tuff Tag identification



secutex® SF-1



secutex® SF-2



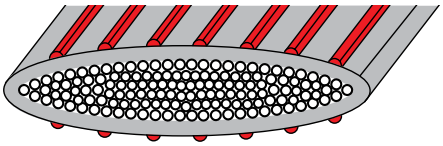
secutex® Clip-SC

Supra Plus

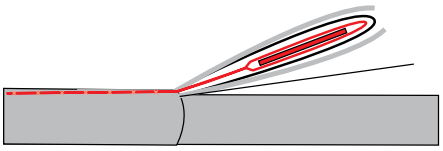
Supra Plus Heavy Duty Round Slings

- Up to four times the wear
- Variable load bearing point for more even wear
- Ideal for choke lifting cylindrical objects without creasing
- Less creasing means less wear
- WLL data woven into sleeve for unmistakable capacity identification
- 40% thicker sleeve for durability
- Raised ribs for greater wear and cut resistance
- 20% narrower than standard round slings for easy hook interface
- Lifts smooth objects without damage
- Lightweight and soft – reduced manual handling injuries
- High strength to weight ratio
- Load bearing fibres protected by the outer sleeve
- Wide choice of lifting modes
- Tuff Tag, webbing reinforced encapsulated compliance labels
- Certified to AS4497.1.

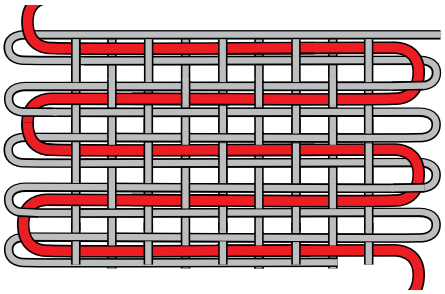
More compact cross-section



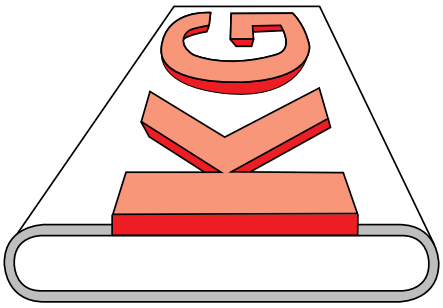
Improved ribbed reinforcement



Protected quality label



Interwoven textile fibre



Superior interwoven load-bearing capacity indication

Supra Plus

Supra Plus Round Sling Technical Data

Colour/ Code	Rated WLL (kg)	Thickness Under Load (mm approx.)	Width Under Load (mm approx.)	Minimum Load Edge Radius (mm)	Minimum Load Edge Diameter with secutex® Sleeve	Maximum Length (metres)	Minimum Length (metres)	Weight Per Metre (kg)
SP1000	1000	6	36	18	N/A	60	1.0	0.35
SP2000	2000	8	37	24	N/A	60	1.0	0.50
SP3000	3000	10	44	30	N/A	60	1.0	0.60
SP4000	4000	12	52	36	N/A	60	1.0	0.90
SP5000	5000	13	59	39	N/A	60	1.0	1.00
SP6000	6000	14	65	42	N/A	60	1.0	1.30
SP8000	8000	17	68	51	N/A	60	1.8	1.70

Supra Plus Ordering Codes

Colour/ Code	Rated WLL (kg)	1 metre	2 metre	3 metre	4 metre	5 metre	6 metre	8 metre
SP1000	1000	SP1000-0x1.0	SP1000-0x2.0	SP1000-0x3.0	SP1000-0x4.0	SP1000-0x5.0	SP1000-0x6.0	SP1000-0x8.0
SP2000	2000	SP2000-0x1.0	SP2000-0x2.0	SP2000-0x3.0	SP2000-0x4.0	SP2000-0x5.0	SP2000-0x6.0	SP2000-0x8.0
SP3000	3000	SP3000-0x1.0	SP3000-0x2.0	SP3000-0x3.0	SP3000-0x4.0	SP3000-0x5.0	SP3000-0x6.0	SP3000-0x8.0
SP4000	4000	SP4000-0x1.0	SP4000-0x2.0	SP4000-0x3.0	SP4000-0x4.0	SP4000-0x5.0	SP4000-0x6.0	SP4000-0x8.0
SP5000	5000	SP5000-0x1.0	SP5000-0x2.0	SP5000-0x3.0	SP5000-0x4.0	SP5000-0x5.0	SP5000-0x6.0	SP5000-0x8.0
SP6000	6000	SP6000-0x1.0	SP6000-0x2.0	SP6000-0x3.0	SP6000-0x4.0	SP6000-0x5.0	SP6000-0x6.0	SP6000-0x8.0
SP8000	8000	SP8000-0x1.0	SP8000-0x2.0	SP8000-0x3.0	SP8000-0x4.0	SP8000-0x5.0	SP8000-0x6.0	SP8000-0x8.0

Supra Plus

secutex® Cut Resistant Sleeves for Supra Plus - Single Leg

Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
SP1000	SF1-50	50	70	22	0.9	SF2-50	50	70	70	1.2	SC-50	50	70	70	1.1
SP2000	SF1-75	75	95	22	1.3	SF2-75	75	95	95	1.8	SC-75	75	95	95	1.6
SP3000	SF1-100	100	120	22	1.5	SF2-100	100	120	120	2.1	SC-100	100	120	120	1.8
SP4000	SF1-150	140	160	22	2.1	SF2-150	140	160	160	3.0	SC-150	140	160	160	2.6
SP5000	SF1-150	150	170	22	2.1	SF2-150	150	170	170	3.0	SC-150	150	170	170	2.6
SP6000	SF1-200	180	200	35	2.7	SF2-200	180	200	35	3.3	SC-200	180	200	35	3.3
SP8000	SF1-250	240	260	35	3.2	SF2-250	240	260	35	4.2	SC-250	240	260	35	4.2

SP1000—Violet

SP2000—Green

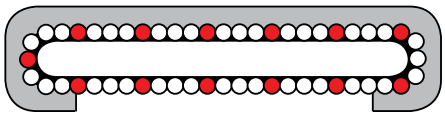
SP3000—Yellow

SP4000—Grey

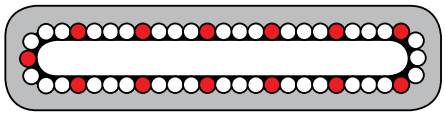
SP5000—Red

SP6000—Brown

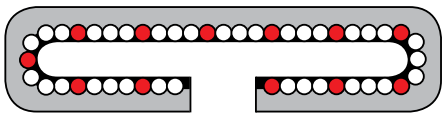
SP8000—Blue



secutex® SF-1



secutex® SF-2



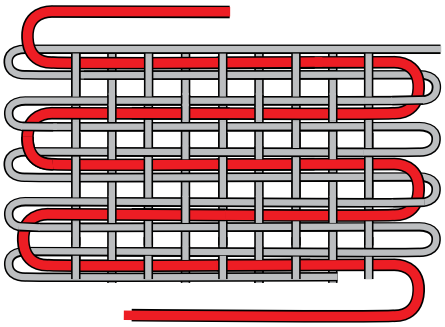
secutex® Clip-SC

SpanSets
Supra Plus
Magnum Plus
Magnum Force
Stage Slings

Magnum Plus

Magnum Plus Round Slings for Heavy Duty High Capacity Performance

- Variable load bearing point for more even wear
- Ideal for choke lifting cylindrical objects without creasing
- Less creasing means less wear
- WLL data woven into sleeve for unmistakable capacity identification
- 40% thicker sleeve for durability
- Lifts smooth objects without damage
- Lightweight and soft – reduced manual handling injuries
- High strength to weight ratio
- Load bearing fibres protected by the outer sleeve
- Wide choice of lifting modes
- Tuff Tag, webbing reinforced encapsulated compliance labels.



Multi filament yarn

Magnum Plus Round Sling Technical Data

Colour/ Code	Rated WLL (kg)	Thickness Under Load (mm approx.)	Width Under Load (mm approx.)	Minimum Load Edge Radius (mm)	Minimum Load Edge Diameter with secutex® Sleeve	Maximum Length (metres)	Minimum Length (metres)	Weight Per Metre (kg)
MP10000	10,000	19	90	57	N/A	60	1.8	2.2
MP15000	15,000	21	115	63	N/A	60	1.8	3.2
MP20000	20,000	23	135	69	N/A	60	1.8	4.4
MP25000	25,000	24	150	72	N/A	60	1.8	5.6
MP30000	30,000	27	170	81	N/A	60	2.0	7.4
MP40000	40,000	37	190	111	N/A	60	2.0	10.0
MP50000	50,000	65	190	195	N/A	60	2.0	13.0
MP60000	60,000	75	220	225	N/A	60	4.0	14.8
MP80000	80,000	86	230	258	N/A	60	4.0	20.0
MP100000	100,000	96	260	288	N/A	60	4.0	26.0
MP125000	125,000	120	325	360	N/A	60	4.0	33.8
MP150000	150,000	144	390	432	N/A	60	4.0	41.6


MAXIMUM WORKING LOAD 10000 KG
MAXIMUM WORKING LOAD 10000 KG


Welcome to Darwin
WASTE
WASTE
WASTE

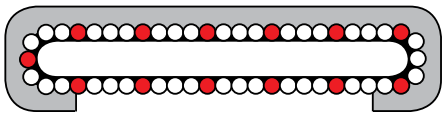
Magnum Plus

Magnum Plus Ordering Codes

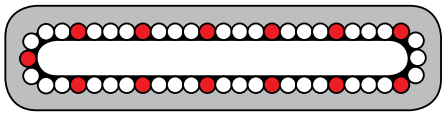
Colour/ Code	Rated WLL (kg)	2 metre	3 metre	4 metre	5 metre	6 metre	8 metre
MP10000	10,000	MP10000-0x2.0	MP10000-0x3.0	MP10000-0x4.0	MP10000-0x5.0	MP10000-0x6.0	MP10000-0x8.0
MP15000	15,000	MP15000-0x2.0	MP15000-0x3.0	MP15000-0x4.0	MP15000-0x5.0	MP15000-0x6.0	MP15000-0x8.0
MP20000	20,000	MP20000-0x2.0	MP20000-0x3.0	MP20000-0x4.0	MP20000-0x5.0	MP20000-0x6.0	MP20000-0x8.0
MP25000	25,000	MP25000-0x2.0	MP25000-0x3.0	MP25000-0x4.0	MP25000-0x5.0	MP25000-0x6.0	MP25000-0x8.0
MP30000	30,000	MP30000-0x2.0	MP30000-0x3.0	MP30000-0x4.0	MP30000-0x5.0	MP30000-0x6.0	MP30000-0x8.0
MP40000	40,000	MP40000-0x2.0	MP40000-0x3.0	MP40000-0x4.0	MP40000-0x5.0	MP40000-0x6.0	MP40000-0x8.0
MP50000	50,000	MP50000-0x2.0	MP50000-0x3.0	MP50000-0x4.0	MP50000-0x5.0	MP50000-0x6.0	MP50000-0x8.0
MP60000	60,000	MP60000-0x2.0	MP60000-0x3.0	MP60000-0x4.0	MP60000-0x5.0	MP60000-0x6.0	MP60000-0x8.0
MP80000	80,000	MP80000-0x2.0	MP80000-0x3.0	MP80000-0x4.0	MP80000-0x5.0	MP80000-0x6.0	MP80000-0x8.0
MP100000	100,000	MP100000-0x2.0	MP100000-0x3.0	MP100000-0x4.0	MP100000-0x5.0	MP100000-0x6.0	MP100000-0x8.0
MP125000	125,000	MP125000-0x2.0	MP125000-0x3.0	MP125000-0x4.0	MP125000-0x5.0	MP125000-0x6.0	MP125000-0x8.0
MP150000	150,000	MP150000-0x2.0	MP150000-0x3.0	MP150000-0x4.0	MP150000-0x5.0	MP150000-0x6.0	MP150000-0x8.0

secutex® Cut Resistant Sleeves for Magnum Plus - Single Leg

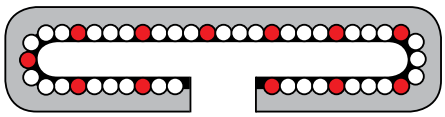
Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
MP10000	SF1-CS-200	180	230	37	3.0	SF2-CS-180	180	230	37	4.2	SC-CS-180	180	230	37	4.1
MP15000	SF1-CS-250	240	265	35	3.1	SF2-CS-240	240	265	35	5.6	SC-CS-240	240	265	35	5.0
MP20000	SF1-CS-300	300	330	35	3.8	SF2-CS-300	300	330	35	6.6	SC-CS-300	300	330	35	6.4
MP30000	SF1-CS-300	300	330	35	3.8	SF2-CS-300	300	330	35	6.6	SC-CS-300	300	330	35	6.4



secutex® SF-1



secutex® SF-2



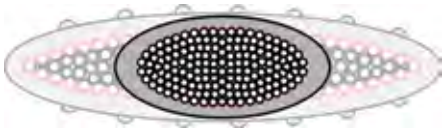
secutex® Clip-SC

Magnum Force: The Advantages at a Glance

Compact

The innovative construction with a high performance polyester fibre and a compact protective cover partially woven with the same material make the Magnum Force up to 50% slimmer than comparable roundslings with the same load bearing capacity. At the same time, it produces greater stiffness within the sling along both axis.

The roundsling is not bunched even in smaller crane hooks and attachment points and it is easy to suspend the sling overhead.



Cross-section under load (WLL) by comparison

Wear Resistant

Outer protective cover is reinforced with an extremely abrasion and tear resistant high performance polyester. In addition, the special design reduces the formation of bunching at the attachment point, which again significantly improves the wear behaviour.

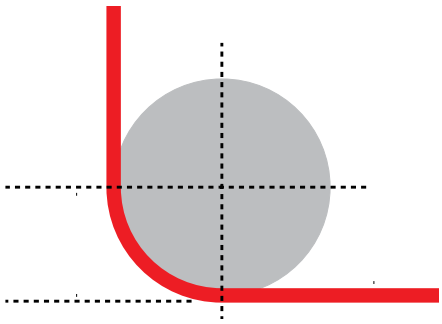
The Magnum Force exhibits the greatest reliability and longest durability even under the harshest operating conditions – an economic factor you can count on.

Compact outer cover with high performance polyester

Resilient

The new, high performance fibre has a significantly greater capacity. Consequently, less material is needed in the fabric, which makes the Magnum Force up to 50% lighter than conventional roundslings.

With the same load capacity, the Magnum Force can be laid against tighter edge radii than conventional polyester slings. Work becomes more efficient, quicker and safer.



Compliant

Magnum Force inner load bearing core is made from the same material as the outer sleeve. This is to ensure any chemical damage indications are consistent with both inner and outer materials. This is a requirement of AS4497.1

Identifiable

The Magnum Force has an extra sleeve with a raised, woven-in load capacity indicator – a safety feature that has proved to be a success.

The load capacity is clearly identifiable even from a distance and in the dirtiest conditions. Confusing the roundslings is therefore effectively avoided, protecting people and material from accidents.

Raised, woven-in load capacity indicator

Verifiable

The label, with a clear sleeve, is tear resistant and attached to a sleeve, which is sewn firmly onto the outer protective cover.

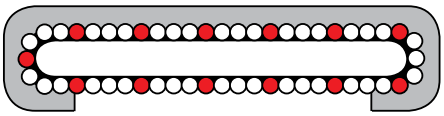
The Magnum Force is ideally protected from identity and data loss. This guarantees a long operating time.

Protected label

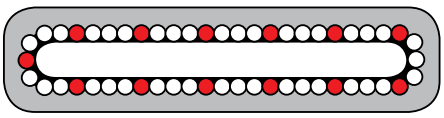
Protected

Even better protection for the Magnum Force is provided on sharp corners and edges by the newly designed secutex® clip protective sleeving, which is reinforced with high performance polyester.

The new secutex® clip protective sleeving provides optimum protection for the Magnum Force and thereby guarantees the highest level of safety and long operating life.



secutex® SF-1



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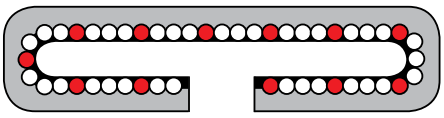


secutex® Clip-SC

Magnum Force

Magnum Force Round Slings – Modified High Performance Polyester for Heavy Duty High Capacity Performance

- Up to 50% lighter than conventional round slings for even better manual handling
- Internal fibres and external tube are the same material and comply to AS4497.1
- Up to 50% slimmer than conventional round slings
- Can be laid against tighter edge radii than conventional PES slings
- Shackle and hardware interface is therefore less crowded
- Reinforced high performance woven cover
- Variable load bearing point for more even wear
- Ideal for choke lifting cylindrical objects without creasing
- Less creasing means less wear
- WLL data woven into sleeve for unmistakable capacity identification
- Lifts smooth objects without damage
- High strength to weight ratio
- Load bearing fibres protected by the outer sleeve
- Wide choice of lifting modes.

Magnum Force Round Sling Technical Data

Colour/ Code	Rated WLL (kg)	Thickness Under Load (mm approx.)	Width Under Load (mm approx.)	Minimum Load Edge Radius (mm)	Minimum Load Edge Diameter with secutex® Sleeve	Maximum Length (metres)	Minimum Length (metres)	Weight Per Metre (kg)
MF10000	10,000	12	55	36	N/A	60	1.8	1.0
MF20000	20,000	15	80	45	N/A	60	1.8	2.3
MF25000	25,000	18	85	54	N/A	60	1.8	2.9
MF30000	30,000	20	90	60	N/A	60	1.8	3.5
MF40000	40,000	24	110	72	N/A	60	1.8	5.1
MF50000	50,000	26	120	78	N/A	60	1.8	5.5
MF60000	60,000	36	153	138	N/A	60	2	7.9
MF80000	80,000	48	204	154	N/A	60	2	10.9
MF100000	100,000	56	238	168	N/A	60	2	16.8
MF125000	125,000	70	272	210	N/A	60	4	20.4
MF150000	150,000	80	315	240	N/A	60	4	25.4

Magnum Force

Magnum Force Ordering Codes

Colour/ Code	Rated WLL (kg)	2.5 metre	3 metre	4 metre	5 metre	6 metre	8 metre
MF10000	10,000	MF10000-0x2.5	MF10000-0x3.0	MF10000-0x4.0	MF10000-0x5.0	MF10000-0x6.0	MF10000-0x8.0
MF20000	20,000	MF20000-0x2.5	MF20000-0x3.0	MF20000-0x4.0	MF20000-0x5.0	MF20000-0x6.0	MF20000-0x8.0
MF25000	25,000	MF25000-0x2.5	MF25000-0x3.0	MF25000-0x4.0	MF25000-0x5.0	MF25000-0x6.0	MF25000-0x8.0
MF30000	30,000	MF30000-0x2.5	MF30000-0x3.0	MF30000-0x4.0	MF30000-0x5.0	MF30000-0x6.0	MF30000-0x8.0
MF40000	40,000	MF40000-0x2.5	MF40000-0x3.0	MF40000-0x4.0	MF40000-0x5.0	MF40000-0x6.0	MF40000-0x8.0
MF50000	50,000	MF50000-0x2.5	MF50000-0x3.0	MF50000-0x4.0	MF50000-0x5.0	MF50000-0x6.0	MF50000-0x8.0
MF60000	60,000	MF60000-0x2.5	MF60000-0x3.0	MF60000-0x4.0	MF60000-0x5.0	MF60000-0x6.0	MF60000-0x8.0
MF80000	80,000	MF80000-0x2.5	MF80000-0x3.0	MF80000-0x4.0	MF80000-0x5.0	MF80000-0x6.0	MF80000-0x8.0
MF100000	100,000	MF100000-0x2.5	MF100000-0x3.0	MF100000-0x4.0	MF100000-0x5.0	MF100000-0x6.0	MF100000-0x8.0
MF125000	125,000	MF125000-0x2.5	MF125000-0x3.0	MF125000-0x4.0	MF125000-0x5.0	MF125000-0x6.0	MF125000-0x8.0
MF150000	150,000	MF150000-0x2.5	MF150000-0x3.0	MF150000-0x4.0	MF150000-0x5.0	MF150000-0x6.0	MF150000-0x8.0
MF175000	175,000	MF175000-0x2.5	MF175000-0x3.0	MF175000-0x4.0	MF175000-0x5.0	MF175000-0x6.0	MF175000-0x8.0
MF200000	200,000	MF200000-0x2.5	MF200000-0x3.0	MF200000-0x4.0	MF200000-0x5.0	MF200000-0x6.0	MF200000-0x8.0
MF250000	250,000	MF250000-0x2.5	MF250000-0x3.0	MF250000-0x4.0	MF250000-0x5.0	MF250000-0x6.0	MF250000-0x8.0

secutex® Cut Resistant Sleeves for Magnum Force - Single Leg

Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	Secutex Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
MF10000	SF1-CS-120	120	145	45	1.7	SF2-CS-180	180	230	37	3.4	SC-CS180	180	230	37	3.3
MF20000	SF1-CS-180	180	230	35	3.0	SF2-CS-300	300	330	35	4.2	SC-CS-300	300	330	35	4.1
MF30000	SF1-CS-240	240	265	35	3.1	SF2-CS-300	300	330	35	5.6	SC-CS-300	300	330	35	5.0
MF40000	SFI-CS-300	300	330	33	3.8	SF2-CS-300	300	330	33	6.6	SC-CS-300	300	330	33	6.4

Stage Slings

Steel-Tex High Heat Resistant Round Slings

These lightweight roundslings are ideal for easy and inconspicuous suspension of stage sound and lighting equipment. Black sleeve material helps the sling blend into its surroundings.

The load bearing member of our Steel-Tex round sling is made of galvanised steel aircraft cable wound in an endless configuration. The wire core is encased in a heavy black polyester cover.

A unique inspection window with a velcro closure is located beside the capacity tag. This wide window allows for easy inspection of the core for broken wires or corrosion.

Rated at 2400kg and come in lengths of 0.9, 1.8, and 2.7 metres.

Steel-Tex Order Codes

Code	Length	Capacity WLL	Weight
WRSS-0x2.7	2.7 M	2,400 kg	2500g
WRSS-0x1.8	1.8 M	2,400 kg	1600g
WRSS-0x0.9	0.9 M	2,400 kg	850g

Stage Slings

SpanSets – Stage Sling Order Codes

Code	Length	Capacity WLL	Weight
EB1000-0x0.5	0.5	1,000	0.2
EB1000-0x1.0	1.0	1,000	0.4
EB1000-0x2.0	2.0	1,000	0.8
EB1000-0x3.0	3.0	1,000	1.2
RCB2005	0.5M	2,000	0.3
RCB2010	1.0M	2,000	0.6
RCB2020	2.0M	2,000	1.2
RCB2030	3.0M	2,000	1.8
EB3000-0x1.0	1.0	3,000	0.8
EB3000-0x2.0	2.0	3,000	1.6
EB3000-0x3.0	3.0	3,000	2.4

Other sizes available on request

Spansets: Black Polyester Rigging Slings

The original SpanSet stage sling

- Lightweight, yet durable
- Most common rating is 2 tonne with full flexibility in length
- Comes with Tufftag fully encapsulated reinforced ID tag.

