

Gunnebo Lifting Polyester Products



Our user friendly,
durable and flexible soft
range for your service



GUNNEBO
LIFTING



Gunnebo Lifting - Polyester Lifting & Lashing



Photo: Courtesy of the National Science Foundation, USA

Gunnebo Industrier AB, the world's leading manufacturer of complete lifting systems, introduces the complete range of integrated soft lifting and lashing systems. Our quality is highly regarded throughout the world and is fundamental to Gunnebo Industries continual development.

Gunnebo Industrier AB is an international group of industrial companies that is active in 15 countries and has around 50 major distributors/agents worldwide.

Our state of the art factory at Junsele dedicated to the production of our soft products is accredited with EN ISO 9001:2000 which is consistent with the Gunnebo Industries Group's policy of producing high quality goods and its dedication to the safety of persons and property.

Feel confident in every situation

Lifting operations call for a very high level of safety. The lifting equipment and the way it is used are crucial to your safety on site. To guarantee a high level of quality Gunnebo Lifting has its own factory for soft products in Sweden. By making webbing out of 100 % polyester in our own weaving mill we have a systematic quality control at every manufacturing stage from raw material to the finished product. In that you can trust!



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Warning

Failure to read, understand and comply with the following instruction, working load limits and specifications in this publication could result in serious injury or damage to property.

Innovative Thinking

There are many things to take into consideration when choosing the right equipment for a lifting situation. These are the properties you should keep in mind for soft lifting equipment:

- Light and easy to handle.
- Simple and inexpensive.
- Suitable for fragile goods.
- Flexible and suitable for choke-hitching load.
- Easy identification of maximal load by colour.

Gunnebo Lifting has by innovative thinking taken the soft products even further by, for example, adding the following:

Protected label

The Polyester sleeve protects the label and keeps it legible, which is a unique feature from Gunnebo Lifting.



The Polyester sleeve protects the label.



The label displayed.

Improved package

Many of the roundslings and webbing slings are nowadays packed in plastic bags with the manufacturer's certificate, user instruction and with bar code.



Improved package.

Quality

Quality will always be of the highest importance to Gunnebo Lifting, and everything we do is in line with the strong dedication on safety for persons and property in the Gunnebo Industrier group. The soft products are certainly not an exception to that. To be accredited with EN ISO 9001:2000 and manufacture according to the recognised standards is a matter of course for Gunnebo Lifting!



Certified production in our own factory in Junsele, Sweden.

Production

We make webbing out of 100 % polyester in our own weaving mill, which means that we can have a systematic quality control at every manufacturing stage from raw material to the finished product. That is a guarantee for a high level of safety and long life of the products!

Material

Gunnebo Lifting's soft lifting products are made entirely of polyester and the raw-material (e.g. polyester yarn) is supplied from carefully chosen producers that meet our exacting demands. Polyester should not be confused with polypropylene since there are several differences:

- Polyester resists friction and wear much better than polypropylene.
- Polyester is stronger if you have the same volume of each material.
- The melting point for polyester is 260°C whilst it is 165°C for polypropylene.
- Polyester lifting products must not be used with loads above 100°C. The corresponding heat for polypropylene is 80°C.
- Lifting equipment in polyester has a blue ID tag and lifting equipment in polypropylene has a brown ID tag.

Roundsling Single (GRS)

Gunnebo Lifting Roundsling with seamless single cover and protected label, made of 100 %, high-tensile polyester, close-woven sealed material for high wear resistance. According to European Standard EN1492-2. Safety factor 7:1.

Type	WLL (tonnes)	L1 min (M)	Weight per meter L1 (kg) approx	*) Rec. min contact diameter bolt (mm)	*) Rec. min contact width (mm)
GRS	1 T	0.5	0.34	23	35
GRS	2 T	0.5	0.40	32	40
GRS	3 T	0.5	0.62	35	47
GRS	4 T	1.0	0.80	38	50
GRS	5 T	1.0	1.00	42	53
GRS	6 T	1.5	1.15	46	60
GRS	8 T	1.5	1.52	50	67
GRS	10 T	1.5	1.94	56	75
GRS	12 T	1.5	2.44	58	80
GRS	15 T	1.5	3.30	70	96

L1 = effective length.

Sizes 1-3 T 0,5-6 M, 5 T 1-5M and 8 T 2-6 M are packed in a plastic bag with manufacture certificate, bar code and user instructions.