02.2

SpanSet®

Flat Slings

A Series
B Series
CS Series
D Series
Boat Slings

A Series Web Slings

SpanSet single ply flat slings are manufactured with reinforced eyes for greater durability:

- Wide load bearing surface to minimise damage to fragile loads
- Lightweight for enhanced manual handling safety
- Excellent strength to weight ratio
- Light and flexible for good access in awkward situations
- Certified to AS1353.1.

A Series Single Ply Flat Webbing Slings Technical Data

Colour/ Code	Rated WLL (kg)	1 Width (mm)	2 Thickness (mm)	3 Min Sling Length (mm)	4 Min Eye Length (mm)	Min Pin Diameter (mm)	Min Load Edge Diameter (mm)
A0500	500	50	3	845	250	3	9
A1000	1,000	75	4	1240	350	4	12
A2000	2,000	140	4	1750	500	4	12
A3000	3,000	180	4	2400	800	4	12
A4000	4,000	240	4	3000	1000	4	12
A5000	5,000	300	4	3300	1200	4	12

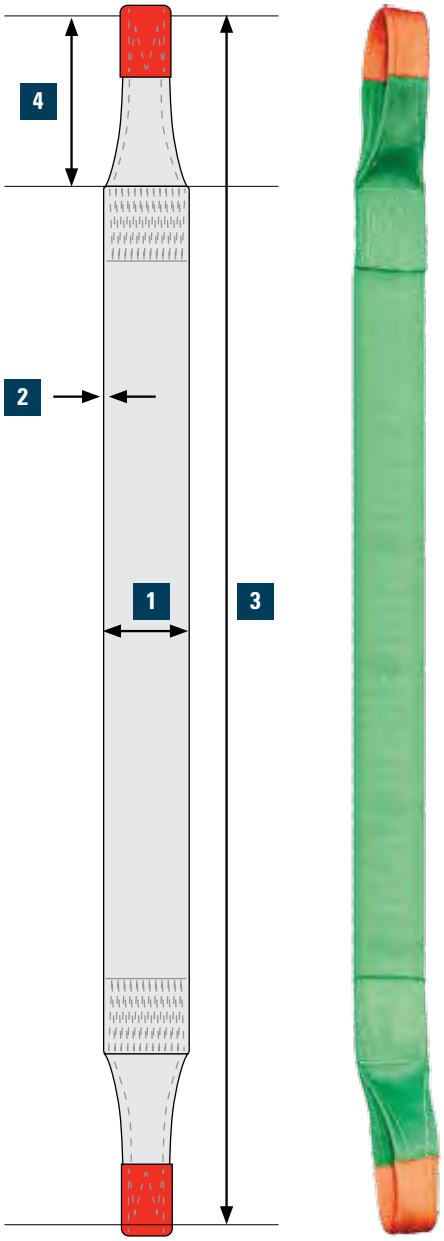
A Series Ordering Codes

Colour/ Code	Rated WLL (kg)	1 metre	2 metre	3 metre	4 metre	5 metre	6 metre	8 metre
A0500	500	A0500-0x1.0	A0500-0x2.0	A0500-0x3.0	A0500-0x4.0	A0500-0x5.0	A0500-0x6.0	A0500-0x8.0
A1000	1,000	A1000-0x1.0	A1000-0x2.0	A1000-0x3.0	A1000-0x4.0	A1000-0x5.0	A1000-0x6.0	A1000-0x8.0
A2000	2,000		A2000-0x2.0	A2000-0x3.0	A2000-0x4.0	A2000-0x5.0	A2000-0x6.0	A2000-0x8.0
A3000	3,000			A3000-0x3.0	A3000-0x4.0	A3000-0x5.0	A3000-0x6.0	A3000-0x8.0
A4000	4,000			A4000-0x3.0	A4000-0x4.0	A4000-0x5.0	A4000-0x6.0	A4000-0x8.0
A5000	5,000			A5000-0x3.0	A5000-0x4.0	A5000-0x5.0	A5000-0x6.0	A5000-0x8.0

Other sizes available on request

secutex® Cut Resistant Sleeves for A Slings

Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
A1000	SF1-75	75	95	22	1.3	SF2-75	75	95	95	1.8	SC-75	75	95	95	1.6
A2000	SF1-150	150	160	22	2.1	SF2-150	150	160	160	3.0	SC-150	150	160	160	2.6
A3000	SF1-200	200	200	35	2.7	SF2-200	200	200	35	3.3	SC-200	200	200	35	3.3
A4000	SF1-250	250	260	35	3.2	SF2-250	250	260	35	4.2	SC-250	250	260	35	4.2
A5000	SF1-300	300	325	35	4.0	SF2-300	300	325	35	6.0	SC-300	300	325	35	6.0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B Series Web Slings

SpanSet 2 ply flat slings are manufactured with reinforced eyes for greater durability

- Wide load bearing surface to minimise damage to fragile loads
- Lightweight for enhanced manual handling safety
- Excellent strength to weight ratio
- Light and flexible for good access in awkward situations
- Certified to AS1353.1

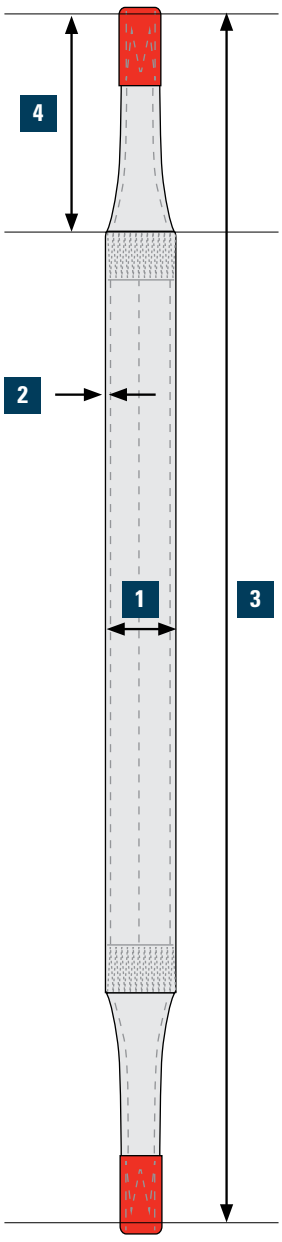
B Series 2 Ply Flat Webbing Slings Technical Data

Colour/ Code	Rated WLL (kg)	1 Width (mm)	2 Thickness (mm)	3 Min Sling Length (mm)	4 Min Eye Length (mm)	Min Pin Diameter (mm)	Min Load Edge Diameter (mm)
B0250	250	25	4	600	200	4	12
B0500	500	35	4	700	400	4	12
B1000	1000	50	5	820	250	5	15
B2000	2000	75	7.5	1100	350	7.5	22.5
B3000	3000	100	8	1250	400	8	24
B4000	4000	140	8	1500	500	8	24
B5000	5000	150	8	1700	600	8	24
B6000	6000	180	8	2170	800	8	24
B8000	8000	240	9	2650	1000	9	27
B10,000	10,000	300	9	3000	1200	9	27

B Series Ordering Codes

Colour/ Code	Rated WLL (kg)	1 metre	1.5 metre	2 metre	2.5 metre	3 metre	4 metre	5 metre	6 metre
B0250	250	B0250-0x1.0	B0250-0x1.5	B0250-0x2.0	B0250-0x2.5	B0250-0x3.0	B0250-0x4.0	B0250-0x5.0	B0250-0x6.0
B0500	500	B0500-0x1.0	B0500-0x1.5	B0500-0x2.0	B0500-0x2.5	B0500-0x3.0	B0500-0x4.0	B0500-0x5.0	B0500-0x6.0
B1000	1000	B1000-0x1.0	B1000-0x1.5	B1000-0x2.0	B1000-0x2.5	B1000-0x3.0	B1000-0x4.0	B1000-0x5.0	B1000-0x6.0
B2000	2000		B2000-0x1.5	B2000-0x2.0	B2000-0x2.5	B2000-0x3.0	B2000-0x4.0	B2000-0x5.0	B2000-0x6.0
B3000	3000		B3000-0x1.5	B3000-0x2.0	B3000-0x2.5	B3000-0x3.0	B3000-0x4.0	B3000-0x5.0	B3000-0x6.0
B4000	4000		B4000-0x1.5	B4000-0x2.0	B4000-0x2.5	B4000-0x3.0	B4000-0x4.0	B4000-0x5.0	B4000-0x6.0
B5000	5000			B5000-0x2.0	B5000-0x2.5	B5000-0x3.0	B5000-0x4.0	B5000-0x5.0	B5000-0x6.0
B6000	6000				B6000-0x2.5	B6000-0x3.0	B6000-0x4.0	B6000-0x5.0	B6000-0x6.0
B8000	8000					B8000-0x3.0	B8000-0x4.0	B8000-0x5.0	B8000-0x6.0
B10,000	10,000					B10000-0x3.0	B10000-0x4.0	B10000-0x5.0	B10000-0x6.0

Other sizes available on request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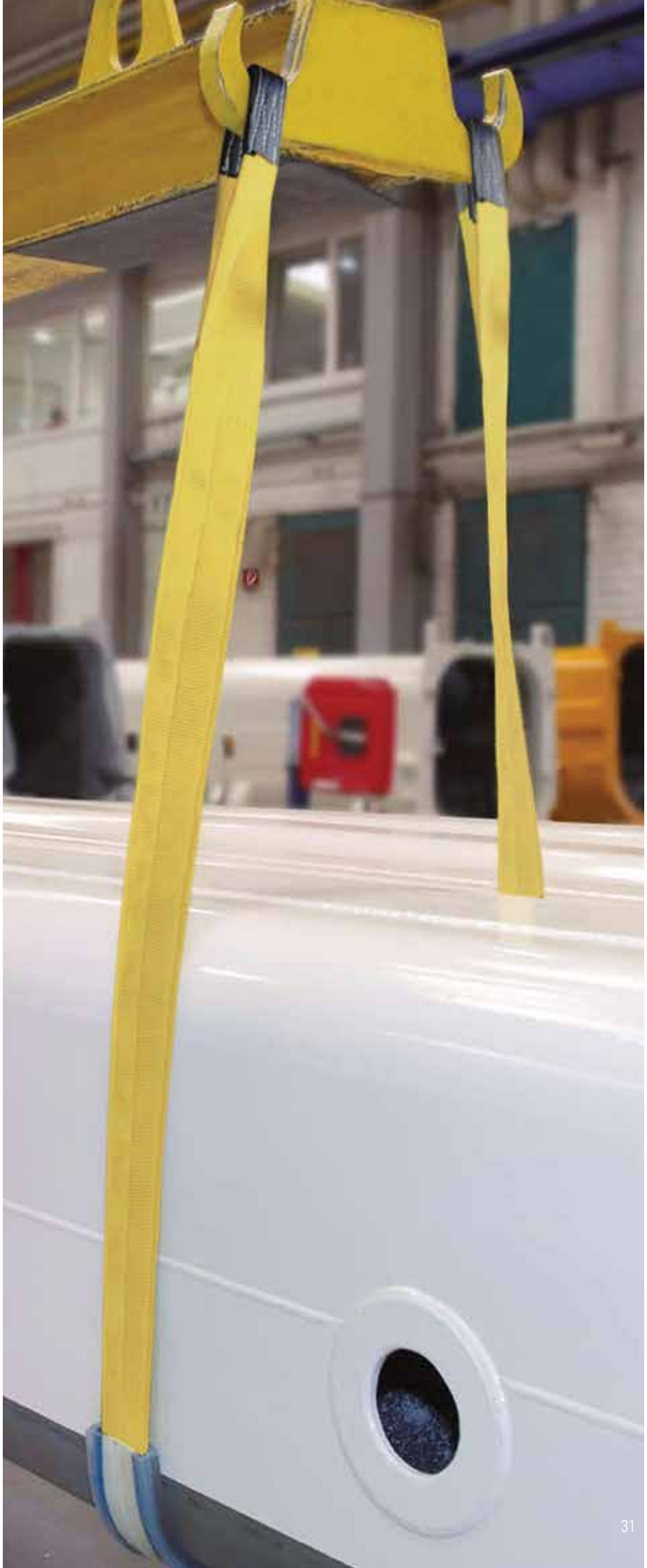
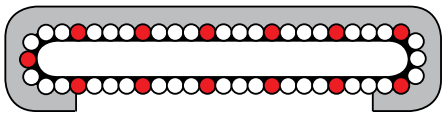


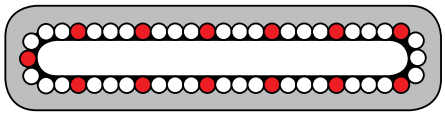
B Series Web Slings

secutex® Cut Resistant Sleeves for B Slings

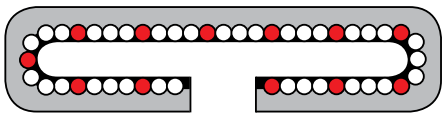
Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
B1000	SF1-50	50	70	22	0.9	SF2-50	50	70	70	1.2	SC-50	50	70	70	1.1
B2000	SF1-75	75	95	22	1.3	SF2-75	75	95	95	1.8	SC-75	75	95	95	1.6
B3000	SF1-100	100	120	22	1.5	SF2-100	100	120	120	2.1	SC-100	100	120	120	1.8
B4000	SF1-150	150	160	22	2.1	SF2-150	150	160	160	3.0	SC-150	150	160	160	2.6
B5000	SF1-150	150	170	22	2.1	SF2-150	150	170	170	2.3	SC-150	150	170	170	2.6
B6000	SF1-200	200	200	35	2.7	SF2-200	200	200	35	3.3	SC-200	200	200	35	3.3
B8000	SF1-250	250	260	35	3.2	SF2-250	250	260	35	4.2	SC-250	250	260	35	4.2
B10,000	SF1-300	300	325	35	4.0	SF2-300	300	325	35	6.0	SC-300	300	325	35	6.0



secutex® SF-1



secutex® SF-2



secutex® Clip-SC

CS Series Web Slings

SpanSet 4 ply flat slings are manufactured with reinforced eyes for greater durability.

- Wide load bearing surface to minimise damage to fragile loads
- Lightweight for enhanced manual handling safety
- Excellent strength to weight ratio
- Light and flexible for good access in awkward situations
- Certified to AS1353.1.

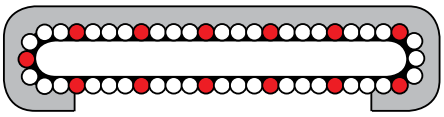
CS Series Ordering Codes

Colour/ Code	Rated WLL (kg)	3 metre	4 metre	5 metre	6 metre	8 metre	10 metre	15 metre
CS12000	12,000	CS12000-0x3.0	CS12000-0x4.0	CS12000-0x5.0	CS12000-0x6.0	CS12000-0x8.0	CS12000-0x10.0	CS12000-0x15.0
CS16000	16,000	CS16000-0x3.0	CS16000-0x4.0	CS16000-0x5.0	CS16000-0x6.0	CS16000-0x8.0	CS16000-0x10.0	CS16000-0x15.0
CS20000	20,000		CS20000-0x4.0	CS20000-0x5.0	CS20000-0x6.0	CS20000-0x8.0	CS20000-0x10.0	CS20000-0x15.0

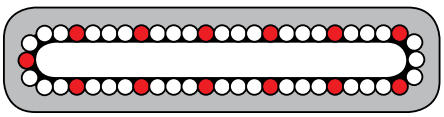
Other sizes available on request

secutex® Cut Resistant Sleeves for CS Slings

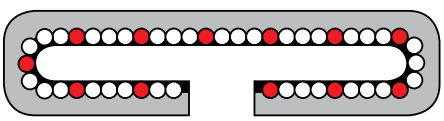
Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
CS12000	SF1-CS-180	180	230	37	3.0	SF2-CS-180	180	230	37	4.2	SC-CS-180	180	230	37	4.1
CS16000	SF1-CS-240	240	265	35	3.1	SF2-CS-240	240	265	35	5.6	SC-CS-240	240	265	35	5.0
CS20000	SF1-CS-300	300	330	35	3.8	SF2-CS-300	300	330	35	6.6	SC-CS-300	300	330	35	6.4



secutex® SF-1



secutex® SF-2



secutex® Clip-SC

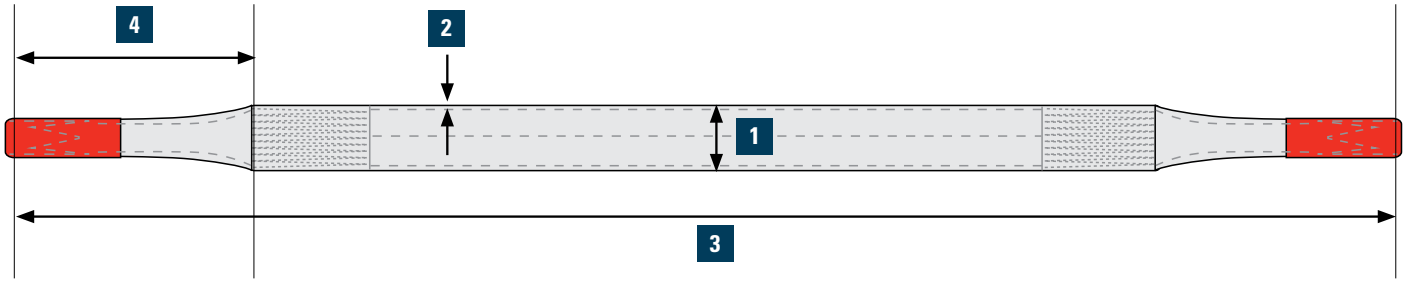
CS Series

Heavy-Duty Flat Slings CS

- More lifting power due to four layers
- Heavy-duty flat sling 12 tonne up to 20 tonne
- No damage during lifting due to wide supporting surface
- Optional with loop or D-ring
- Optimum handling due to low weight
- Exceptional lateral strength.

CS Series 4 Ply Flat Webbing Slings Technical Data

Colour/ Code	Rated WLL (kg)	1 Width (mm)	2 Thickness (mm)	3 Min Sling Length (mm)	4 Min Eye Length (mm)	Min Pin Diameter (mm)	Min Load Edge Diameter (mm)
CS12000	12,000	180	16	2500	800	16	48
CS16000	16,000	240	18	3000	1000	18	54
CS20000	20,000	300	18	3100	1200	18	54




SpanSet 2000KG

D Series Web Slings

Single Ply Web Slings

SpanSet endless flat slings are manufactured with hi-tech webbing for greater durability

- Wide load (up to 300mm) bearing surface to minimise damage to fragile loads
- Lightweight for enhanced manual handling safety
- Excellent strength to weight ratio
- Light and flexible for good access in awkward situations
- Conform to AS1353.1

D Series Endless Webbing Slings Technical Data

Colour/ Code	Rated WLL (kg)	1 Width (mm)	2 Thickness (mm)	3 Min Sling Length (mm)	Min Pin Diameter (mm)	Min Load Edge Diameter (mm)
D0250	250	25	2	300	2	6
D0500	500	35	2	300	2	6
D1000	1,000	50	3	300	3	9
D2000	2,000	75	4	400	4	12
D3000	3,000	100	4	400	4	12
D4000	4,000	140	4	500	4	12
D5000	5,000	150	4	600	4	12
D6000	6,000	180	4	600	4	12
D8000	8,000	240	5	600	5	15
D10000	10,000	300	5	700	5	15

D Series Ordering Codes

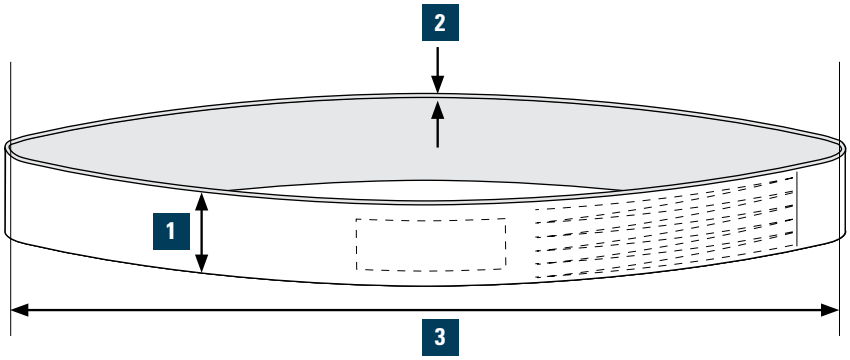
Colour/ Code	Rated WLL (kg)	1 metre	2 metre	3 metre	4 metre	5 metre	6 metre
D0250	250	D0250-0x1.0	D0250-0x2.0	D0250-0x3.0	D0250-0x4.0	D0250-0x5.0	D0250-0x6.0
D0500	500	D0500-0x1.0	D0500-0x2.0	D0500-0x3.0	D0500-0x4.0	D0500-0x5.0	D0500-0x6.0
D1000	1000	D1000-0x1.0	D1000-0x2.0	D1000-0x3.0	D1000-0x4.0	D1000-0x5.0	D1000-0x6.0
D2000	2,000	D2000-0x1.0	D2000-0x2.0	D2000-0x3.0	D2000-0x4.0	D2000-0x5.0	D2000-0x6.0
D3000	3,000	D3000-0x1.0	D3000-0x2.0	D3000-0x3.0	D3000-0x4.0	D3000-0x5.0	D3000-0x6.0
D4000	4,000	D4000-0x1.0	D4000-0x2.0	D4000-0x3.0	D4000-0x4.0	D4000-0x5.0	D4000-0x6.0
D5000	5,000	D5000-0x1.0	D5000-0x2.0	D5000-0x3.0	D5000-0x4.0	D5000-0x5.0	D5000-0x6.0
D6000	6,000	D6000-0x1.0	D6000-0x2.0	D6000-0x3.0	D6000-0x4.0	D6000-0x5.0	D6000-0x6.0
D8000	8,000	D8000-0x1.0	D8000-0x2.0	D8000-0x3.0	D8000-0x4.0	D8000-0x5.0	D8000-0x6.0
D10000	10,000	D10000-0x1.0	D10000-0x2.0	D10000-0x3.0	D10000-0x4.0	D10000-0x5.0	D10000-0x6.0

Other sizes available on request

D Series Web Slings

secutex® Cut Resistant Sleeves for D Slings

Colour/ Code	secutex® Code Single Sided	Interior Width (mm)	Exterior Width (mm)	Exterior Height	Weight Per Run Metre	secutex® Code Double Sided	Interior Width	Exterior Width	Exterior height	Weight Per Run Metre	secutex® Code Clip-On	Interior Width	Exterior Width	Exterior Height	Weight Per Run Metre
D1000	SF1-50	50	70	22	0.9	SF2-50	50	70	22	1.2	SC-50	50	70	22	1.1
D2000	SF1-75	75	95	22	1.3	SF2-75	75	95	22	1.8	SC-75	75	95	22	1.6
D3000	SF1-100	100	120	22	1.5	SF2-100	100	120	22	2.1	SC-100	100	120	22	1.8
D4000	SF1-150	150	170	22	2.1	SF2-150	150	160	22	3.0	SC-150	150	170	22	2.6
D5000	SF1-150	150	170	22	2.1	SF2-150	150	170	22	3.0	SC-150	150	170	22	2.6
D6000	SF1-200	200	200	35	2.7	SF2-200	200	200	35	3.3	SC-200	200	200	35	3.3
D8000	SF1-240	240	260	35	3.2	SF2-240	240	260	35	4.2	SC-240	240	260	35	4.2
D10000	SF1-300	300	325	35	4.0	SF2-300	300	325	35	6.0	SC-300	300	325	35	6.0

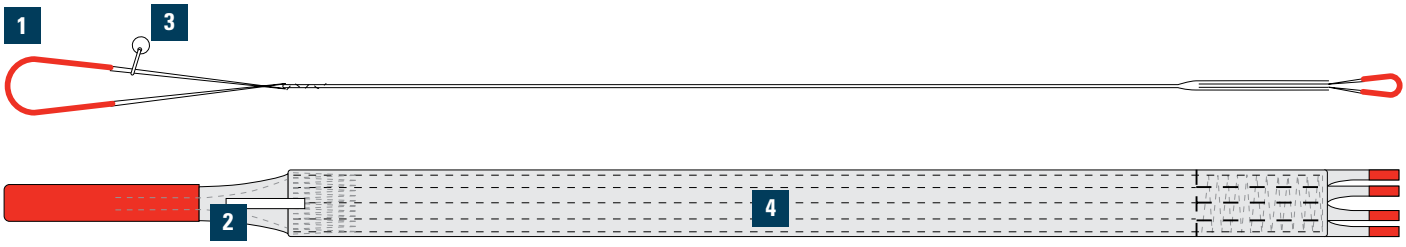


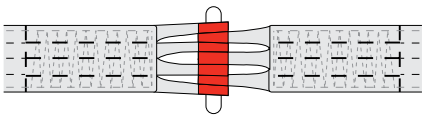
Boat Slings

SpanSet boat slings are for use with travel lift cranes for a wide load bearing lifting surface to minimise damage to hulls etc. Chine pads are available for protection from extrusions and keels. We also have available a complete range of salt water resistant secutex polyurethane protective sleeves to enhance the life of the slings. The slings are generally supplied in 2 parts with finger joints near the middle for convenient rigging practices.

- Generally 300mm webbing width
- 10t capacity (20t in basket mode)
- Capacity can be increased by "ganging" (joining side by side)
- 3 and 4 finger joint configuration
- Engineered joining pin required
- Proof load tested to 196.2kN with certificate.

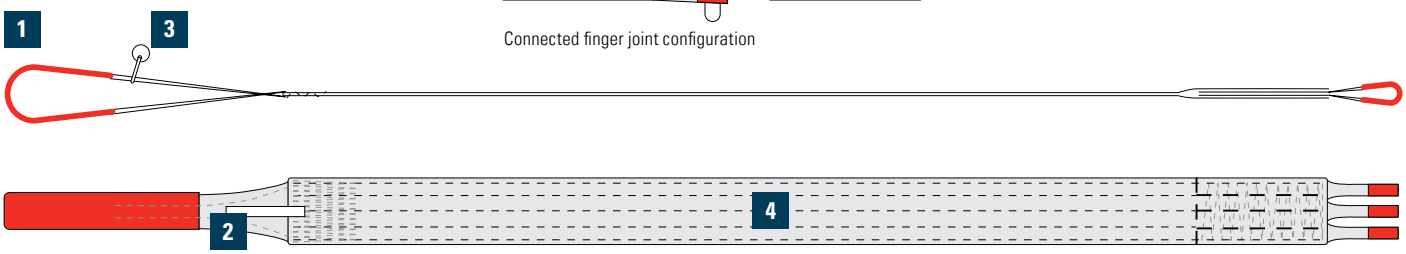
4 finger joint configuration



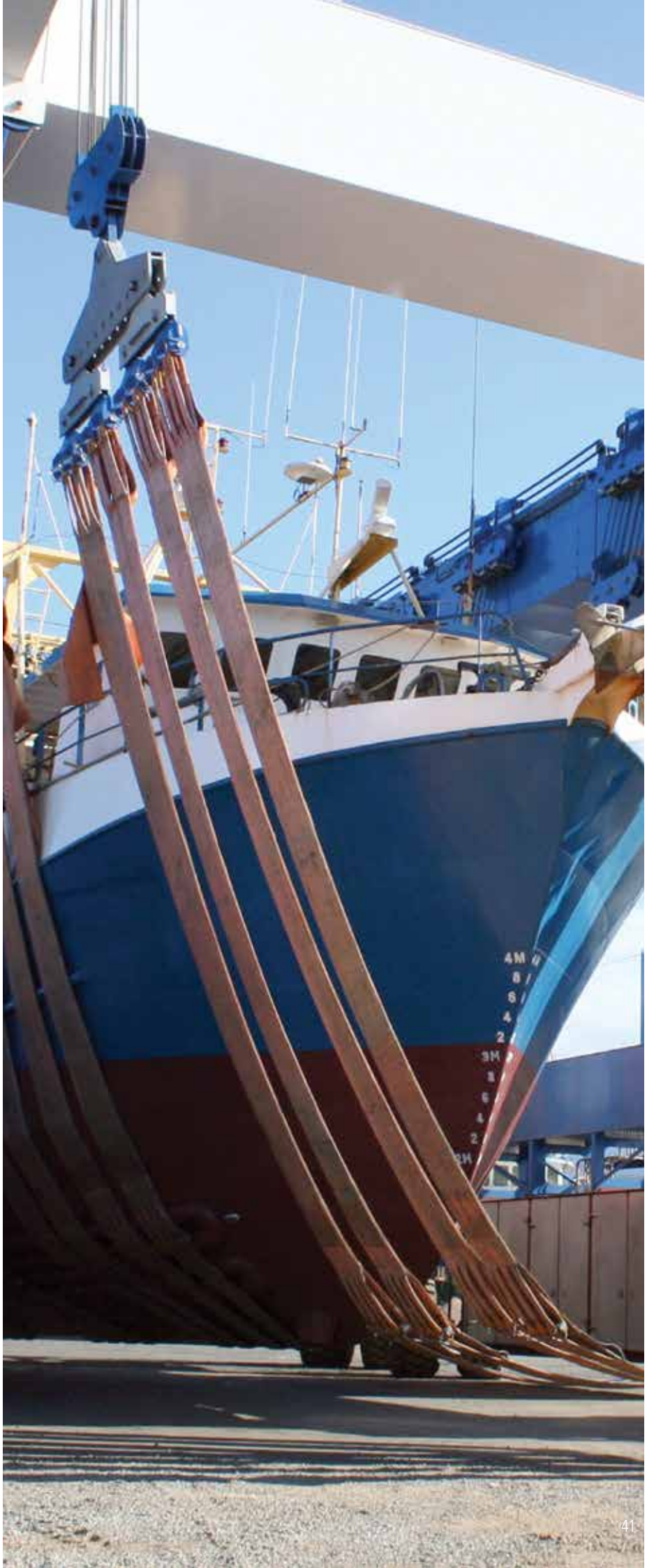


Connected finger joint configuration

3 finger joint configuration



1. Kooper covered 900mm long eye
2. Lifting capacity label
3. Stainless steel label detailing proof load length
4. 100% polyester webbing



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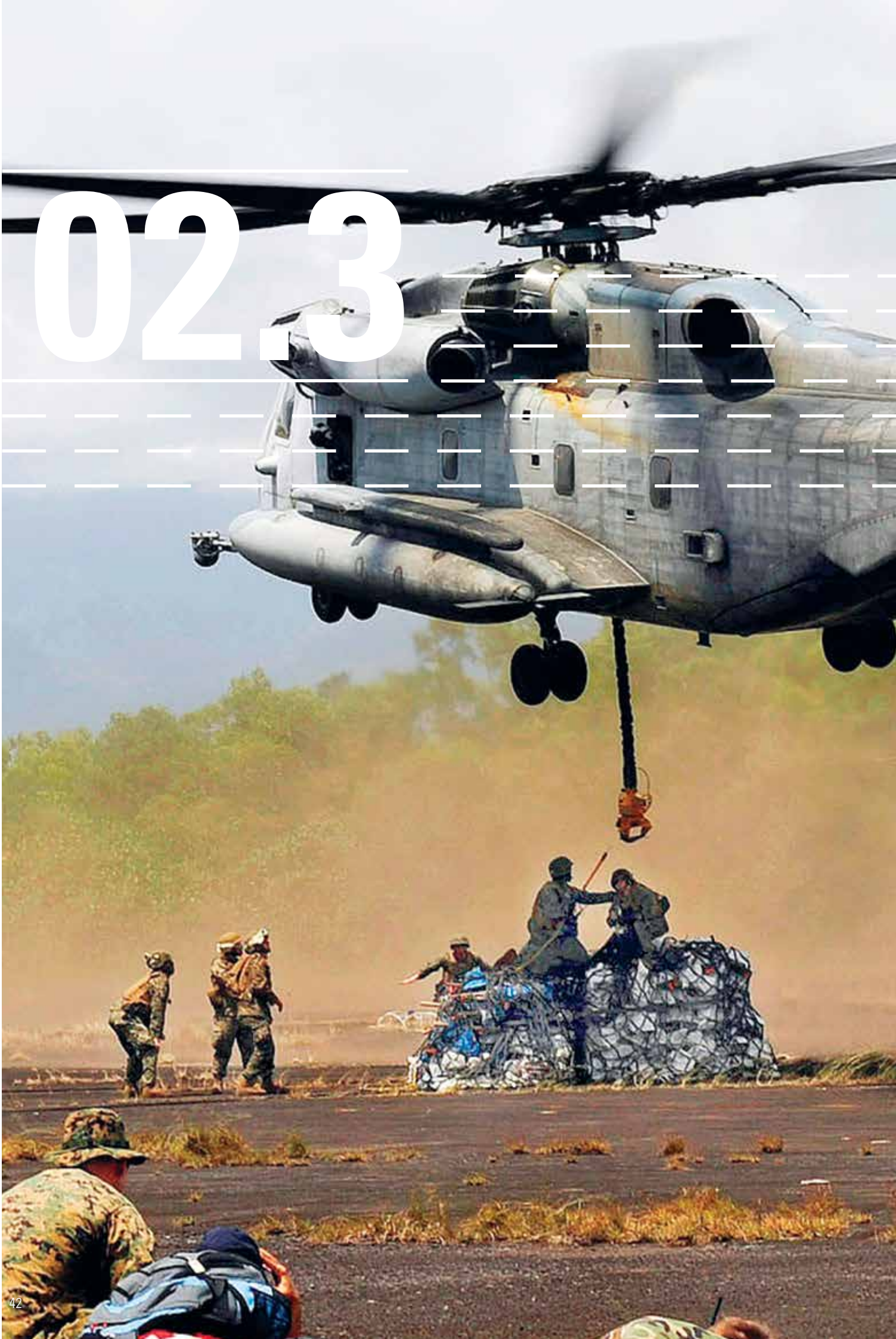
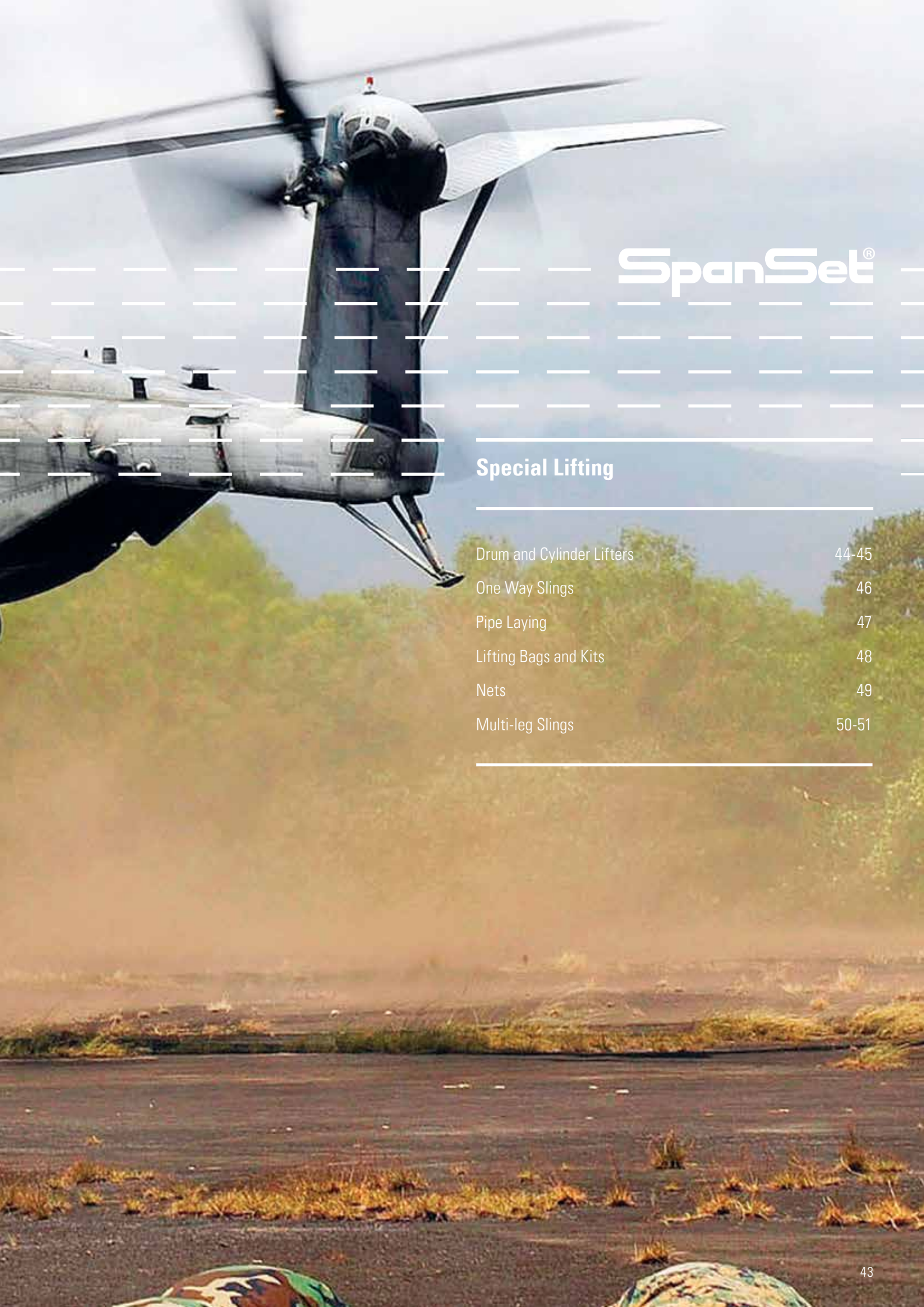




Special Lifting

Drum and Cylinder Lifters
One Way Slings
Pipe Laying
Lifting Bags and Kits
Nets
Multi-leg Slings

Drum and Cylinder Lifters

Custom cylinder lifter shown

Our popular drum lifters are designed for ribbed 44 gallon (166L) drums and are an easy and safe way of handling these awkward items.

- Easier loading
- 100% polyester webbing
- Suits up to 200L drums
- Allows easy pouring from drum
- Lightweight and safe for loading up to WLL 1000kg.

WLL for Drum Lifters

Code	Description	WLL (kg)
DR-1	With metal head ring	500
DR-1-1	With metal head ring	1000
DR-2	With soft lifting eyes	500

WLL for Cylinder Lifters

Code	Description	WLL (kg)
GBL-E-0	E size gas cylinder lifter	250
GBL-D-0	D size gas cylinder lifter	250
GBL-G-0	G size gas cylinder lifter	250

Advantages of Using Drum and Cylinder Lifters

Drum and cylinder lifters have become important tools across a variety of industries where there is a necessity to move these items in large numbers.

The lifter's ergonomic design allows an increase in a worker's overall output and minimises the chance of injuries involving strained muscles, as well as joint and back injuries.

Controlled handling using these tools contributes to a safer working environment for workers and employer peace of mind.

One Way Slings

- Inexpensive endless flat slings for one-way application
- According to DIN 60005
- 5:1 safety factor
- Label in standard signal colour.

Cost Effective Safety

Flat lifting slings for export of products whereby the sling remains rigged around the product and is used at the destination to safely lift from the cargo hold or deck of a vessel. These slings are then discarded at the final destination. They are not for repeated use.

Their advantage: The one way slings are substantially lower priced than regular slings.

To differentiate from standard lifting slings they are supplied in a non Australian standard colour such as white or black. The label is clearly marked as 5.1 safety factor and identified as a one way sling.

Flat Lifting Sling Loops

Colour / Code	Rated WLL (kg)	Length (m)	Webbing Width (mm)	Webbing Thickness (mm)	Sling Weight (kg)
D024023	780	1.0	35	1.3	0.060
D024024	780	1.5	35	1.3	0.090
D024025	780	2.0	35	1.3	0.120
D024026	780	4.0	35	1.3	0.240

Other sizes available on request

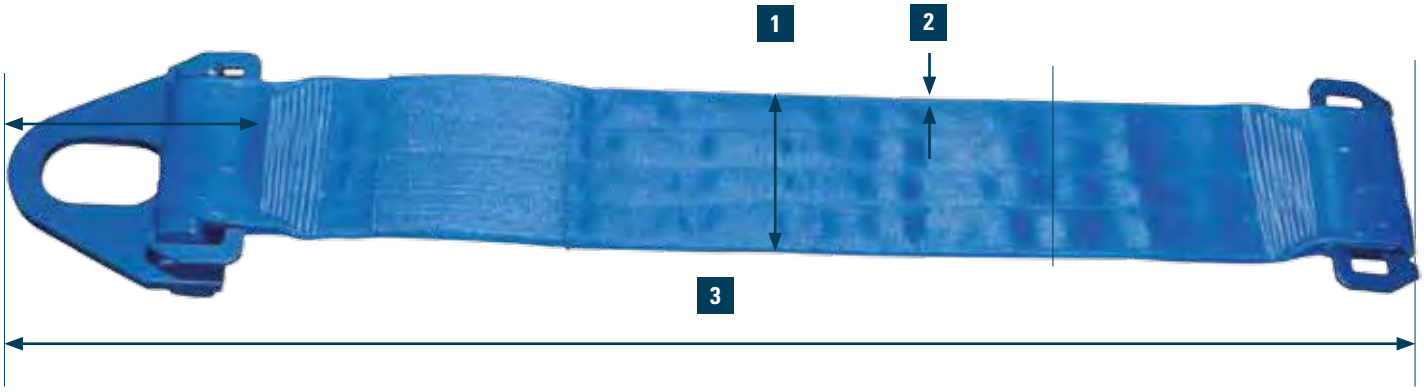
Pipe Laying Slings

These strap mats, with their enormous lifting capacity (16-48t) and large supporting surface (up to 900 mm), are extremely economical for pipeline construction.

When the weight is taken off, the mat is automatically released so time wasting release of the cross beam becomes unnecessary.

Pipe Laying Slings

Colour / Code	Rated WLL (kg)	3 Min Sling Length (mm)	1 Webbing Width (mm)	2 Webbing Thickness (mm)	Sling Weight (kg)
D024023	16000	1.0	300	6.6	48
D024024	32000	1.0	600	6.6	98
D024025	48000	1.0	900	6.6	129.5



Lifting Bags and Kits

Safe Lifting Kit

Limit manual handling injuries with this quick and simple, foolproof, 2:1 hauling kit. For loads up to 50kg. Ideal for transferring tools into a wind turbine, crane, or any elevated structure.

- Drop proof auto lock function
- SLK-25 Kit has 25m of rope and approx. 12.5m effective lift.
- SLK-50 Kit has 50m of rope and approx. 25m effective lift.
- Factor of safety 7.1
- WLL 50kg
- Can be used with Tuff Bucket lift bags.

Codes: SLK-25, SLK-50

Safe Lifting Kit

Tuff Bucket Lifting Bags

Tuff Buckets are load rated lifting buckets used for lifting, hoisting, and transporting tools, equipment, and work supplies to service locations at heights. As a pioneer in rigging and lifting buckets, Tuff Bucket recognises the importance of safety.

Load Ratings - A Higher Standard

Tuff Bucket products are very different from typical lifting and carrying buckets. Each and every product Tuff Bucket manufactures is engineered and performance tested to withstand 500% of its upright rated capacity without exhibiting signs of stress or failure.

The closable top of each Tuff Bucket is load rated to contain the buckets payload, in the event that the bucket is tipped, or is turned upside-down.

When properly applied, the Tuff Bucket closure will withstand 200% of the buckets rated capacity while upside-down.

Technical Data Code	Diameter (cm)	Height (cm)	Load-carrying Capacity WLL (kg)
TB25152	25	152	65
TB4151	41	51	55
TB5171	51	71	110

TB25152

TB4151

TB5171

Nets

Standard Duty Lifting Nets*

Code	SWL	Mesh Pitch	Web Size	Description	Dimensions
LN500-2	500kg	125mm	25mm	4 Lifting Eyes	2m²
LN500-3	500kg	125mm	25mm	4 Lifting Eyes	3m²
LN500-4	500kg	125mm	25mm	4 Lifting Eyes	4m²

Heavy Duty Lifting Nets*

Code	SWL	Mesh Pitch	Web Size	Description	Dimensions
LN2000-2	2000kg	250mm	50mm	4 Lifting Eyes	2m²
LN2000-3	2000kg	250mm	50mm	4 Lifting Eyes	3m²
LN2000-4	2000kg	250mm	50mm	4 Lifting Eyes	4m²

* Net dimensions are approximate only

- 100% polyester webbing
- Lifting eyes have pad protection
- Designed for marine industrial and underslung helicopter use
- Slotted construction for maximum length and durability
- High strength to weight ratio
- Certificates of conformance available
- Comforms to AS1353.1.

Multi-leg Slings

- Choice of two, three or four legged slings available
- Length of legs to order
- Special webbing/chain combinations to order
- Anti-abrasion protection available
- Anti-cutting protection available
- High strength to weight ratio
- Colour code for positive identification, even when soiled
- Only hooks and link are metal components
- Conforms fully to Australian Standard AS1353.1 for Hi-Tech Flat Web Slings and AS4497.1 for Supra Plus Roundslings.