Other sizes can be produced upon request.

*) According to Gunnebo Lifting

Roundsling Double (GRD)

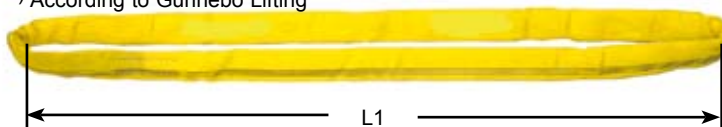
Gunnebo Lifting Roundsling with sideseam, double cover, made of 100 %, high-tensile polyester, close-woven sealed material for high wear resistance. According to European Standard EN1492-2. Safety factor 7:1

Type	WLL (tonnes)	L1 min (M)	Weight per meter L1 (kg) approx	*) Rec. Min contact diameter bolt (mm)	*) Rec. Min contact width (mm)
GRD	1 T	0.2	0.36	23	35
GRD	2 T	0.2	0.50	32	40
GRD	3 T	0.2	0.70	35	47
GRD	5 T	0.2	1.04	42	53
GRD	8 T	0.2	1.72	50	67
GRD	10 T	0.3	2.12	56	75
GRD	12 T	0.3	2.60	58	80
GRD	15 T	0.3	3.38	70	96
GRD	20 T	0.4	5.00	78	104
GRD	25 T	0.4	6.40	84	112
GRD	30 T	0.4	7.70	90	120
GRD	40 T	0.4	10.80	102	136
GRD	50 T	0.5	15.00	120	160
GRD	60 T	1.0	21.00	140	190

L1 = effective length.

Other sizes can be produced upon request.

*) According to Gunnebo Lifting





Webbing Sling (GWS)

Flat webbing slings with eyes, made of 100 %, high-tensile polyester, close-woven sealed material for high wear resistance.

According to European Standard EN 1492-1

Safety factor 7:1.

Type	WLL (tonnes)	Width (mm)	L1 min (M)	Width of eye (mm)	Weight per meter L1 (kg) approx
GWS	1 T	30	0.45	30	0.17
GWS	2 T	60	0.75	35	0.36
GWS	3 T	90	1.0	45	0.56
GWS	4 T	120	1.5	65	0.74
GWS	5 T	150	1.5	80	0.93
GWS	6 T	180	1.6	95	1.12
GWS	8 T	240	2.0	1.65	
GWS	10T	300	2.2	160	2.20
GWS	12T	180	2.0	180	2.20
GWS	15T	240	2.0	240	3.26

L1 = effective length

Other sizes can be produced upon request.

Sizes 1-4 ton are packed in a plastic bag with manufacture certificate, bar code and user instruction.



The length of eye is according to the European standard:

- A minimum of three times the width of the sling for widths up to 150 mm
- A minimum of two and a half times the width of the sling for widths over 150 mm



Webbing Sling - Endless (GWE)

Flat webbing endless sling made of 100%, high-tensile polyester, close-woven sealed material for high wear resistance.

According to European Standard EN 1492-1

Safety factor 7:1.

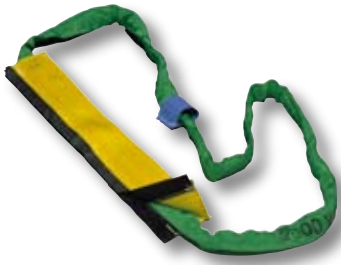
Type	WLL (tonnes)	Width (mm)	L1 min (M)	Weight per meter L1 (kg) approx
GWE	1 T	30	0.2	0.18
GWE	2 T	60	0.3	0.40
GWE	3 T	90	0.35	0.59
GWE	4 T	120	0.45	0.80

L1 = effective length

Other sizes can be produced upon request

Sizes 1-3 ton are packed in a plastic bag with manufacture certificate, bar code and user instruction.





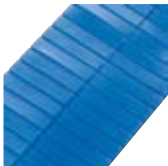
Protective Sleeve (GPS)

Protective sleeve made of polyester for fitting on roundslings. Velcrotape for easier attachment, no sewing necessary. Other types and lengths of protective sleeving can be produced on request.