Ordering Information

1. Choose 2-3-4 Legs as required
2. Select appropriate WLL for your lift
3. Nominate required length
4. Add length to the sling type and number of legs eg. MF2 – 4 x 2 metres, is a B Type sling – 2t, 4 leg x 2m long.

Australian Standards stipulate that only 2 legs can be used to calculate the WLL of multi-leg assemblies.

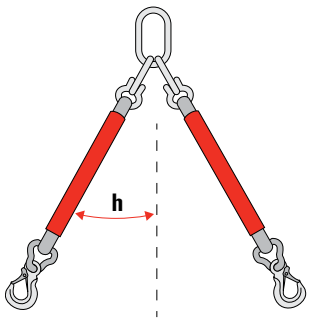
Multi-leg round sling example

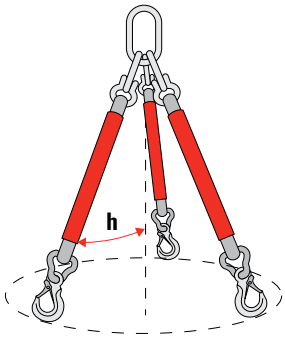
Multi-leg flat sling example

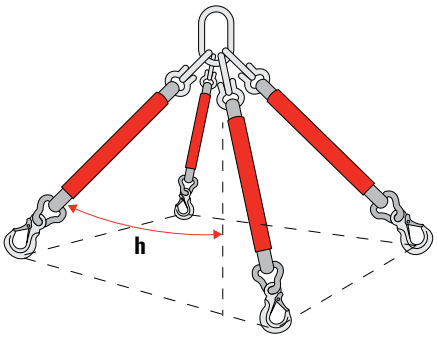
WLL for 2 Leg and Over Sling Mode

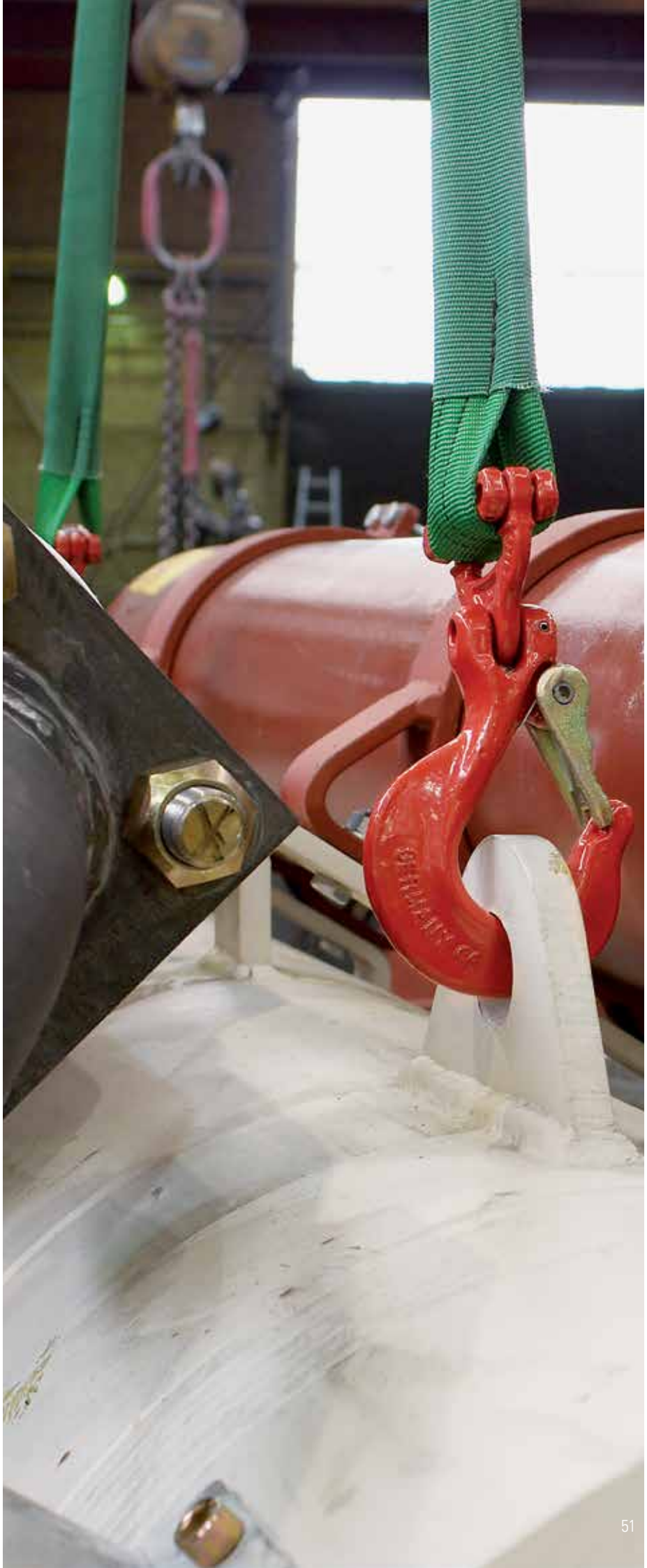
Direct Load (kg) (1 Leg)	0–60°	90°	120°
1000	1730	1400	1000
2000	3460	2800	2000
3000	5190	4200	3000
4000	6920	5600	4000
5000	8650	7000	5000
6000	10,380	8400	6000
8000	13,840	11,200	8000
10,000	17,300	14,000	10,000

Diagrams show half included angle (h)









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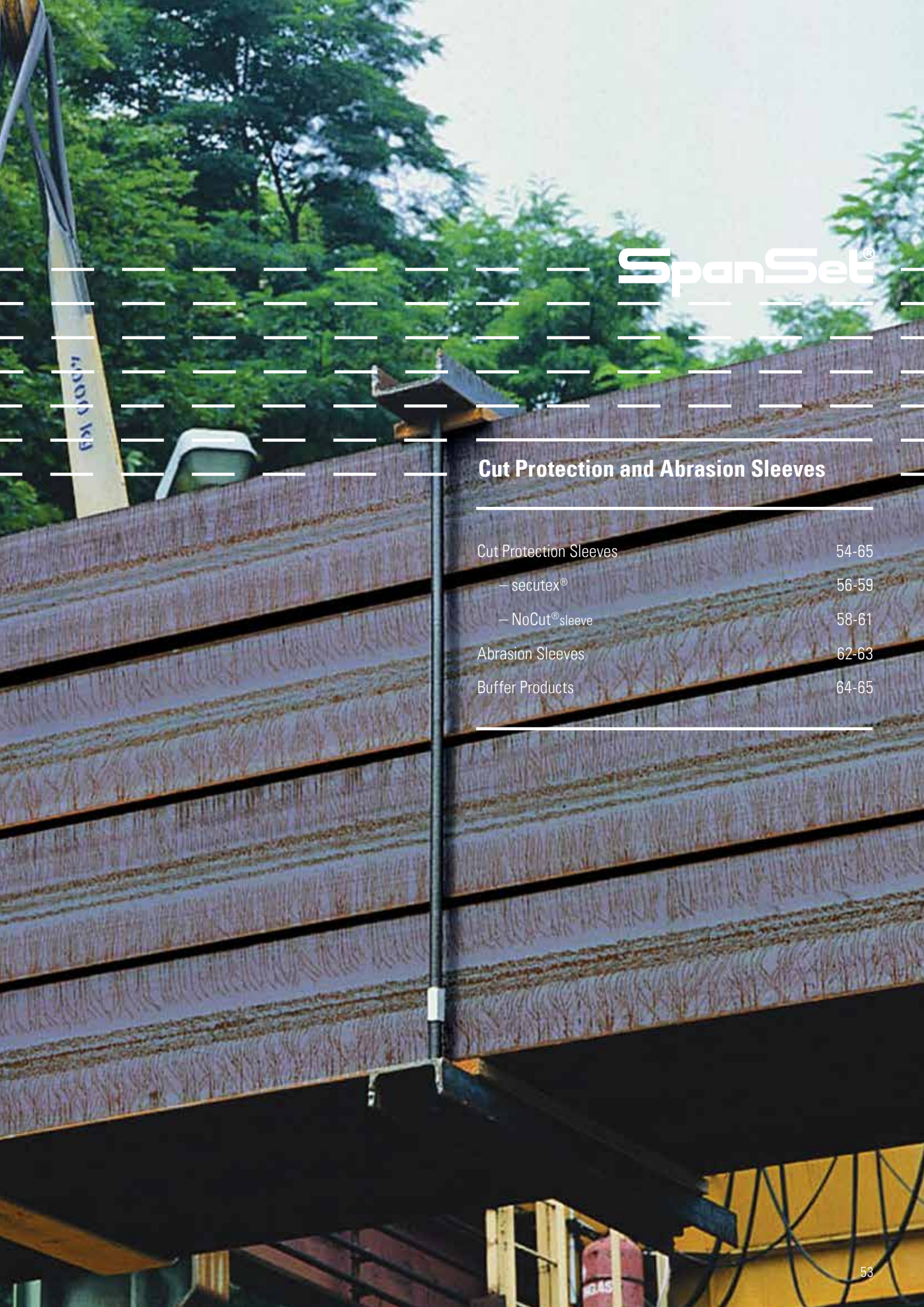


Cut Protection and Abrasion Sleeves

02.4 CUT PROTECTION AND ABRASION SLEEVES

Cut Protection Sleeves
– secutex®
– NoCut®sleeve
Abrasion Sleeves
Buffer Products

secutex®

Secutex Sleeves

Secutex has been perfectly formulated with the optimum balance between flexibility, elasticity and toughness to protect synthetic slings from sharp edges and abrasion.

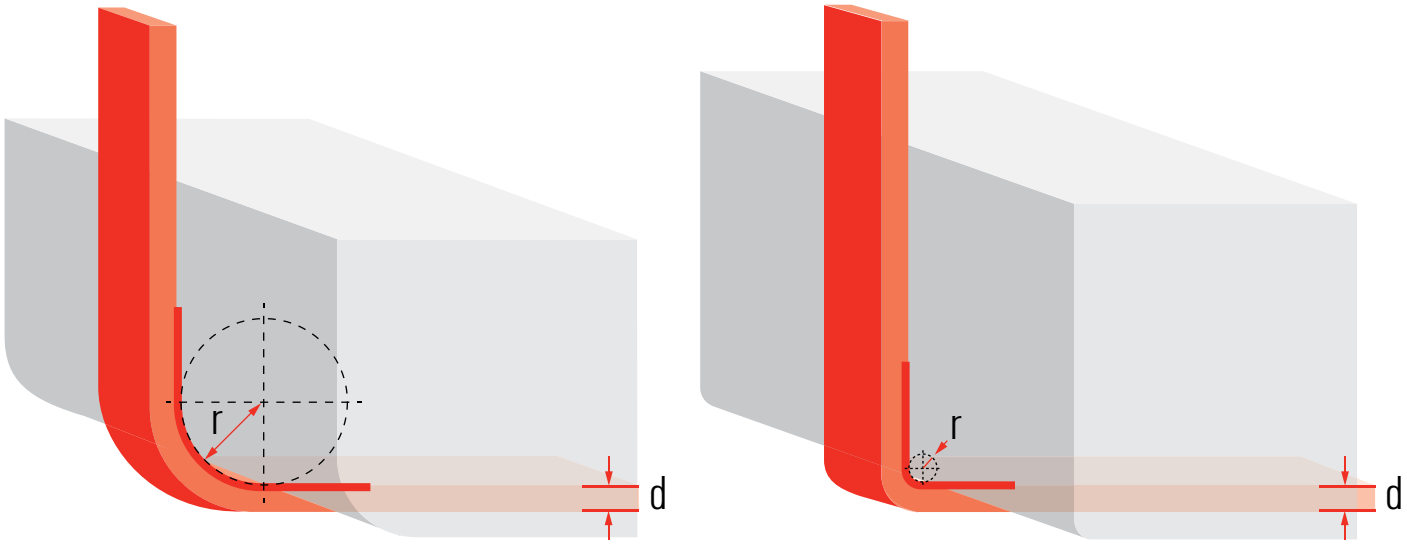
The sleeve grips the edge of the load, allowing the sling to move within the Secutex to self centre and adjust to the centre of gravity. This feature also allows the rotation of sharp objects, such as steel coils, without damage to the sling or products.

Sharp Edges

Slings attached directly around loads or structures. These can potentially move or slide when adjusting to the centre of gravity and as such represent the greatest risk and therefore demand higher radius criteria than attachment fittings.

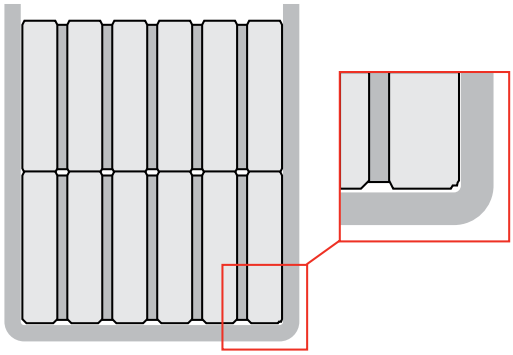
What is a sharp edge?

If the radius (r) of the edge of the load is less than 3 times the compressed thickness (d) of the sling (AS4497).

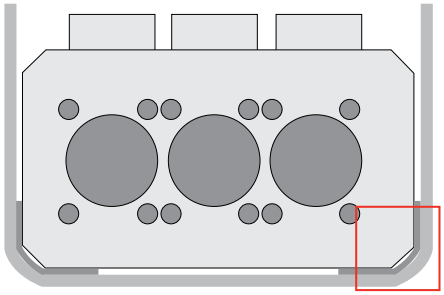


secutex®

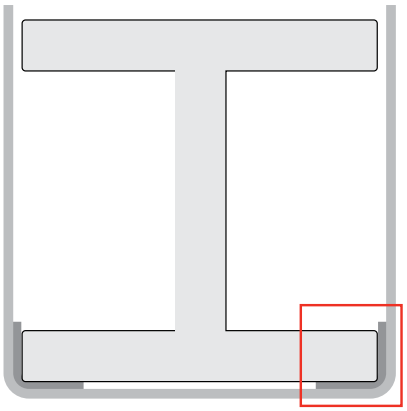
Sharp edges can take many forms and are not limited to an obvious razor sharp profile, these may also include:



Objects with rough corners and edges such as rusted steel or scrap etc



Objects with machined edges such as dies and tools etc

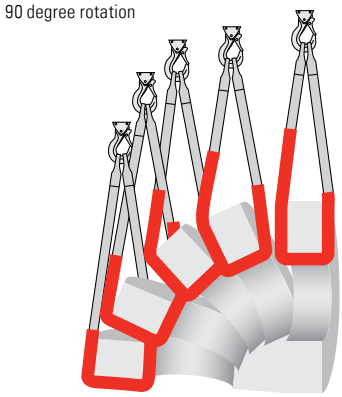


Objects with rolled edges but not of sufficient diameter such as steel beams etc

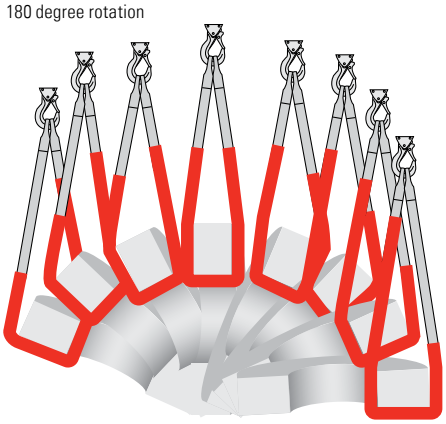
Rotating Objects

The sling physically moves through the sleeve as the load rotates because the sleeve grips the load, allowing the free movement of the sling.

90 degree rotation



180 degree rotation



02.4 CUT PROTECTION AND ABRASION SLEEVES

Cut Protection Sleeves
- **– secutex®**
- – NoCut®sleeve

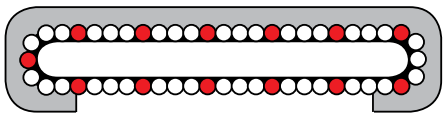
Abrasion Sleeves

Buffer Products

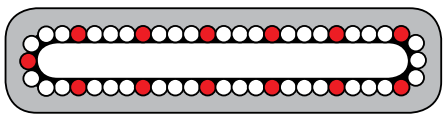
secutex®

secutex® is the market leader in coated lifting slings and protective sleeves, and secutex® products are used world-wide. With creativity and know-how, the range of possible applications is steadily growing. Because of their variety, secutex® products represent the economically and technically optimum solution again and again. Continuous and intensive production surveillance guarantees extraordinary product quality.

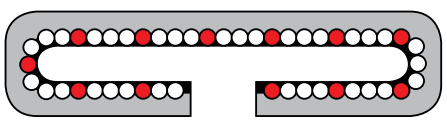
- Extreme cut-resistance
- Wear and abrasion resistance
- Smooth goods handling
- Lightweight for excellent handling
- Optimum work safety.



secutex® SF-1



secutex® SF-2



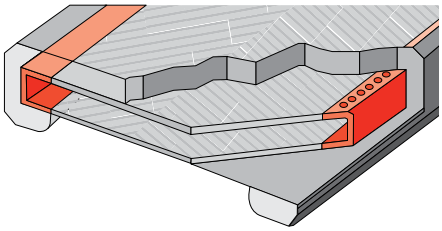
secutex® Clip-SC

Single Sided secutex®

- Fully encapsulates the sling with a hard wearing, flexible cut resistant surface on one side
- Difficult to retrofit
- Suitable for type 3 sleeve configuration.

Protective Sleeve SF-1 for Supra Plus, Magnum and Magnum Force Roundsling

Code	Internal Width (mm)	Height (mm)	Weight per running metre (kg)
SF1-50	70	22	0.9
SF1-75	95	22	1.3
SF1-100	120	22	1.5
SF1-150	170	22	2.1
SF1-200	220	35	2.7
SF1-250	270	35	3.2
SF1-300	325	35	4.0

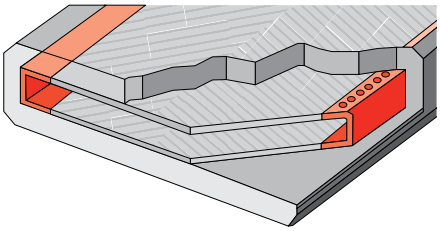


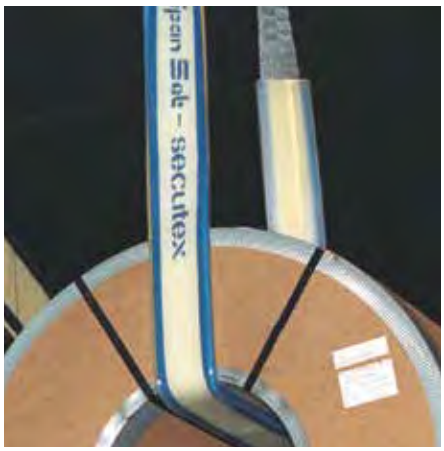
Double Sided secutex®

- Fully encapsulates the sling with a hard wearing, flexible cut resistant surface on both sides.
- Difficult to retrofit
- Suitable for type 3 sleeve configuration.

Protective Sleeve SF-2 for Supra Plus, Magnum and Magnum Force Roundsling

Code	Internal Width (mm)	Height (mm)	Weight per running metre (kg)
SF2-50	70	22	1.2
SF2-75	95	22	1.8
SF2-100	120	22	2.1
SF2-150	170	22	3.0
SF2-200	220	35	3.3
SF2-250	270	40	4.2
SF2-300	300	45	6.0



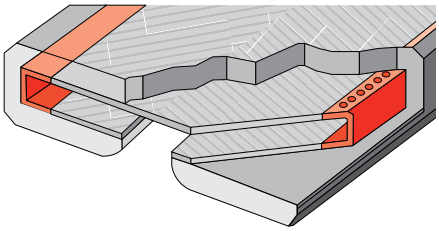


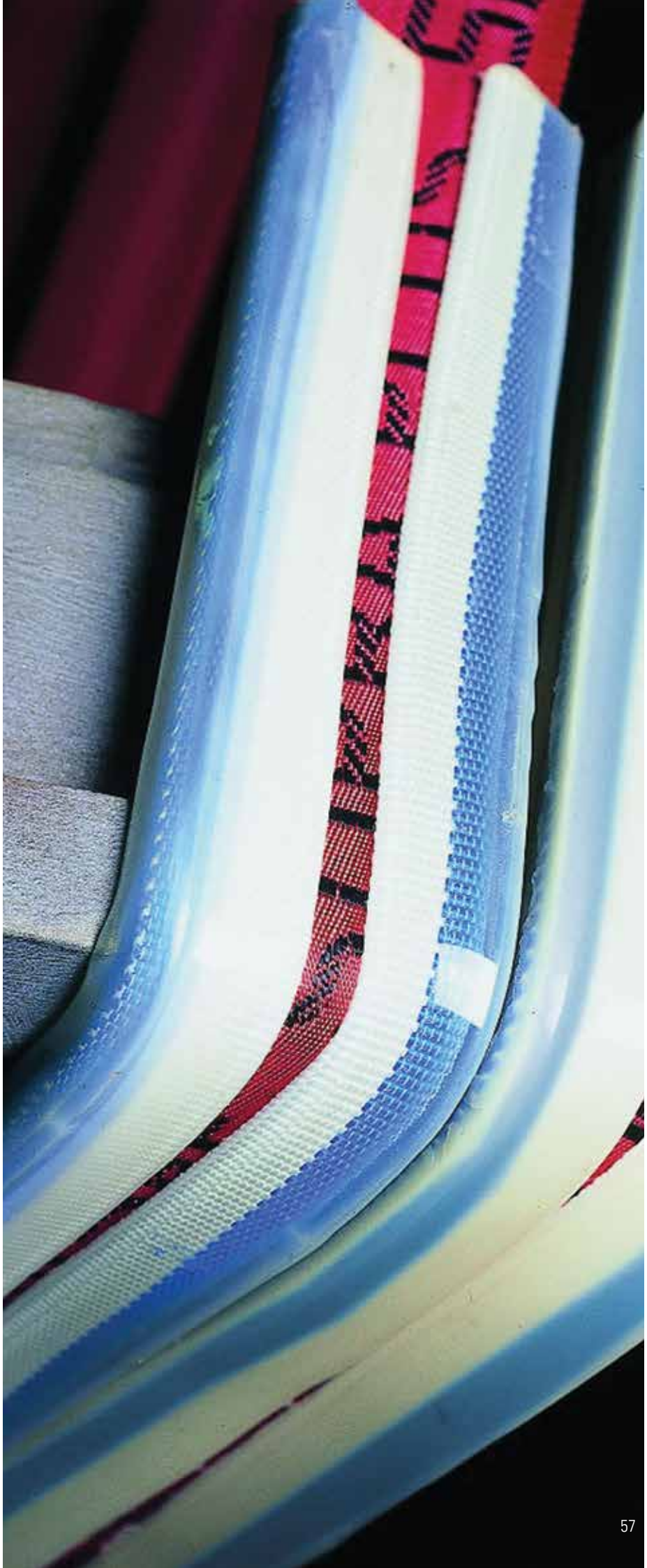
Clip-On secutex®

- Clips on to the sling with a hard wearing, flexible cut resistant surface on one side
- Easy to retrofit
- Suitable for type 3 & 5 sleeve configurations.

Protective Sleeve SC for Supra Plus, Magnum and Magnum Force Roundsling

Code	Internal Width (mm)	Height (mm)	Weight per running metre (kg)
SC-50	70	22	1.1
SC-75	95	22	1.6
SC-100	120	22	1.8
SC-150	170	22	2.6
SC-200	220	35	3.3
SC-250	270	40	4.2
SC-300	300	45	6.0





02.4 CUT PROTECTION AND ABRASION SLEEVES

Cut Protection Sleeves
– secutex®
– NoCut®sleeve
Abrasion Sleeves
Buffer Products

NoCut®sleeve High-tech Cut Resistant Sleeves

Do You Recognise This?

Handling sharp edged metal sheets, for instance, Is often improvised and an insufficient solution is found: A pile of gloves or cardboard is used quite often as edge protection. This is against statutory regulations and can cause fatal accidents. Therefore protect your lifting gear with edge protection, which has been especially developed for sharp edges. Increase the service life of your lifting gear and improve your employees' safety.

SpanSet offers a solution with high performance edge protection from its selection of NoCut® products. NoCut®sleeve is a woven, protective, high performance sleeve for round slings and lifting belts, which is characterised by particularly high cut and abrasion resistance.

It goes without saying that NoCut® has been fitted according to the various widths of SpanSet lifting belts and round slings. Therefore NoCut® is best suited for the protection of textile lifting gear such as lifting belts and round slings, especially preventing damage caused by sharp edges when lifting heavy loads.

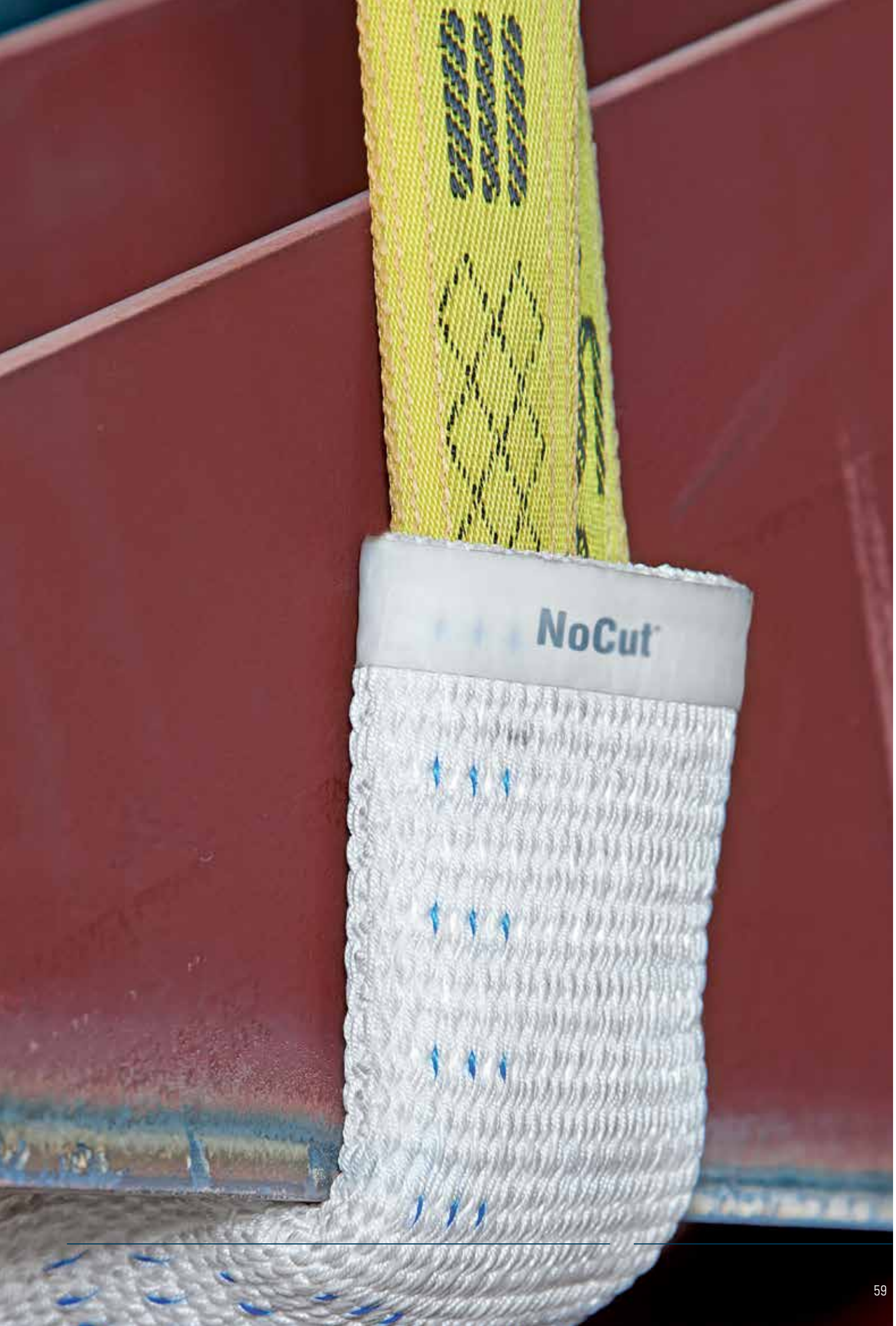
For More Safety

A special test system was designed and built for the development of NoCut®, which ascertains the cut resistance of a protective sleeve in realistic situations whereby the effect of a cut is loaded with a nominal load. This has determined the protective effect of NoCut®sleeve on edges with differing sharpness. Definite findings, which answer all application questions!

Its suppleness and minimal weight, compared to conventional products for cut protection, makes it easy to handle in many forms of application and ensures that time is saved when attaching.

NoCut®sleeve is woven from HMPE1 high performance fibres and offers the best protection for your textile lifting gear against cuts made by sharp edged loads. Rotating and turning loads is also no problem for NoCut®sleeve, and the special rib structure of the sleeve design makes it easier for the lifting gear to slide inside the sleeve. NoCut®sleeve protects the lifting gear even when a relative cutting motion takes place, which can occur when a load is raised. Such relative movements between load and edge protection are permissible in the case of edge radii of more than 1mm, as long as they do not exceed the usual setting characteristics by more than a few centimetres when raising a load. If SpanSet prepares the lifting process in collaboration with technical engineers in such a way that the edge protection and the load do not shift when raised, then cut protection is even ensured for radii of under 1mm.

The NoCut®sleeve is supplied ready-to-use with trimmed cut edges. Protective sleeves are offered with lengths of 250mm sections and widths of 30mm to 300mm as standard.


NoCut

02.4 CUT PROTECTION AND ABRASION SLEEVES

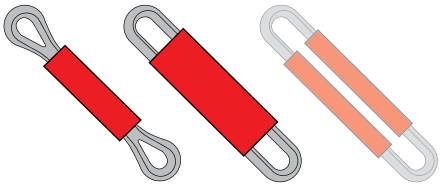
Cut Protection Sleeves
- secutex®
- **NoCut®sleeve**

Abrasion Sleeves
Buffer Products

NoCut®sleeve High-tech Cut Resistant Sleeves

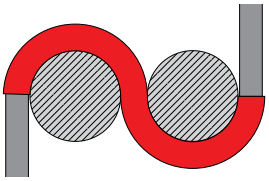
NoCut® Sleeves Technical Information

Circa Sleeve Inner Width (mm)	Circa Sleeve Width (mm)	Circa Sleeve Height (mm)	Compatible With Flatslings	Compatible With Roundslings
45	55	13	B1000	
75	85	13	B2000	SpanSet 1000, 2000
105	115	13	B3000	SpanSet 3000 SupraPlus 3000 Magnum Force 10000



The two types on the left are available. The type on the right is available on request.

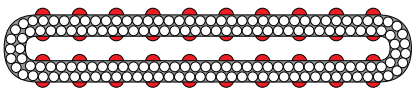
Textile protection against cuts with minimal net weight.



Supple and flexible design.

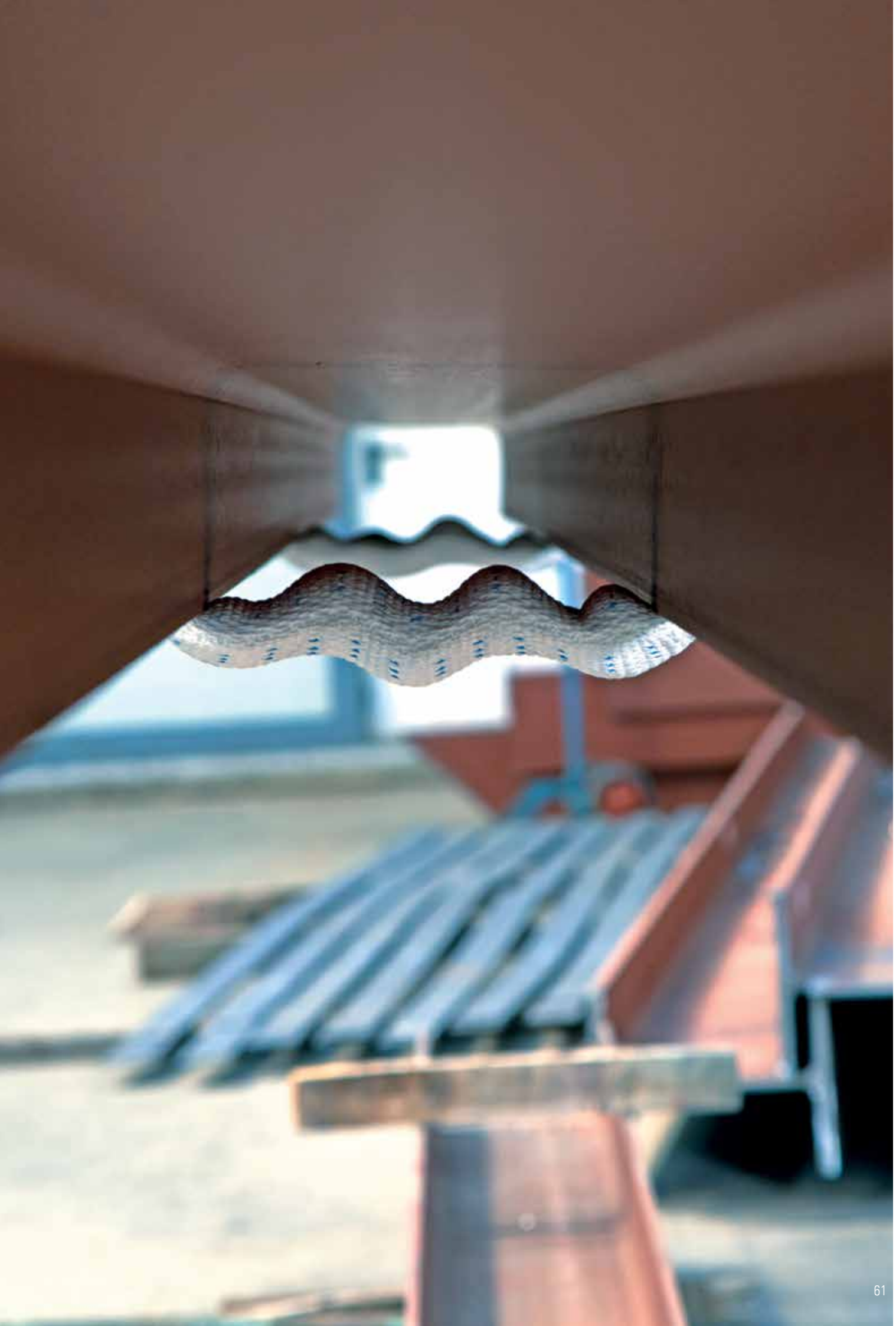
Usable on both sides. Slides along its entire length.

Tested protection against cuts.



Unique rib structure.

Right: NoCut®sleeve is not tensed when loaded – you can see this by the way it gathers. This avoids premature wear and tear.



02.4 CUT PROTECTION AND ABRASION SLEEVES

Cut Protection Sleeves
- secutex®
- NoCut®sleeve

Abrasion Sleeves
Buffer Products

Abrasion Sleeves

SpanSet protective sleeves are designed to lengthen the life of flat webbing and round slings.

They protect against abrasion and dirt ingress and are generally permanently attached to the sling, though some are removable.

They are not for protection against sharp edges, in which case secutex® sleeving must be used.

Hi-Tech Webbing Sleeves
Heavy duty sling webbing is used for high abrasion applications.

Kooper Sleeving
Light weight with a smooth abrasion resistant surface.

Lay Flat Hose
Light weight PVC moisture resistant hose.

Hi-Tech Webbing Sleeves

Kooper Sleeving

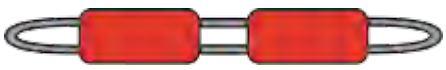
Lay Flat Hose

Sleeve Configurations

Type 1 – Flat sling

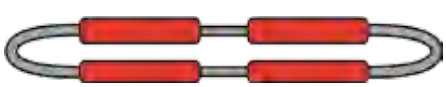
Type 2 – Flat sling

Type 3 – Over double leg round sling



Type 4 – Round sling

Type 5 – On single leg round sling



Type 6 – Round sling

02.4 CUT PROTECTION AND ABRASION SLEEVES

secutex® Buffer

secutex® Buffer

Using variations of the patented secutex® formula, Buffer products offer many cost saving advantages to everyday situations. They offer additional grip when handling objects as well as limiting the damage to the product when doing so.

Brick and Tile Grippers

These have proven to be of enormous benefit to the brick and tile industry thanks to the soft yet durable buffer pads used on the grippers. Traditionally these grippers have been faced with rubber which was glued on. The secutex® Buffer pads have a steel mesh backing which can be drilled and bolted to the tynes, making replacement much faster. The Buffer has been known to last for over two years in continuous service, saving downtime and damage to the products.

Buffer Pads

Fork Shoes

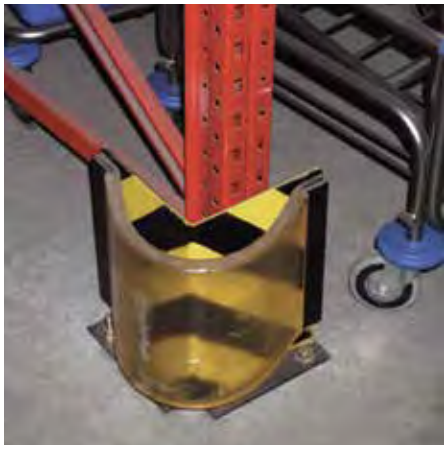
Buffer Pads

Fork Shoes

Tile Grippers

Brick Grippers

C Hook Liners



Fork Shoes

When transporting steel pallets or coils there is a real hazard of the load sliding off the forks if there is sudden braking or an evasive manouvre.

The tough secutex® fork coating allows the steel object to dig in and add much needed friction for a slip resistant performance.

Contoured profiles, such as those used for carrying coils, eliminate any damage to the product previously cause by the metal to metal contact.

C Hook Liners

Ideal for lifting coils and steel objects, with the added safety of slip resistance and the cost benefits of less damaged product.

C Hook Liners

02.5

Engineered Lifting Solutions

Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks

Exoset Swivel Eye Bolt

Exoset Lifting Points

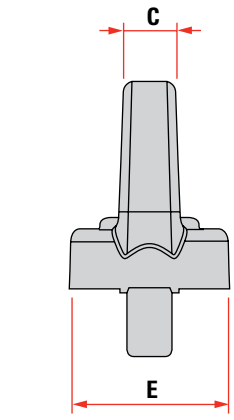
- Half a century experience in handling loads in total safety
- 24 months warranty
- Suitable for lifting and load control
- WLL visible in any working condition: marked on all pieces, printed label with product information securely connected to the lifting point
- User manual connected to product upon delivery
- EN 1677- 4 conformity
- CE conformity
- Self positioning under load with a minimum 4 :1 safety factor in all directions
- A perfect combination for lifting with textile slings using Joker hooks
- Made in Europe.

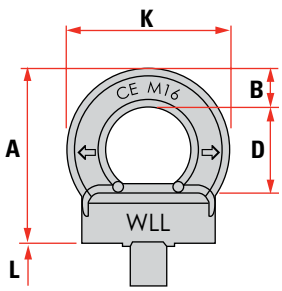
Grade 100

- Rotates through 360°
- Self-aligning to load direction
- Minimum safety factor of 4:1 in any direction
- Hand tighten by hex key for single lifts
- Safe in every direction.

Code	0°	0°	90°	90°	0–45°	45–60°	0–45°	45–60°
CHKPSP-P101A1	1.0	2.0	0.4	0.8	0.56	0.4	0.84	0.6
CHKPSP-P102A1	1.0	2.0	0.4	0.8	0.56	0.4	0.84	0.6
CHKPSP-P103A1	2.0	4.0	0.75	1.5	1.0	0.75	1.6	1.12
CHKPSP-P104A1	4.0	8.0	1.5	3.0	2.0	1.5	3.15	2.25
CHKPSP-P105A1	6.0	12.0	2.3	4.6	3.22	2.3	4.83	3.45
CHKPSP-P106A1	8.0	16.0	3.2	6.4	4.48	3.2	6.7	4.8
CHKPSP-P107A1	12.0	24.0	4.5	9.0	6.3	4.5	9.4	6.7
CHKPSP-P108A1	16.0	32.0	7.0	14.0	9.8	7.0	14.7	10.5
CHKPSP-P109A1	24.0	48.0	9.0	18.0	12.6	9.0	18.9	13.5
CHKPSP-P110A1	32.0	64.0	12.0	24.0	16.8	12.0	25.2	18.0

Code	M	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	K (mm)	L (mm)	kg
CHKPSP-P101A1	M8	52.5	8	10	29	32	45	15	0.30
CHKPSP-P102A1	M10	52.5	8	10	29	32	45	15	0.30
CHKPSP-P103A1	M12	64.5	11	11	34	44	56	18	0.46
CHKPSP-P104A1	M16	72.5	13	14.5	39	56	65	24	0.90
CHKPSP-P105A1	M20	81	14	17	42	58	70	30	1.15
CHKPSP-P106A1	M24	98	18	19	52	73	88	36	2.05
CHKPSP-P107A1	M30	123	22	27	62	80	103	45	4.00
CHKPSP-P108A1	M36	162	37	38	80	95	154	54	6.70
CHKPSP-P109A1	M42	188	40	41	90	105	170	63	9.50
CHKPSP-P110A1	M48	210	45	47	95	120	185	72	13.40


C
E


K
B
A
D
CE M16
WLL
L

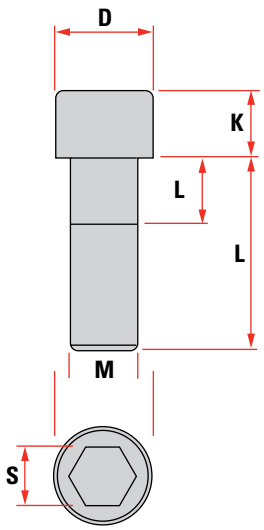
Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks

Exoset Swivel Eye Bolt

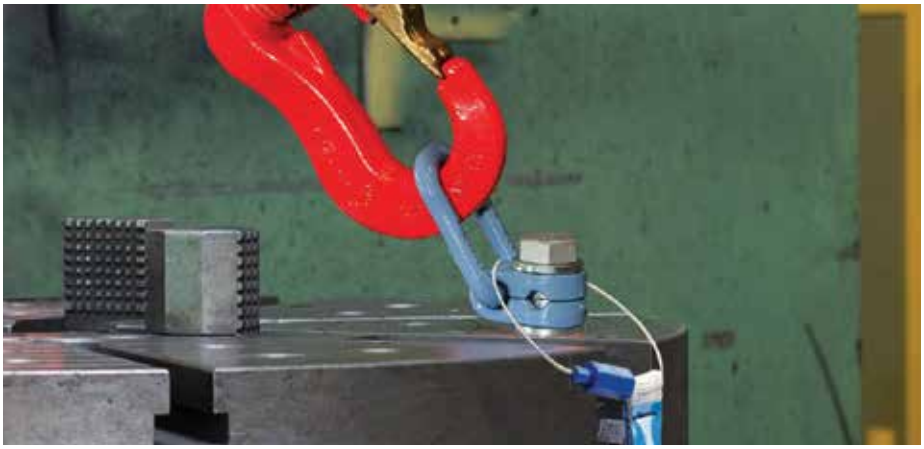
Grade 100

- Rotates through 360°
- Self-aligning to load direction
- Minimum safety factor of 4:1 in any direction
- Hand tighten by hex key for single lifts.

Code	M	D	K	S	L (mm)
CHKPSL-P101A1	M8	13	8	6	25 30 40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160
CHKPSL-P102A1	M10	16	10	8	30 40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 180
CHKPSL-P103A1	M12	18	12	10	30 40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 180
CHKPSL-P104A1	M16	24	16	14	40 45 50 55 60 65 70 75 80 85 90 100 110 120 130 140 150 160 180 200 220 240
CHKPSL-P105A1	M20	30	20	17	45 50 55 060 65 70 75 80 85 90 100 110 120 130 140 160 180 200 220 240
CHKPSL-P106A1	M24	36	24	19	50 55 60 65 70 75 80 85 90 100 110 120 130 140 160 180 200 220 240
CHKPSL-P107A1	M30	45	30	22	60 65 70 75 80 85 90 100 110 120 130 140 160 180 200 220 240


D
K
L
L
M
S

Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks



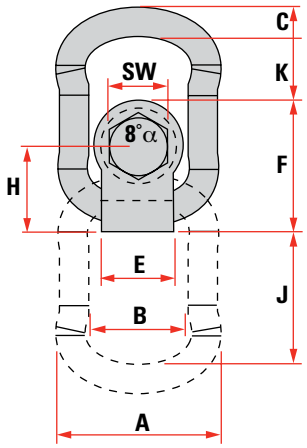
Swivel Lifting Point with Offset Ring

Grade 100

- Rotates through 360°
- Self-aligning to load direction
- Minimum safety factor of 4:1 in any direction
- Hand tighten by hex key for single lifts.