Type	For roundsling	Length (mm)	Weight/ea (kg) approx
GPS	1 – 3 ton	500	0.10
GPS	1 – 3 ton	1000	0.20
GPS	4 – 8 ton	500	0.20
GPS	4 – 8 ton	1000	0.40

Polyurethane protective sleeves

Protective sleeves made of polyurethane for roundslings and flat webbing slings can be supplied upon request.



Perforated polyurethane

Inside measurement width x high (mm)	For webbing width (mm)	Length (mm)	Suits
32 x 11 32 x 11	30 mm 30 mm	1000 2000	Web. sling 1 Ton
62 x 11 62 x 11	60 mm 60 mm	1000 2000	Web. sling 2 Ton Roundsling 1 Ton
105 x 11 105 x 11	90 mm 90 mm	1000 2000	Web. Sling 3 Ton Roundsling 4 Ton
130 x 11 130 x 11	120 mm 120 mm	1000 2000	Web. Sling 3 Ton Roundsling 5 Ton
156 x 11 156 x 11	150 mm 150 mm	1000 2000	Web. Sling 5 Ton Roundsling 6/8 Ton



Roundslings connected with RH-hooks

Gunnebo Lifting Roundsling for heavy lifting

Safest lifting sling available in the market

Roundsling Kevlar, ergonomic alternative with double lifting capacity in rough situations. Load up to 100 Tonnes can be supplied on request. Produced of aramide fibre (Kevlar) in the core and with a cover of polyester.

Advantages compared to Roundslings of polyester or polypropylene;

- 50% lower weight with corresponding working load limit.
- Requires less space on lifting shanks and on other lifting points.
- Since the product requires less material for the same WLL, it take up less place in stock and during transports.

Temperature field of application: -40^o - +120^oC.

About 1 % elongation when rated load.

Resistant to weak acids, alkali, oil and alcohol.

Do not wash in alkaline detergent.



Lifting Net (Helicopter). Can be supplied on request.

Lifting Net (Helicopter)

Square Net

WLL (kg)	Size (m)	Mesh (mm)	Weight (kg)
3500	3.0 x 3.0	175 x 175	12.0
3500	4.0 x 4.0	175 x 175	17.0
3500	5.0 x 5.0	175 x 175	23.0

Octagon net

WLL (kg)	Size (m)	Mesh (mm)	Weight (kg)
4000	3.0 x 3.0	150 x 150	11.0
4000	4.0 x 4.0	150 x 150	18.5
4000	5.0 x 5.0	150 x 150	29.0

Gunnebo Lifting Lashing systems

Acc. to European standard EN 12195-2

LC=lashing capacity: Maximum force for use in straight pull that a web lashing is designed to sustain in use.

Safety factor: 2:1 complete system and metal parts
3:1 non-sewn polyester webbing

Elongation: Maximum 7 % when polyester webbing subjected to the LC.

Marking: Traceability code similar to lifting products. A protected label ensures traceability at all circumstances.

Lashing system, 25-26 mm

Acc. to European standard EN 12195-2



WLG 0.7T



WLG 0.3T



WLG 0.5T

Type	Lashing capacity	Lashing strength (tonnes)	Width (mm) (tonnes)	Short part L=	Long part L=	Breaking strength
WLG 0.7T	0.7	1.4	26	0.4 M	3.6 M	1.5
WLG 0.7T	0.7	1.4	26	0.5 M	4.5 M	1.5
WLG 0.3T	0.3	0.6	25	0.4 M	3.6 M	0.7
WLG 0.3T	0.3	0.6	25	0.5 M	4.5 M	0.7
WLS 0.5T *	0.5	1.0	25	0.4 M	3.6 M	0.5

Standard fitting wirehook.

25-26 mm lashings are packed in plastic bag with bar code marking.

* Not acc. to EN standard

Lashing system, 35 - 50 mm

Acc. to European standard EN 12195-2



WLG 1T



WLG 1.7T



WLG 2T

Type	Lashing capacity (tonnes)*	Lashing strength (tonnes)*	Width (mm)	Short part L=	Long part L=	Breaking strength
WLG 1T	1.0	2.0	35	0.5 M	4.5 M	2.5
WLG 1T	1.0	2.0	35	0.5 M	5.5 M	2.5
WLG 1.7T	1.7	3.4	50	0.5 M	7.5 M	4.0
WLG 1.7T	1.7	3.4	50	0.5 M	9.5 M	4.0
WLG 2T	2.0	4.0	50	0.5 M	9.5 M	5.0
WLG 2T	2.0	4.0	50	0.5 M	7.5 M	5.0

Standard fitting: wirehook.