Code	0°	0°	90°	90°	0–45°	45–60°	0–45°	45–60°
CHKPSR-P101A1	0.30	0.60	0.30	0.60	0.42	0.30	0.63	0.45
CHKPSR-P102A1	0.63	1.26	0.63	1.26	0.88	0.63	1.32	0.95
CHKPSR-P103A1	1.0	2.0	1.0	2.0	1.4	1.0	2.1	1.5
CHKPSR-P104A1	1.5	3.0	1.5	3.0	2.1	1.5	3.15	2.25
CHKPSR-P105A1	2.5	5.0	2.5	5.0	3.5	2.5	5.25	3.75
CHKPSR-P106A1	4.0	8.0	4.0	8.0	5.6	4.0	8.4	6.0
CHKPSR-P107A1	4.0	8.0	4.0	8.0	5.6	4.0	8.4	6.0
CHKPSR-P108A1	5.0	10.0	5.0	10.0	7.0	5.0	10.5	7.5
CHKPSR-P109A1	7.0	14.0	7.0	14.0	9.8	7.0	14.7	10.4
CHKPSR-P110A1	8.0	16.0	8.0	16.0	11.2	8.0	13.8	12.0
CHKPSR-P111A1	10.0	20.0	10.0	20.0	14.0	10.0	21.0	15.0
CHKPSR-P112A1	15.0	30.0	15.0	30.0	21.0	15.0	31.5	22.5
CHKPSR-P113A1	20.0	40.0	20.0	40.0	28.0	20.0	42.0	30.0

Code	M	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	K (mm)	L (mm)	W (mm)	J (mm)	SW (mm)	kg
CHKPSR-P101A1	M8	57	34	10	78	24	41	30	26.5	35	11	43	51	13	0.275
CHKPSR-P102A1	M10	57	34	10	78	24	41	30	26.5	35	16	42	51	17	0.29
CHKPSR-P103A1	M12	66	38	13.5	85	30	50	36	33	28	21	40	52	19	0.50
CHKPSR-P104A1	M16	66	38	13.5	85	30	50	36	33	28	24	38	52	24	0.51
CHKPSR-P105A1	M20	87	55	16	111	48	68	43	42.5	36	32	54	71	30	1.25
CHKPSR-P106A1	M24	87	55	16	111	48	68	13	42.5	36	37	51	71	36	1..30
CHKPSR-P107A1	M27	109	66	22.5	154	54	91	61	58.5	47	39	64	86	41	3.15
CHKPSR-P108A1	M30	109	66	22.5	154	54	91	61	58.5	47	39	62	86	46	3.25
CHKPSR-P109A1	M36	109	66	22.5	154	54	91	56	58.5	43	48	60	86	55	3.30
CHKPSR-P110A1	M36	136	78	28	190	62	108	83	72.5	74	58	88	115	55	5.90
CHKPSR-P111A1	M42	136	78	28	190	62	108	73	72.5	70	73	86	115	65	6.50
CHKPSR-P112A1	M42	169	97	36	242	68	131	87	87.5	97	63	121	151	65	11.20
CHKPSR-P113A1	M42	97	97	36	242	68	131	87	87.5	93	73	117	151	75	11.60


C
SW
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8°
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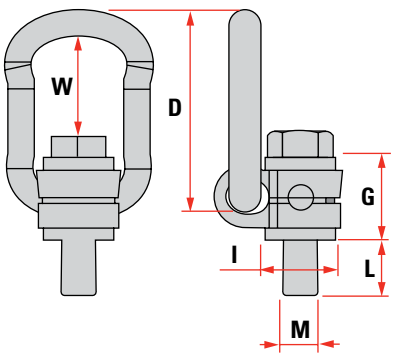

W
D
G
I
L
M

Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks

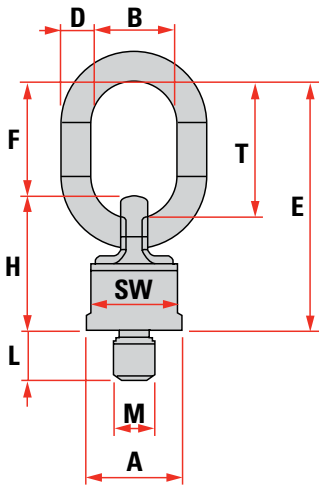
Swivel Eye-Bolt with Ball Bearings

Grade 100

- Rotates through 360°
- Self-aligning to load direction
- Minimum safety factor of 4:1 in any direction
- Hand tighten by hex key for single lifts.

Code	0°	0°	90°	90°	0–45°	45–60°	0–45°	45–60°
CHKPSS-P205A1	0.90	1.80	0.45	0.90	0.63	0.45	0.95	0.67
CHKPSS-P206A1	1.2	2.4	0.60	1.20	0.85	0.60	1.25	1.90
CHKPSS-P101A1	2.80	5.60	1.40	2.80	2.00	1.40	3.00	2.10
CHKPSS-P102A1	5.00	10.00	2.50	5.00	3.55	2.50	5.30	3.75
CHKPSS-P103A1	8.00	16.00	4.00	8.00	5.60	4.00	8.00	6.00
CHKPSS-P207A1	10.00	20.00	5.30	10.60	7.50	5.30	11.20	8.00
CHKPSS-P104A1	13.40	26.80	6.70	13.40	9.50	6.70	14.00	10.00
CHKPSS-P208A1	18.00	36.00	10.00	20.00	14.00	10.00	21.20	15.00
CHKPSS-P209A1	20.00	40.00	12.50	25.00	17.50	12.50	26.50	18.80
CHKPSS-P210A1	25.00	50.00	15.00	30.00	12.20	15.00	31.50	22.40

Code	M	L (mm)	E (mm)	F (mm)	D (mm)	T (mm)	B (mm)	A (mm)	SW (mm)	H (mm)	kg (mm)
CHKPSS-P205A1	M10	15	101	46.5	13	55	33	39	36	54.5	0.50
CHKPSS-P206A1	M12	18	101	46.5	13.55	33	.39	36	45.5	54.5	0.50
CHKPSS-P101A1	M16	20	105	46	13	54	30	38	30	50	0.50
CHKPSS-P102A1	M20	30	131	57	16	58	34	50	40	61	1.00
CHKPSS-P103A1	M24	30	153	70	19	80	40	58	48	68	1.60
CHKPSS-P207A1	M30	40	170.5	83	22	100	50	73	65	87.5	2.70
CHKPSS-P104A1	M36	54	165	65	20	85	40	75	65	80	2.20
CHKPSS-P208A1	M42	60	244	116	32	140	70	106	95	128	8.30
CHKPSS-P209A1	M48	68	244	116	32	140	70	106	95	128	8.60
CHKPSS-P210A1	M56	68	244	116	32	140	70	106	95	128	9.10


D
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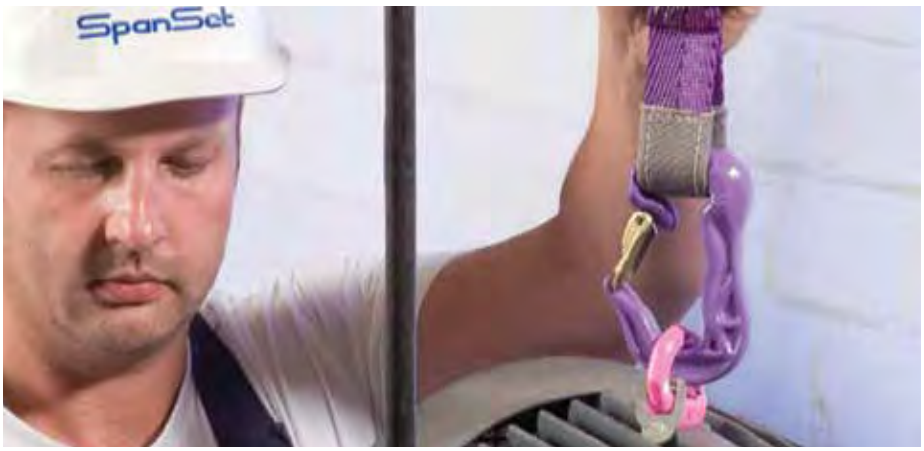
EXOSET
XO-Ring



Joker Hooks

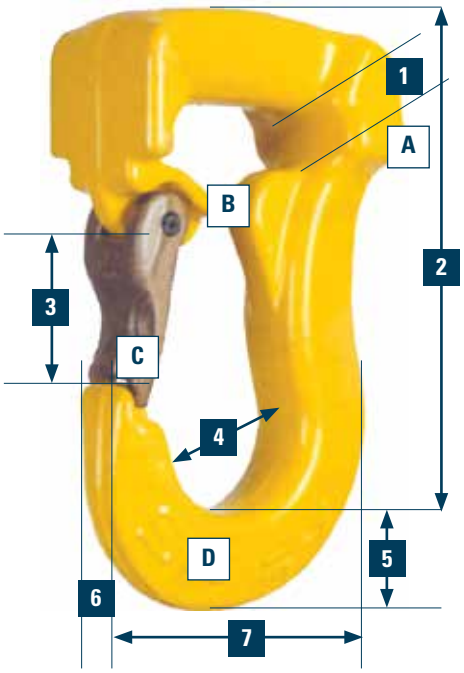
Joker Hooks are the ideal complement to your round and flat slings. After all, they are all-rounders: They can either be used to extend the length of slinging gear or as terminal hooks which guarantee a secure connection at anchor points. Combined with one or more roundslings, multi-leg suspension gear can be created on the spot.

Joker Hooks have been designed so that their characteristics make them ideally suited to combine with textile slinging gear. The objective: easy to handle and reliable in use. Intelligent details such as the specially shaped tip of the hook make it easier to insert in fixed lifting points. The raised side cheeks on the hook guide the textile lifting gear as if in a groove. This prevents abrasion on the edges.

The special quality steel (8 Plus) is forged and thus particularly robust. The construction of the Joker Hook according to the Skeletto principle saves weight on the 1, 2 and 3t Jokers and makes for easy handling. And in order to exclude any errors, the hooks are painted the same colour as the textile slings with the same lifting capacity. This way, you can identify the right hook for your use at a glance.

Part	WLL (kg)	1 (mm)	2 (mm)	3 (mm)	4 (mm)	5 (mm)	6 (mm)	7 (mm)	kg
ASH 1t	1000	30	110	29	32	20	15	73	0.6
ASH 2t	2000	38	143	34	42	26	21	93	1.6
ASH 3t	3000	46	151	34	50	32	26	111	2.2
ASH 4t	4000	55	180	49	60	35	31	130	3.2
ASH 5t	5000	55	180	49	60	35	31	130	3.3
ASH 6t	6000	–	180	49	60	35	55	130	3.3

ASH 1t | ASH 2t | ASH 3t | ASH 4t | ASH 5t | ASH 6t



A Enlarged shoulder areas to protect slings from chaffing

B Throat opening to accept roundslings and webslings

C Forged hook and safety catch

D Colour coded to the lifting sling

02.5 ENGINEERED LIFTING SOLUTIONS

Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks

Axzion Lifting Solutions

As part of the SpanSet group, Axzion have heavy engineering capabilities to tackle the most technical of lifting tasks. This capability is fully supported by the ability to proof test up to 600T on a purpose built test rig designed for spreader beams and associated equipment.

From selected grades of steel, to welding consistency and standards adherence, customers can be assured of the safety and quality of any product carrying the Axzion brand.

Intelligent Load-Carrying Equipment

The correct guidance is always a question of one's own capabilities. As the manufacturer, we are always able to find the best solution for you. This is true from both a price and a solution-orientated point of view. The fact that approximately 84% of the solutions we provide are modified or entirely individual solutions speaks volumes.

Only every sixth piece of load-carrying equipment that leaves our factory is a standard solution.

Who is Responsible?

The manufacturer is the one who is responsible for the development and production of a product which enters the market bearing its name. As the operators construct and assemble load-carrying equipment, they themselves become the manufacturer.

Insufficient attention is often paid to the risks and liabilities involved in the lifting and moving of heavy loads – sometimes with dramatic consequences for those responsible and for those affected. Even the selection of an inappropriate manufacturer may result in personal liability for the group of people responsible. We bear the responsibility for you. You are dealing with a company which always works in accordance with regulations.

Starting with the Major Proof of Suitability for Welding according to DIN 18800 and DIN 15018 for static and dynamic load-bearing structures and extending to the material inspection certificate EN 10 204/3.1, not to mention the test report, operating instructions and CE declaration according to the new machine directive 2006/42/EC.

Standard or Individual Solution – We Give You the Correct Advice

Because we carry out our own construction and assembly, Axzion-GKS possesses a variety of individual construction elements which form a construction kit which can be assembled as needed to create a comprehensive solution. Our strength lies in the fact that we are able to create custom-built machinery within short delivery times. We find the correct solution for you, whether it is an affordable standard construction or a custom solution.

Materials from renowned manufacturers:

– A safe and good solution can only be created using good ingredients. We have worked with the best manufacturers for many years; for example, the tested blasted steels are sourced from Thyssen and Arcelor.

– The chain construction components come from the RUD Chain Factory in Aalen and the shackles are from van Beest. Forged crane hooks and suspension lugs are delivered by Stahlhammer Bommern and the Peter Schöttler drop forge in Hagen.

– The textile lifting accessories such as trusses and round slings of course come from our parent company SpanSet in Übach-Palenberg.

We Provide Everything You Need

We have our own electrical engineers and hydraulics specialists who are very experienced in the field of materials handling. This is the only way to deliver innovative individual solutions and ensure quick service.

Axzion Specialist Products For Industry

- Rotator lifting beams
- Spreader bars
- Coil hooks
- Grippers
- Tongs
- Fork attachments.

02.5 ENGINEERED LIFTING SOLUTIONS

Exoset
Joker Hooks
Axzion
– TAPs
– J Hooks

Axzion Wind Energy Products

No Room For Experiments

We can provide you with the right quality of equipment for each and every one of your applications. Whether you require something strong and sturdy, something extremely compact or simply our standard solutions for one-way transport, we can supply you with every single variant. The SpanSet Group is always ready for any field of application and, no less importantly, our insurance cover is valid worldwide.

Quicker Assembly, Even Under Difficult Conditions

Time is money, and the assembly of wind turbines has a significant impact on costs. Lifting problems are often misdiagnosed and intelligent solutions are often overlooked, meaning that valuable opportunities are missed. We know our stuff; our SpanSet lifting specialists have already developed a large number of smart, time-saving solutions for some well-known manufacturers of wind turbines.

We are particularly proud of the following examples:

- **Lifting-beam assemblies:** with adjustable suspension equipment for nacelles and gearboxes, even when loaded (can also be angled when loaded).
- **Variobeam modular beams:** for assembling individual rotor blades in the ground position
- **Automated hooks:** electrical or mechanical with cable-release or remote-control functions
- **TAP (Tower Attachment Points):** the specially designed attachment point for segments of the turbine tower. Maximum weight of 100 tonnes, can be adjusted between the diameters 2.5 and 4.2 metres
- **Rotor lifting equipment:** pivotable, with adjustable suspension equipment, even when loaded (can also be angled when loaded).

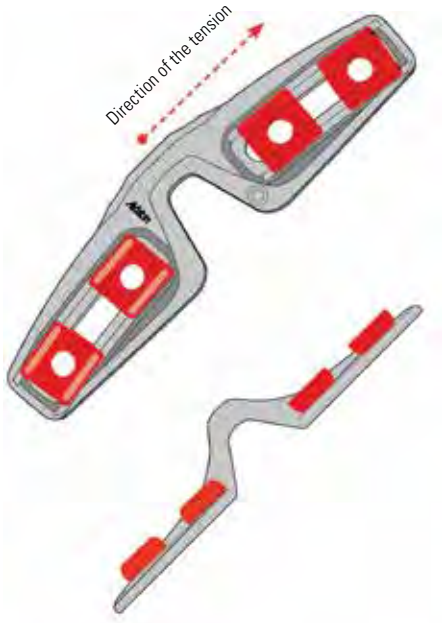
TAPs

- Proven, high-strength
- Load-carrying capacity up to 125 tonnes
- Tower segment up to 100 tonnes
- Hole diameter from 2.3m
- Single TAP WLL 25 tonnes
- Deadweight 30kg.

Tap - The New Attachment Point for Tower Segments

Higher performance installations offshore use ever heavier tower segments for wind turbines.

The lifting brackets developed in the past are no longer strong enough; the usual three attachment screws are no longer enough to ensure lifting capacity. Limit plates with four or more single pressure-tap holes must be additionally fitted to each flange, and these heavy construction solutions can only be handled with the aid of a crane.

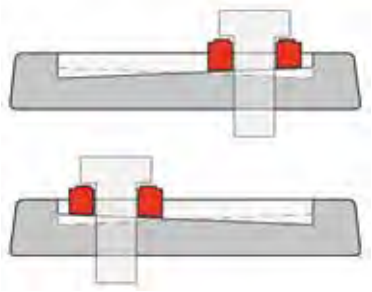


The Tower Attachment Point (TAP) was redeveloped for tower segments of up to 100 tonnes with the common bolt pitches from 2.5 – 4.2m flange diameter.

Each individual TAP bracket has a load capacity of 25 tonnes at a maximum acceptable angle of 30° to the lifting device. The TAP brackets are drop-forged and are made of high-quality heat-treated steel. Because of the high-tensile material the brackets weigh a maximum of 30kg and two people can easily rig them by hand.

On the load side, a standard high-tensile shackle with a 25 tonne nominal rating can be threaded into the TAP bracket, making the connection to the usual round slings or wire ropes as simple as possible. The securing of the load has also been considered: multiple lashing hooks can be attached to the TAP bracket simultaneously.

On the tower side, the Tower Attachment Point, (TAP) is mounted using 2 x 2 screws with an 8.8 rating of sizes M36, M42 to a maximum of M48.



Lateral tension increases the contact pressure. Sideways slipping is no longer an issue.

Both long holes are slightly curved to match the radius of the tower (patent pending), allowing mounting to almost any tower segment with a diameter between a maximum of 4.2m and a minimum of 2.5m.

As any technician knows, two long holes in the same direction do not work as the fitting could suddenly slip under a full load. This is where the second patent from GKS-Axzion's development group comes into effect: each long hole has two bevels alongside it which run in opposite directions. The screws are attached to these bevels by means of wedge-shaped tapered base plates. Under lateral tension the load on the screw is increased in the direction of the tension, the contact pressure increases and lateral movement becomes impossible.

Safety is a Priority For Us

Safety is naturally very important. On our test stand, the forged TAP brackets were tested to 125 tonnes, five times their rated load capacity. The requirements of EN 13155 "Lifting Devices" are therefore exceeded. This proven 5:1 safety factor even permits use in the United States. In addition to the brackets mounting with screws from M36, 8.8 has also been fully tested.

J Hooks

Lift and Turn with the Newly Developed J-Shaped Hook

The J-Hook is simply attached to the flange of the tower segment and the tower segment can then be lifted. During the turning process, the robust stop device hooks behind the flange, and all contact surfaces are equipped with the robust secutex impact protection (PUR). The J-Hook securely "rolls" into the top position of the pipe segment. The hook has two rounded teeth with rotating embedded secutex pipe modules for this purpose.

Significant time-saving: After the lifting / turning process, the J-Hook can be easily removed, using gravity by lowering it with a crane. Time-consuming assembly work is not required. In contrast, securely fastened suspension points need to be disassembled after the turning process, which requires work to be carried out under the load. Work under a suspended load is absolutely impermissible. The load therefore needs to be placed on trestles, which significantly delays the process.

02.6

SpanSet®

Tower Crane Rescue and Evacuation

02.6 TOWER CRANE RESCUE AND EVACUATION

Gotcha™ MP Rescue Kit
ERGO Elastic Lanyards
1800 ERGO Harness
2700 Pole Strap

Gotcha™ CRD MP Rescue Kit

A constant rate 100m multipurpose descent device suitable for rescue and evacuation with remote attachment frog and pole. For operators who require evacuation and Gotcha™ post fall rescue in one kit.

Suitable for Evacuation and Rescue from:
High structures where constant rate lowering and minimal user input are required.

Suitable for Rescue from:
Vertical situations where you can access the casualty with the Gotcha™ pole and frog.

Kit Contains:

- Gotcha™ Frog
- Attachment pole
- Rope descent and rescue controller
- Kernmantle rope
- Attachment sling
- Karabiners
- Back pack gear bag.

Codes	Height Capacity	Raise and Lower Capability	Weight of Kit
Gotcha CRD MP 50	50m	Yes	7kg
Gotcha CRD MP 75	75m	Yes	9kg
Gotcha CRD MP 100	100m	Yes	11kg
Gotcha CRD MP 150	150m	Yes	15kg
Gotcha CRD MP 200	200m	Yes	19kg

Gotcha™ MP Rescue Kit
ERGO Elastic Lanyards
1800 ERGO Harness
2700 Pole Strap

ERGO Elastic Lanyards

3055E

3058E – Twin lanyards for progressive climbing

Code	Type	Material	Length	Fitting at Shock Absorber	Fitting at Free End(s)	Weight
3053E	Single Leg	Webbing	1.4 – 1.8m	H1 Snap Hook	H1 Snap Hook	1115g
3055E	Single Leg	Webbing	1.4 – 1.8m	H1 Snap Hook	H3 Scaffold Hook	1310g
3058E	Twin Leg	Webbing	1.4 – 1.8m	H1 Snap Hook	H3 Scaffold Hook	1723g

02.6 TOWER CRANE RESCUE AND EVACUATION

Gotcha™ MP Rescue Kit
ERGO Elastic Lanyards
1800 ERGO Harness
2700 Pole Strap

1800 ERGO Harness

Designation: Full body suspension harness

- Rear fall arrest D
- Front fall arrest and abseil wide mouth Ds
- Padded waist band and side pole strap wide mouth Ds
- Plastic reinforced gear loops
- Elasticised rear leg droppers
- Fully adjustable leg and shoulder straps
- Quick release shoulder buckle
- Hi-vis webbing.

Suitable for:

Fall arrest, rescue, rope access, roof work ladder systems, tower and pole work, maintenance, construction etc.

Code: 1800 ERGO

Gotcha™ MP Rescue Kit
ERGO Elastic Lanyards
1800 ERGO Harness
2700 Pole Strap

Pole Straps

2700

2750

2700 Pole Strap

2.5m pole strap with adjuster and snap hooks comes with polyester webbing wear sleeve. 3.5m (2701) also available.

Code: 2700

2750 Steelwork Pole Strap

2.5m pole strap with adjuster and snap hooks comes with robust secutex® cut resistant wear sleeve. secutex® is used extensively throughout industry to protect synthetic lifting slings from sharp edges and generally outlasts the synthetic sling/pole strap.

Code: 2750

02.7

Technical Information

NOTE: The information in this technical chapter is intended as a guide only. For specific rigging and chemical guidance please contact the SpanSet Australia Ltd Technical Department.

The Advantages of Using Synthetic Slings

Ageing

Polyester has no concealed faults like the steel used in cables or in chain which ages and can suffer a reduction in strength - but can still appear to be new and strong.

Polyester, on the other hand, does not age in a normal working environment.

Withstands Shock - Loading

Steel has poor shock-absorbing properties, whereas polyester has a great power to absorb shock loads without damage.

Internal Corrosion

Wire Rope may appear sound, but can be rusted inside. Deterioration of wire rope often starts at the core and then works out to the surface thus making it very difficult to detect and potentially very dangerous.

Inspection

All lifting equipment must be inspected regularly. Any damage to roundslings and webbing slings is easy to see - it simply cannot be concealed. If the covering of the roundsling is intact, then the lifting capacity is 100%.

The significance of this is that inspection is easier, safer, quicker and does not require special inspection equipment - just good lighting and good eyesight.

Low Weight

We can explain this in the following way:

A green 2-tonne round sling, 4 meters long, weighs only 1.75 kg. The difference between being hit in the face by a free-swinging cable or chain and a soft round sling is very obvious.

The equivalent difference is also appreciated by the person who discovers too late that there are fragile goods in the way.

Slings are often carried from a storage place to the crane or overhead hoist. Regular carrying of slings weighing 15 to 20 kilos will eventually result in back injuries.

The Science of Lifting Materials

Textile slings must be made of high strength multifilament yarns. Whether polyester (PES), polyamide/nylon (PA), polypropylene (PP) or modified high performance polyester (MHPP).

Webbing and slings must only consist of a single material throughout in order to give a consistent chemical degradation indication. In other words, under Australian and international standards, round sling outer casings cannot differ in material to the inner cores.

In selecting the correct lifting sling means you have taken all the important environmental factors into account. Extreme temperatures or aggressive substances - such as acids or bases all affect the durability of the textile assembly used to elevate a load.

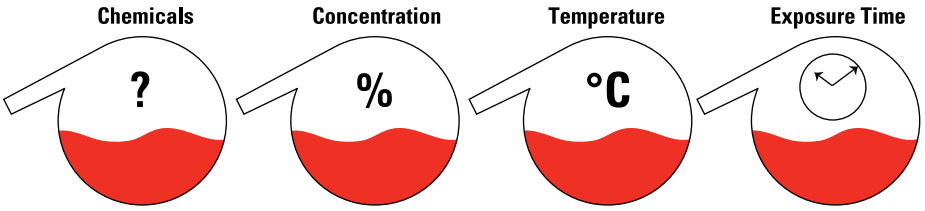
SpanSet specialise in the manufacture of either polyester or modified high performance polyester lifting slings, due to the broad range of chemical resistance and excellent UV performance.

The use of lifting slings in conjunction with chemicals is only permitted following consultation with the manufacturer and indication of the duration of use and operating conditions.

Sling Fabrics and Chemical Suitability

	Acids	Alkalis	Oil/Grease/Fuel	Ultra Violet
PES	Yes	No	Yes	Yes
MHPP	No	No	Yes	Yes
PA	No	Yes	Yes	No
PP	Yes	Yes	Yes	No

The following details will be required:



The Effects of Chemicals and Solvents on Polyester

Chemicals

Danger Classes

0 Solvents, Salts, Artificial Fertilisers

1 Inorganic Acids

2 Alkalis

The danger classes have the following significance:

0 Has no effect on polyester at temperatures below 50°C.

1 May be used in combination with polyester in regulated forms at temperatures below 30°C, during a maximum continuous period of use of 2 days. Where this continuous period of use is less than two days, higher concentrations of the acids and/or higher temperatures can be tolerated, since the degradation formula for the polyester may be written as:

Concentration x time x temperature
= resistance to degradation.

2 May not be used in combination with polyester.

Phenols in concentrations above 20% and above ambient temperature will dissolve polyester. This also applies to Hexylamine. However, the salt, Ammonium Sulphide, is an exception, since it is highly destructive to polyester.

Organic acids such as common acetic acid, for example, do have an effect on polyester, although it is negligible. The exception is mono- di and trichloracetic acid.

Polyester tolerates Sodium Carbonate.

Organic Solvents

Both nylon and polyester fibres exhibit a high level of resistance to the majority of common organic solvents. Examples of these, including those which are normally used for dry-cleaning, are as follows: acetone, dioxane, ether, methanol, ethanol, benzene, toluene, xylene, petroleum ether, methylene chloride, chloroform, carbon tetrachloride, perchloroethylene and trichloroethylene.

At room temperature, these have an insignificant effect on the strength of either polyester or nylon. Immersion for six months in methanol at 30°C results in very little reduction in strength, whilst the reduction at 50°C is 15%.

Nylon is capable of reacting with methanol under acidic conditions to give a weaker, more elastic yarn with a considerable increase in the diameter of the filament.

Neither nylon nor polyester should be heated for long periods in alcohol or in other compounds of esters, since this will cause an exchange of esters which will break down the polymer.

Residual Strength of Polyester with Organic Solvents

Substance	Temp °C	Residual strength in % after 7 days
Amyl Acetate	60	100
Benzaldehyde	60	100
Butyl Alcohol	60	100
Chloramine	60	100
Chloroform	60	100
Dimethyl Sulphoxide	60	100
Epichlorhydrin	60	100
Formaldehyde	60	97
Formamide	60	100
Freon 11	20/40	100
Freon 12	20/40	100
Freon 22	20/40	100
Fuel Oil	100	100
Hexylamine	60	0
Motor Oil	60	100
Styrene	60	100
Powdered Carbon Tetrachloride	60	100
Trichloroethylene	60	100
Xylene	60	100

The Effects of Chemicals and Solvents on Polyester

Residual Strength After 1-12 Months Exposure (%)

Substance	1 Mth	3 Mths	6 Mths	12 Mths
Acetone	100	100	100	100
Ether	100	100	100	100
Ethanol	100	100	100	100
Ethyl Acetate*	100	100	100	100
Amyl Acetate	100	100	100	100
Aniline	100	100	100	100
Benzaldehyde	100	100	100	100
Benzine	100	100	100	100
Benzoic Acid Amide	100	100	100	100
Benzene	100	100	100	100
Benzyl Alcohol	100	92	78	53
Brandkatechin	100	100	100	100
n-Butanol*	100	100	100	100
Butyl Acetate	100	100	100	100
Chloramine	100	100	100	98
Chloroform	100	100	100	100
Cyclohexanone	100	100	100	100
Cyclohexylamine	86	83	68	57
Diacetone Alcohol	100	100	100	100
Dimethyl Formamide	100	100	100	100
Dimethyl Sulphoxide	100	100	100	100
Epichlorhydrin	100	100	100	100
Formaldehyde 30%	100	100	100	100
Formamide	100	100	100	100
Fuel Oil	100	100	100	100
Glycol	100	100	100	100

* May be included in pigments for industrial use

Residual Strength After 1-12 Months Exposure (%)

Substance	1 Mth	3 Mths	6 Mths	12 Mths
n-Hexylamine	21	0	0	0
Hydroquinone	100	100	100	100
m-Cresole	100	100	100	100
Methyl Acetate	100	100	100	100
Methyl Ethyl Ketone	100	100	100	100
Methyl Alcohol	100	100	100	100
Methylene Chloride	100	100	100	100
Mineral Oil	100	100	100	100
Nitrobenzene	100	100	100	100
Petroleum	100	100	100	100
Phenol	100	100	100	100
2-Phenylethyl Alcohol	100	100	100	100
Floroglucine	100	100	100	100
Isopropyl Alcohol	100	100	100	100
Pyrogallol	100	100	100	100
Pyridine	100	100	100	100
Resorcin	100	100	100	100
Styrene	100	100	100	100
Turpentine*	100	100	100	100
Tetrachloretane	100	95	93	92
Powdered Carbon Tetrachloride	100	100	100	100
Toluene	100	100	100	100
Trichlorethylene	100	100	100	100
Trimethylamine	80	24	0	0
Xylene	100	100	100	100

* May be included in pigments for industrial use

The Effects of Acids on Polyester

Inorganic and Organic Acids

Certain chlorine-containing organic acids have the effect of dissolving Polyester. Mono-, di- and trichloracetic acid dissolve all polyesters at temperatures in excess of their fusion points, respectively 63°, 10° and 55°. The solution occurs rapidly at 100°C and in the case of dichloracetic acid, this occurs even at normal room temperature.

The acidic hydrolysis of polyester is not a surface reaction, but continues to act upon the molecules throughout the entire fibre. It is followed by a reduction in the strength of the fibre and of the strain as well as in the Index of Viscosity (IV).

The reduction in the strength of the fibre varies widely depending upon the nature, the concentration and the temperature of the acid.

The Effects of Inorganic and Organic Acids

		Breaking Strength						
Substance	**Temp C°**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**
Nitric Acid	20	100	100	100	99	97	96	
	60	96	89	66	30	0		
pH 0.5	75	70	50	0				
	100	60	0					
Sulphuric Acid	20	100	100	100	100	100	100	100
	50	100	100	100	100	100	97	92
pH 0.5	75	100	100	98	90	72	0	
	100	99	96	81	42			

		Concentration (%) of				
Substance	**Temp C°**	**2.5**	**5**	**10**	**20**	**30**
Hydrochloric Acid	20	100	100	100	100	100
	50	100	100	100	98	78
pH 0.5	75	100	100	98	66	40
	100	100	91	54	5	0

		Concentration (%) of				
Substance	**Temp C°**	**10**	**20**	**30**	**50**	**70**
Formic Acid	20	100	100	100	100	100
	50	100	100	100	100	100
pH 1.6	70	100	100	100	100	100

The Effects of Acids on Polyester

From a chemical point of view, polyester fibre is liable to hydrolysis. If one discounts extreme conditions, the rate of acidic hydrolysis is unexpectedly low, due to polyester having a characteristically good resistance to the majority of organic and inorganic acids.

Residual Strength After 1-12 Months Exposure (%)

Substance	pH	1 Mth	3 Mths	6 Mths	12 Mths
Concentrated Formic Acid	0.1	100	100	100	100
Malic Acid 25%	0.1	100	100	100	100
Benzoic Acid	-	100	100	100	100
Boric Acid	3.5	100	100	100	100
Chlorosulphate Acid	-	0	0	0	0
Acetic Acid	0.1	100	100	100	100
Acetic Acid 15%	2.0	100	100	100	100
Acetic Anhydride	-	100	100	100	100
Hydrofluoric Acid 38-40%	-	97	86	70	48
Concentrated Lactic Acid	0.7	100	100	100	100
Oxalic Acid	-	100	100	100	100
Phosphoric Acid 85%	0.1	100	100	100	100
Nitric Acid 15%	0.1	100	100	100	100
Nitric Acid 65%	0.1	7	0	0	0
Hydrochloric Acid 15%	0.1	100	100	100	100
Hydrochloric Acid 37%	0.1	43.5	20	0	0
Sulphuric Acid 15%	0.1	100	100	100	100
Sulphuric Acid 38%	0.1	100	100	100	100
Concentrated Sulphuric Acid	0.1	0	0	0	0
Stearic Acid	-	100	100	100	100
Citric Acid 15%	1.5	100	100	100	100
Citric Acid 25%	1.2	100	100	100	100

The Effects of Alkalis and Oxidising Agents on Polyester

The Effect of Oxidising and Reducing Agents

Polyester fibre has a very high resistance to oxidising and reducing agents and the fibre will withstand stronger bleaching processes than those normally used for textile fibres. Polyester products may be exposed without harm to any of the common bleaching agents, including those based upon hypochlorite, chlorite, hydrogen peroxide, the per-salts and reducing sulphur compounds.

The Effect of Alkalis

Alkalis, acids or simply water can all cause the hydrolysis of a polyester such as, for example, polyethyleneterephthalate, but the cause of the reaction and its effect on the fibre is not the same in each case.

The effect of alkalis in an aqueous solution, with the exception of ammonia and its derivatives, is quite different, producing the progressive dissolution of the fibre, whilst water, acids, ammonia and its derivatives, eg quaternary ammonium bases and amines break down the fibre without dissolving it.

Calcium Hydroxide (lime)

In spite of the fact that it is possible to obtain only weak solutions of lime, its effect still seems to be 13 times more rapid than that of caustic soda under similar conditions, its effect on polyester is considerable and the loss of strength is significant.

Sodium Hyperchlorite

The resistance of polyester to sodium hyperchlorite under the conditions to which textiles are normally exposed to it, is excellent.

Sodium Chlorite

Boiling for one hour in a 0.2% solution of sodium chlorite at pH 2-3 has no effect on the tensile strength of polyester.

Sodium Hydrosulphite

Those reducing agents which are normally used in textile processes have no noticeable effect on polyester. Treatment for 72 hours at 80°C in a saturated solution of sodium hydrosulphite causes no reduction in the strength of the fibre.

Potassium Dichromate

Polyester which has been treated for 3 days at 80°C in a saturated solution of potassium dichromate to which has been added 1% (weight/volume) of sulphuric acid exhibits a very insignificant change in its properties, the loss of strength being, for example, less than 5%.

The Effects of Alkalis and Oxidising Agents on Polyester

The Effects of Alkalis

Substance	Time in Hours	Temp C°	Residual strength in % at a concentration of 1%	3%	5%
			pH 12.7	pH 12.6	pH12.5
Caustic Soda	50	20	98	94	80
	50	50	93	91	71
NaOH	50	75	85	52	12
	50	100	62	-	-

Substance	Time in Hours	Temp C°	Concentration (%) of 1	2.5	5	10	20	25
Ammonia	50	20	100	100	100	100	100	100
	50	50	100	100	98	95	60	55
HNO3	50	75	100	70	0	50	0	0

Substance	pH	Residual strength in % after 1-12 months at room temperature 1	3	6	12
Concentrated Ammonia 20%	13.4	0	3	0	0
Calcium Hydroxide 50%	12.4	92	64	29	0
Potash-Lye Concentrated 40%	14.0	0	0	0	0
Soda Lye 0.1%	12.1	100	100	100	94
Soda Lye 15%	12.1	0	0	0	0
Soda Lye Concentrated 30%	11.2	0	0	0	0

The Effects of Inorganic Salts on Polyester

Residual Strength of After 1-12 Months Exposure (%)

Saturated Aqueous Solution at Room Temperature

Substance	pH	1 Mth	3 Mths	6 Mths	12 Mths
Aliminium Sulphate	2.9	100	100	100	100
Ammonium Chloride	5.1	100	100	100	100
Ammonium Nitrate	4.8	100	100	100	100
Ammonium Sulphate	4.6	100	100	100	100
Ammonium Sulphide 40%	9.6	50	0	0	0
Lead Acetate	5.7	100	100	100	100
Calcium Chloride	7.2	100	100	100	100
Colcium Nitrate	3.9	100	100	100	100
Ferrous Chloride	0.8	100	100	100	100
Ferrous Sulphate	3.0	100	100	100	100
Potassium Dichromate	3.7	100	100	100	100
Potassium Bromide	6.5	100	100	100	100
Potassium Carbonate	13.1	100	100	100	100
Potassium Chlorate	6.9	100	100	100	100
potassium Chloride	8.0	100	100	100	100
Potassium Chromate	9.4	100	100	100	100
Potassium Nitrate	8.8	100	100	100	100
Potassium Hyperchlorate	9.9	100	100	100	100
Potassium Permanganate	9.7	100	100	98	94
Potassium Sulphate	7.5	100	100	100	100
Copper Sulphate	3.5	100	100	100	100
Magnesium Chloride	4.0	100	100	100	100
Magnesium Sulphate	6.6	100	100	100	100
Sodium Ammonium Sulphate	8.2	100	100	100	100
Sodium Bicarbonate	7.8	100	100	100	100
Sodium Bisulphide	4.1	100	100	94	94

Residual Strength of After 1-12 Months Exposure (%)

Saturated Aqueous Solution at Room Temperature

Substance	pH	1 Mth	3 Mths	6 Mths	12 Mths
Sodium Carbonate	11.2	100	100	100	94
Sodium Chlorate	7.4	100	100	100	100
Sodium Chloride	7.4	100	100	100	100
Sodium Perchlorate	5.8	100	100	100	100
Sodium Sulphate	5.4	100	100	100	100
Sodium Tetraborate	9.3	100	100	100	100
Sodium Thiosulphate	7.4	100	100	100	100
Sodium Nitrate	8.3	100	100	100	100
Nickel Sulphate	4.5	100	100	100	100
Silver Nitrate	4.6	100	100	100	100
Zinc Chloride	2.4	100	100	100	100
Zinc Sulphate	4.0	100	100	100	100

Saturated Solutions of Inorganic Salts at 60°C

Substance	pH	Residual strength in % after 7 days
Aluminium Chloride 5%	3.9	100
Potassium Carbonate (cold saturated solution)	13.1	100
Magnesium Chloride	5.1	100
Sodium Bicarbonate	7.8	100
Sodium Carbonate	11.2	100

The Effects of Various Other Substances

Perspiration

Neither acidic nor alkaline synthetic perspiration formulations have any effect on the strength of polyester or nylon.

Cooling agents

Dichloro-difluor-methane (Arcton 6 or Freon 12) and monochloro-trifluor-methane (Arcton 4 or Freon 22) are commonly used in refrigeration plant. Immersion for six months in these substances has a scarcely noticeable effect on the strength of polyester within the temperature range -20°C to +20°C, although some swelling does occur in the latter substance.

Attack by micro-organisms and insects

Since neither polyester nor nylon are digestible as an animal feedstuff, their resistance to bacteria, fungi, termites, silverfish, moth larvae, etc., is excellent. It should be remembered, however, that certain fungi and bacteria are capable of growth even on the very small amounts of impurities which may be found on the surface of the fibres which make up the yarns and fabrics.

Although this has no effect whatsoever on the tensile strength of the material, it is nevertheless possible for the substances produced by these organisms to give rise to discolouration of the polyester sling.

Dimethyl phthalate

Although dimethyl phthalate quickly dissolves polyester at boiling point, this substance has little effect at ambient temperatures. Total immersion for one month at 30°C does not bring about any reduction in strength.

Phenols

The number of substances capable of dissolving polyester at ambient or moderate temperatures are limited, the only class of chemicals capable or this are the phenols. The majority of phenols either cause polyester to swell or cause dissolution, depending on the level of concentration and the temperature.

At normal temperatures, there is good resistance to the dilute forms of phenols, such as wood tar-derived creosote which may contain up to 20% of phenol substances. Polyester fibre which was stored in creosote at 30°C for six months exhibited an insignificant reduction in strength. At 50°C the loss is still less than 10%, but increases to 25-50% at 70°C. Thus at normal temperatures, creosote impregnation should not cause serious damage to polyester. The phenols, in particular carbolic acid, metacreosole and creosolic acid, are solvents of nylon. In low concentrations in water, their effect is usually slight, although a certain amount of shrinkage of the nylon yarn does occur.

Hydrocarbons (Fuel at Room Temperature)

Substance	Residual strength in % after exposure for 28 weeks	
Petroleum	100	100
Regular Petrol	100	100
Premium Petrol	100	100
Diesel Oil	100	100
Benzene	100	100
Jet Fuel JP1	100	100
Jet Fuel JP4	100	100
Iso-Octane	100	100

Atmospheric Effects

The Effect Of Humidity

The normal moisture content of polyester is very low, whilst for nylon it is considerably higher.

As a result of the extremely low absorption of moisture by polyester its physical properties such as strength, elasticity and modulus vary only slightly in moist or dry conditions below 70°C.

On the other hand, nylon loses about 10-20% of its strength when wet accompanied by a change in the load / extension curve. After drying, the strength is, of course, regained.

The Effect Of Water And Steam

The effect of steam on polyester is to cause hydrolytic breakdown with a consequent reduction in the mechanical properties of the fibres. The extent is dependent upon temperature and the duration of exposure. In spite of polyester being a hydrophobic fibre, its attack by the moisture is a process which does not simply occur on the surface and this breakdown is believed to be the result of the shortening of the molecular chains throughout the fibre.

Unsaturated water vapour at temperatures in excess of 100°C occurs in some important areas of application, eg in the filtration of dust from gases, and it is necessary to be familiar with the effect of various levels of saturation and the incidence of related loss.

The table opposite shows the weekly (168 hours) percentage reduction in strength when polyester is exposed to a moist atmosphere at different levels of saturation ranging from 10 to 100% relative humidity.

Reduction in the strength of more than 100% is unrealistic, but these values have been included since they illustrate the deterioration at different levels of temperature and humidity and, therefore, may be used for estimating the damage which may occur in periods of less than one week.

The loss of strength in water is extraordinarily slow at normal temperatures. At 70°C it is barely noticeable after four weeks. The speed of deterioration increases with the temperature, and at 100°C the reduction of mechanical properties is significant in the long term, eg about 60% of the tensile strength is lost after three weeks' continuous immersion in boiling water.

Water saturated steam at 100°C causes the same strength loss and there is nothing to suggest that water in liquid form would have a different effect.

Sometimes tensile strength is not the only significant property, it is nevertheless the very factor which determines the length of service, and is a useful measurement of the changes occurring which provide a convenient yardstick for checking the durability of the fibre. The effect of water or saturated steam on polyester may be summarised as follows:

- The loss of strength is proportional to the duration of treatment
- Strength is lost at a rate of 0.12% per hour at 100°C or approximately 20% per week
- The level of reduction in strength increases or decreases by a factor of 1.082 per °C of temperature. This is equivalent to 1.08210 or 2.2 times per 10°C.

By applying these general principles it will enable an estimate to be made in the reduction of strength resulting from exposure to water or saturated steam for a measured period of time. For example, there is a reduction in the strength of 10 x 0.12 x 2.2^5 or approximately 62% on exposure to saturated steam at a temperature of 150°C for 10 hours. In a similar way, a period of 5 hours spent in water at 94°C causes a reduction in strength of 5 x 0.1211.082^5, or about 0.4%.

These examples should only be regarded as a general indication, since pre-treatment of a fibre may further alter the physical properties.

Cyclohexylamine

In certain boiler systems cyclohexylamine compounds may be present in concentrations of a few parts per million. If these are picked up by the steam which has circulated in the boilers and comes into contact with the polyester, the effect is small. If, however, a polyester fabric is exposed to unlimited amounts of steam containing cyclohexylamine, eg in laundry steam pressing, there will be a very rapid breakdown of the polyester fibres.

Atmospheric Effects

Weekly (168 hrs) % Reduction in Tensile Strength

Polyester in water, saturated steam or moist air

Temperature °C	Strength Reduction (%)					
				Moist Air		Water or Saturated Steam
	10 RL	20 RL	40 RL	60 RL	80 RL	100 RL
0	0.0002	0.0004	0.0011	0.0026	0.0064	0.0075
20	0.0009	0.0018	0.0055	0.013	0.031	0.036
40	0.0045	0.009	0.027	0.063	0.15	0.18
60	0.022	0.045	0.13	0.3	0.72	0.85
80	0.1	0.1	0.62	1.4	3.5	4.1
100	0.5	1	3	7	17	20

Resistance To Ultra Violet

In its level of resistance to sunlight (measured as a percentage of the original tensile strength), polyester may be regarded as a highly-resistant fibre.