Lashings with other fittings can be produced upon request, see page 14.

Actual STF = 350 daN at SHF = 50 daN (WLG 1.7T and WLG 2.0T.)

Actual STF = 180 daN at SHF = 50 daN (WLG 1T)

35 mm lashings are packed in plastic bag with bar code marking.

* 1 ton equivalent to 1000daN.

Lashing system, 75 mm

Acc. to European standard EN 12195-2



WLG 3T

Type	Lashing capacity (tonnes)	Lashing strength (tonnes)	Short part L=	Long part L=
WLG 3T	3	6	0.5 M	3.5 M
WLG 3T	3	6	0.5 M	9.5 M

Standard fitting: wirehook 75 mm.

Lashings with other fittings can be produced upon request.

STF = 305 daN at SHF = 50 daN.

Lashing system, 50 mm



WLE (Ergo) 5T



WLS (Stainless) 3T

Type	Lashing capacity (tonnes)	Lashing strength (tonnes)	Short part L=	Long part L=
WLE 5T	5	10	0.5 M	9.5 M
WLS 3T	3	6	0.5 M	9.5 M

Standard fitting: wirehook 50mm.

Standard fitting WLS: stainless wirehook with latch.

Lashings with other fittings can be produced upon request.



Lashing systems

ONEWAY 50 mm

1. Polyester webbing, breaking strength 2400 kp, white. Packed in sack 250 M each.
2. Oneway buckle 50 mm, breaking strength 1700 kp, yellow chromated. Packed in carton 125 pcs each.
3. Plastic corner pads, yellow.
4. Threadable wirehook 50 mm, breaking strength 4000 kp, yellow chromated.
5. Tensioning tool.
6. Ratchet tensioner with short part 0.5 M.
7. Ratchet tensioner with short part 1.0 M.



Lashing strap 25 mm

CAMBUCKLE





Type	Breaking strength	Endless L=
WLC 0.25T	250 kp	0,5 M
WLC 0.25T	250 kp	1 M
WLC 0.25T	250 kp	2 M
WLC 0.25T	250 kp	3 M
WLC 0.25T	250 kp	4 M
WLC 0.25T	250 kp	5 M

Straps are packed 2 pcs in each plastic bag with bar code marking.



Lashing strap 25 mm

Lashing strap for home and private use, each carton contains 40 lashing belts:

-  10 pcs x length 0.5 M. Load capacity 250 kp.
-  10 pcs x length 1.0 M. Load capacity 250 kp.
-  10 pcs x length 2.0 M. Load capacity 250 kp.
-  10 pcs x length 3.0 M. Load capacity 250 kp.

All straps and also the box are marked with bar code.

Webbing

Gunnebo Lifting is one of Sweden's largest producers of polyester webbing. The manufacturing in our weaving mill is subject to constant inspection both manually and automatically, e.g. strength testing in our laboratory.

Properties of polyester fibre:

Physical properties

Moisture absorption: approx. 0.4% at 20°C and 65% humidity.

Specific weight: 1.38.

Melting point: approx. 260°C (working temperature max 100°C)

Sensitivity to

low temperatures: No effect down to -40°C.

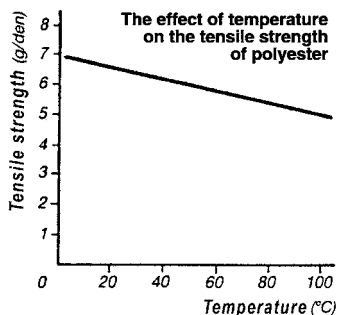
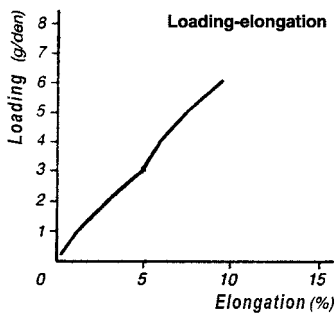
Ageing: Not significant under normal circumstances.

Shrinking can occur at high temperatures.

Chemical properties

Polyester offers good resistance to acids in low concentration, max 10-15 %.