Calculated on the basis of units of weight it has a considerably higher original strength than natural fibres, and since it is, generally speaking, more resistant to degradation by the action of steam, chemicals and micro-organisms, one finds in practice that polyester will give greater service life than many other fibres.

When exposed to ultra-violet behind glass, polyester exhibits a considerably higher resistance and is better than the majority of other fibres.

SpanSet ultra-violet stabilised polyester retained more than 95% of its strength after six months continuous exposure in the sunshine of Florida.

Operating Temperatures

The Long Term Effect of Heat

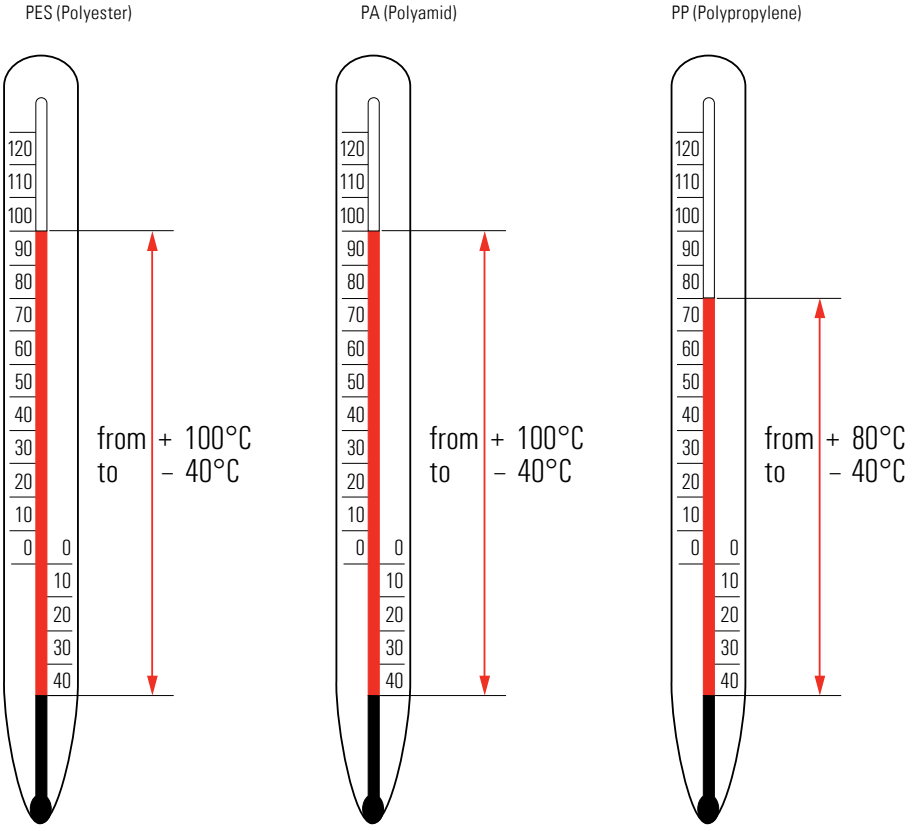
The expression 'resistance to heat' means the ability to withstand increases in heat in a normal atmosphere, ie air which contains small quantities of moisture.

Nylon has a poor resistance to dry heat at temperatures above 100°C and rapidly loses its strength as a result of oxidation. Thus, exposure for five days at 150°C will, for example, result in a loss of strength of about 75%.

On the other hand polyester fibre exhibits a very high level of resistance to heat. The effect of heat on polyester over a long period gradually reduces its tensile strength and its extension point.

If exposed to temperatures of about 150 degrees for a period of six weeks polyester will lose only about 20-25% of its original strength, and after 28 weeks only about 50%.

Many textile fibres suffer considerable discolouration if they are exposed to temperatures in excess of 100°C for long periods, but in this respect polyester has the advantage of exhibiting relatively little deterioration in colour even at temperatures approaching 180°C, where colour is important.



Electrical Conductivity

Electrical Properties

In common with other synthetic fibres with low moisture content, polyester is a very good insulator. It has a dielectric constant of 3.17 at 20°C frequency of 1KHz, falling to 2.98 at 1 Mc/sec, whilst the power loss resulting from the resistance in the material is insignificant.

Its specific resistance, measured on a film with a thickness of 0.001 inches or 0.0254 mm is about 1.2 x 10^{19} ohm/cm at 25°C and 65% RH which is 10^{9}-10^{12} times the equivalent for natural silk, nylon, cotton or rayon. As a result of the low moisture content of polyester, it retains an exceptionally good resistance even at high relative humidity.

The value remains high even at elevated temperatures and thus the specific resistance of polyester is about 3 x 1012 ohm/cm at 180°C. This is a useful property, since polyester also has good resistance to heat and can, in addition, be made dimensionally stable at given temperatures by means of thermo-fixation.

In addition to the high level of resistance, the limit of degradation of the fibre is as high as 2.5kv per thousandth of an inch. Polyester is non-conductive, which is why occasional flash-over will not produce conductive contact.

Sharp Edges

There are two different criteria for assessing the sharp edges when attaching a synthetic sling, those being:

– Attachment hardware such as a shackle or hook, which generally remain static and do not allow the sling to slide

– Direct attachment to loads eg when choking. Load may move slightly during suspension to adjust to centre of gravity.

Definition of Sharp Edges Relating to Attachment Fittings (Hooks, Shackles, Masterlinks etc)

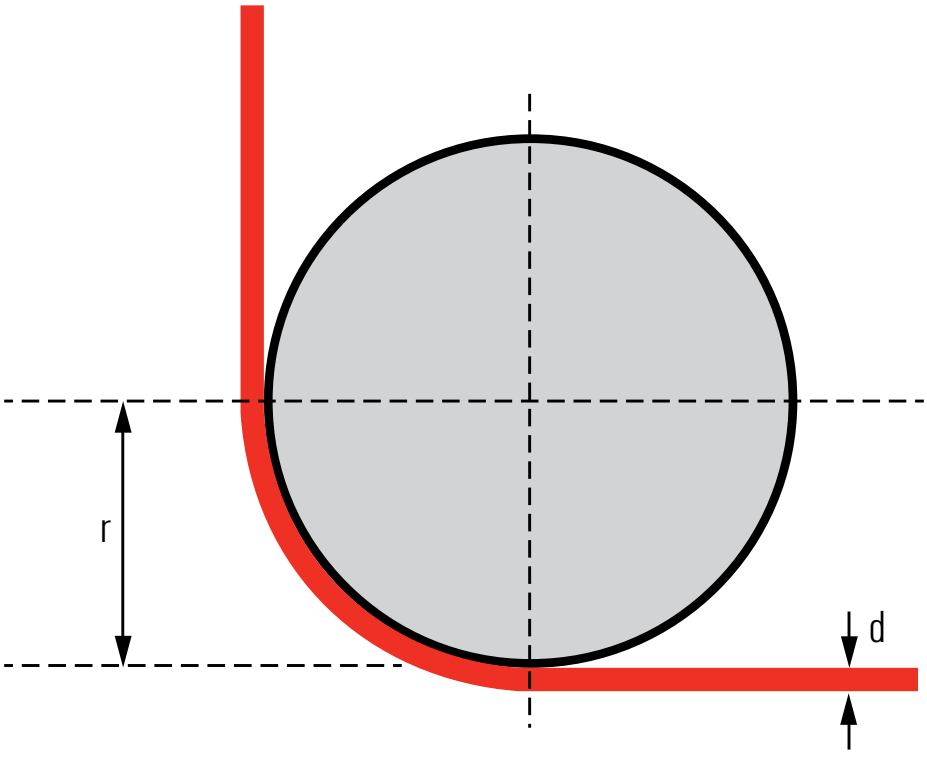
What is a sharp edge?

If the radius (r) of the edge of the fitting is the same or less than the compressed thickness (d) of the sling. A fitting with insufficient diameter such as a shackle pin is still considered a sharp edge.

Definition of Sharp Edges Relating to Attachment Directly to Loads (Choke, Basket etc)

What is a sharp edge?

If the radius (r) of the edge of the load is less than 3 times the compressed thickness (d) of the sling (AS4497).



Sharp Edges

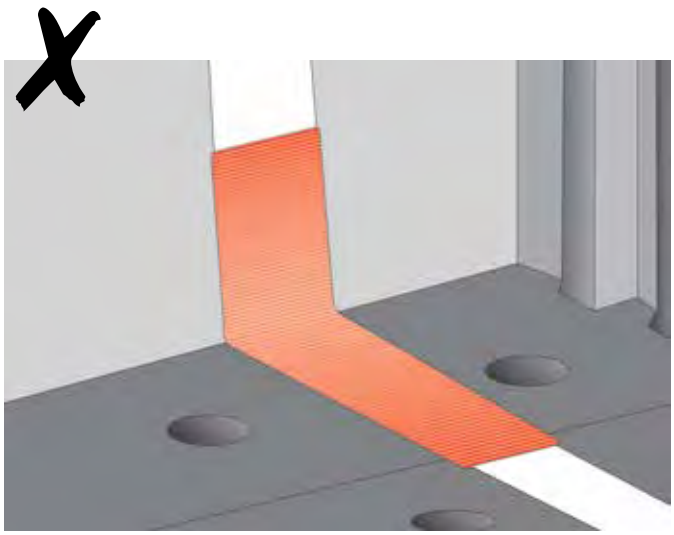
Sleeve Cut/Abrasion Protection

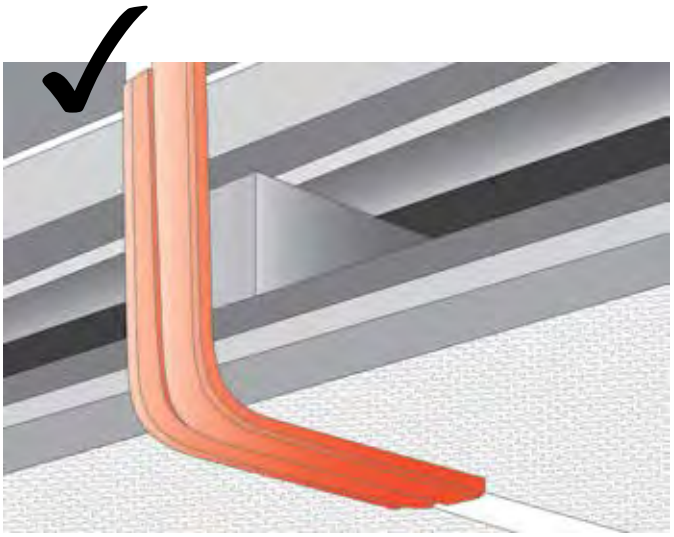
	Cut Protection	Abrasion	Oil/Grease/Fuel
Webbing	No	Yes	Yes
PVC Hose	No	Yes	Yes
Leather	No	Yes	Yes
secutex® Polyurethane	Yes	Yes	Yes

Protection of synthetic slings from sharp edges is critical. A sharp edge does not have to be a razor like contact point, but may also be a rolled edge of insufficient diameter to suit the thickness of the sling.

The use of protective sleeves can safeguard against cutting and prolong the life of the sling.

It is important to note that protective sleeves fall into two categories – cut protection and abrasion protection.





Safe Sling Use

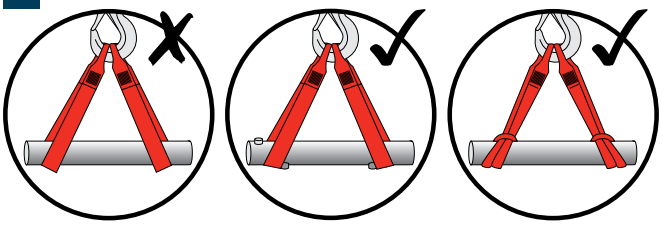
1 Do not use unrestrained slings at an angle. The slings can slide together therefore destabilising the load. The two slings must be blocked or choked to prevent sliding.

2 Never allow a sling to hang freely in the hook as the load can twist and slide uncontrollably. Always use two slings with the necessary blocking.

3 Do not tie knots in lifting slings as this will derate them dramatically. To join two slings together, use a joker hook or appropriate shackle.

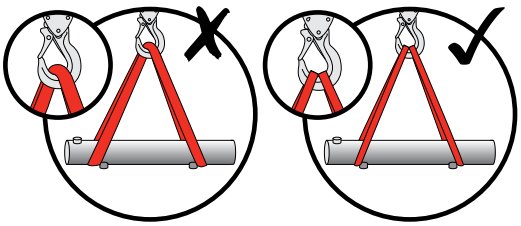
Sling Use Dos and Don'ts

1



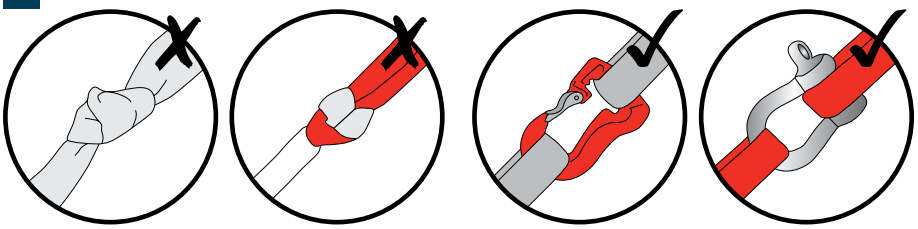
Use object extrusions or choke hitch to stop the sling slipping

2



Do not double layer a single sling - use two

3



Do not knot or join two slings together - use a joker hook or a bow shackle

Safe Sling Use

4 Make sure the hook is not overcrowded.

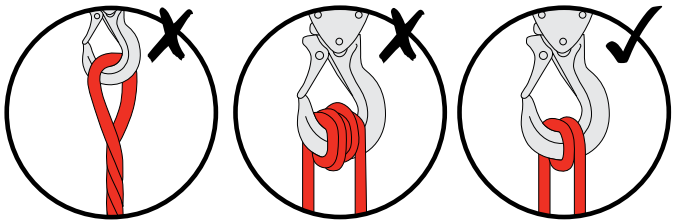
5 Do not twist slings or wrap them over themselves in order to shorten. Round slings may be shortened slightly by wrapping side by side providing they do not overlap or crowd the hook.

6 Unused legs of a multi-leg sling must be attached to the upper fitting and not left dangling.

4

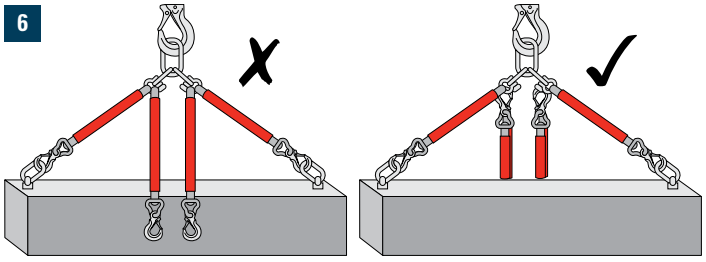
Don't crowd the hook

5



Do not twist the sling to shorten - loop the sling once instead and not multiple times

6



Don't let spare multi hook arms dangle - hook them back up to the top connectors

The Effects of Angles

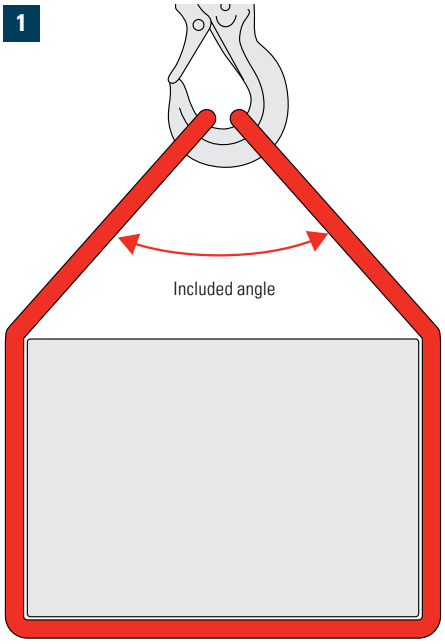
1 When measured between the legs of the slings (Included Angle) the angle must not exceed 120°. Angles over this amount will multiply the forces and result in a decrease in safety factor and ultimate strength.

2 This angle limit also applies to multi-leg slings. Note: Australian standards stipulate that the capacity multiplication of legs can only be a maximum of 1.73 irrespective of how many legs are added. This will also reduced further, the wider the angle between the legs.

3 For slings with formed eyes, the angle inside the eye must not exceed 20°.

4 This is to prevent the sling from splitting due to the use of too large an end fitting or attachment

1



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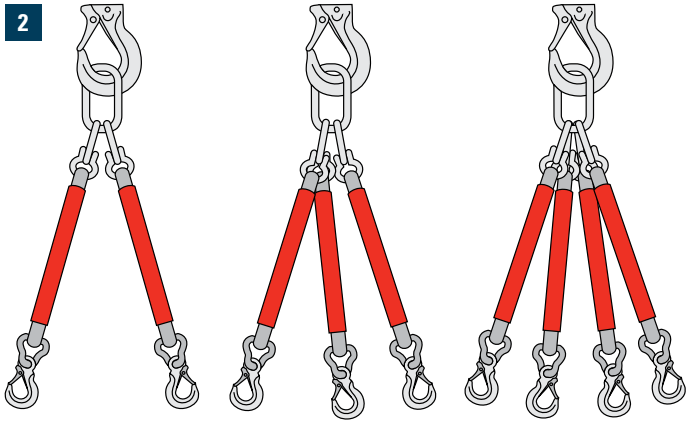

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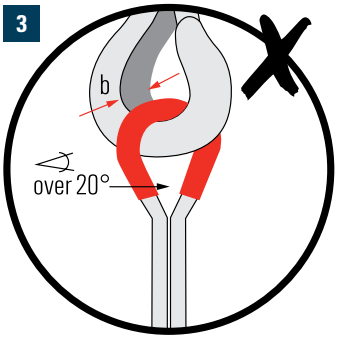

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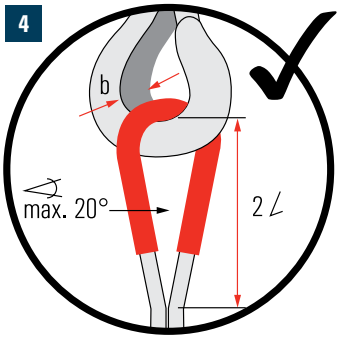

Colour Codes and Lifting Modes

Mode WLL Capacity (kg)	Vert 1.0	Choke 0.8	Basket 2.0	60° 1.7	90° 1.4	120°1.0
						
1000	1000	800	2000	1700	1400	1000
2000	2000	1600	4000	3400	2800	2000
3000	3000	2400	6000	5100	4200	3000
4000	4000	3200	8000	6800	5600	4000
5000	5000	4000	10,000	8500	7000	5000
6000	6000	4800	12,000	10200	8400	6000
8000	8000	6400	16,000	13,600	11,200	8000
10,000	10,000	8000	20,000	17,000	14,000	10,000
15,000	15,000	12,000	30,000	25,500	21,000	15,000
20,000	20,000	16,000	40,000	34,000	28,000	20,000
25,000	25,000	20,000	50,000	42,500	35,000	25,000
30,000	30,000	24,000	60,000	51,000	42,000	30,000

Using Shackles With Round Slings

Type of Round Sling	Fabric	WLL Round Sling [kg]	Material Width Round Sling [mm]	Material Thickness Round Sling [mm]	Proof Loading [kN]	Van Beest Shackle Number	WLL Shackle [kg]	ø Material Thickness Shackle [mm]	Width of Shackle [mm]
SupraPlus	Polyester fibre	500	36	5	25	4161	500	7	20
SupraPlus	Polyester fibre	1,000	36	6	49	4161	1,000	10	26
SupraPlus	Polyester fibre	2,000	37	8	99	4161	2,000	13.5	32
SupraPlus	Polyester fibre	3,000	44	10	148	4161	3,250	16	43
SupraPlus	Polyester fibre	4,000	52	12	197	4161	4,750	19	51
SupraPlus	Polyester fibre	5,000	59	13	246	4161	6,500	22	58
SupraPlus	Polyester fibre	6,000	65	14	295	4161	6,500	22	58
SupraPlus	Polyester fibre	8,000	68	17	314	4161	8,500	25	68
MagnumPlus	Polyester fibre	10,000	90	19	393	4163	12,000	32	83
MagnumPlus	Polyester fibre	15,000	115	21	589	4163	17,000	38	99
MagnumPlus	Polyester fibre	20,000	135	23	785	4163	25,000	45	126
MagnumPlus	Polyester fibre	30,000	170	27	1,178	4163	35,000	50	138
MagnumPlus	Polyester fibre	40,000	190	37	1,570	4163	42,500	57	160
MagnumPlus	Polyester fibre	60,000	190	75	2,355	4163	85,000	75,0	190
MagnumPlus	Polyester fibre	80,000	230	86	3,140	4163	85,000	75	190
MagnumPlus	Polyester fibre	100,000	260	96	3,924	6036	120,000	95	238
Magnum Force	High performance fibre	10,000	55	12	393	4163	12,000	32	83
Magnum Force	High performance fibre	20,000	80	15	785	4163	25,000	45	126
Magnum Force	High performance fibre	30,000	90	20	1,178	4163	35,000	50	138
Magnum Force	High performance fibre	40,000	110	24	1,570	4163	42,500	57	160
Magnum Force	High performance fibre	50,000	117	23	1,962	4163	55,000	65	180
Magnum Force	High performance fibre	60,000	150	30	2,355	4163	85,000	75	190
Magnum Force	High performance fibre	80,000	200	40	3,140	4163	85,000	75	190
Magnum Force	High performance fibre	100,000	233	47	3,924	6036	120,000	95	238
Magnum Force	High performance fibre	125,000	267	53	4,905	6036	150,000	105	275
Magnum Force	High performance fibre	150,000	308	62	5,886	6036	150,000	105	275

Note: The smaller slings were proof loaded to 5 (FIVE) times WLL up to 8T and the larger slings 4 (FOUR) times WLL over 8T in line with the shackle strength safety factors. You will notice at some points the thickness to diameter 1 to 1 criteria does not match. This is because past 4:1 or 5:1 proof load the shackles become the weak link in the lifting assembly and any assembly is only as good as its weakest link. The slings are still 7.1 safety factor. These are based on real tests on Spanset/Axzions proof loader with Van Beest shackles. They do not apply to any other brand shackle despite similar dimensions. These values only apply to the Spanset specification slings listed above. For other brand slings, contact the manufacturer for their recommendations.

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