Properties of polyester fibre, examples







Examples of the properties of polyester fibre

Resistance to various acids

Acid	Concentration	Temp.	Exposure	Strength derating (approx.) (%)
Acetic acid	Crystalline	80°C	72 h	5
Formic acid	90%	80°C	72 h	10
Oxalic acid	Saturated solution	80°C	72 h	15
Hydrofluoric acid	40%	25°C	1 week	0
Hydrobromic acid	40%	30°C	4 weeks	5
Bromic acid	15%	30°C	4 weeks	20
Phosphoric acid	98%	70°C	5 weeks	45
Phosphoric acid	50%	70°C	5 weeks	15
Uric acid	Saturated solution	70°C	4 months	0
Hydrocyanic acid	Moist gas	22°C	4 months	0

The tensile strength of polyester can be affected by alkalis, depending on temperature and time. At low concentrations and normal temperatures, resistance is good. However, polyester webbing should not be used in the presence of alkalis.

Note: Above table only valid as a guideline.




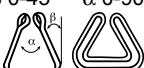

Standard colour	Width mm	Breaking strength	Description kp
	25	900	25/07
	26	1900	26/19
	30	4200	30/35
	35	1850	35/16
	35	3000	35/25
	50	2400	50/21
	50	5100	50/41
	50	6000	50/50
	60	8000	60/70
	75	11500	75/105
	90	11000	90/105
	120	15000	120/140
	150	22000	150/175
	180	24000	180/210
	240	30000	240/280
	300	38000	300/350

All webbings can be supplied in white colour.



Instructions for use and maintenance

Working load limits (WLL) in tonnes, according to EN 1492-1 for flat woven webbing slings and EN 1492-2 for Roundslings.

WLL tonnes	Straight lifting 	Choke hitch 	Straight basket hitch 	Angled basket hitch β 0-45° α 0-90° 	Angled basket hitch β 45-60° α 90-120° 
1	1.0	0.8	2.0	1.4	1.0
2	2.0	1.6	4.0	2.8	2.0
3	3.0	2.4	6.0	4.2	3.0
4	4.0	3.2	8.0	5.6	4.0
5	5.0	4.0	10.0	7.0	5.0
6	6.0	4.8	12.0	8.4	6.0
8	8.0	6.4	16.0	11.2	8.0
10	10.0	8.0	20.0	14.0	10.0
12	12.0	9.6	24.0	16.8	12.0
15	15.0	12.0	30.0	21.0	15.0
20	20.0	16.0	40.0	28.0	20.0
25	25.0	20.0	50.0	35.0	25.0
30	30.0	24.0	60.0	42.0	30.0
40	40.0	32.0	80.0	56.0	40.0
50	50.0	40.0	100.0	70.0	50.0
60	60.0	48.0	120.0	84.0	60.0

Note! Safety factor 7:1

Use

- 1 Always plan the lift carefully before proceeding.
- 2 Always check that the length and WLL stated on the sling label are suitable.
- 3 Examine the sling for damage and defects before use. Never use a damaged or defective sling.
- 4 Never overload!
- 5 Make sure that the load is lifted vertically, centered above the point of gravity.
- 6 Use identical slings in case of multi-legged lifting and take the lifting angles into account when choosing equipment.
- 7 Do not tie knots in slings to shorten or extend them.
- 8 Never lift with twisted or entwined slings.
- 9 Place load-bearing seams and joints between the hook and the load.
- 10 Protect the sling from sharp edges using edge protection or protective sleeves.
- 11 Avoid shock loading and snatch lifting.
- 12 Do not drag a load in the sling and do not drag slings over the ground.
- 13 Keep polyester slings away from alkalis (for example ammonia and caustic soda). If in doubt about exposure to chemicals, check with your supplier.
- 14 Do not use polyester slings in temperatures over +100°C.
- 15 Examine slings after use and remove from service if visible damage has been suffered.

Maintenance

- 1 Store the equipment in a dry place.
- 2 Ensure that seams and labelling are undamaged.
- 3 The equipment can be cleaned by washing in a petroleum-based detergent and rinsing in water.
- 4 Roundslings with damaged sleeving, allowing dirt to enter, should be discarded.
- 5 Roundslings with broken yarns as a result of damaged sleeving must be discarded.
- 6 Roundslings must be inspected regularly for knots and irregularities, indicating yarn breakage. Discard if found.
- 7 Webbing slings: Discard in case of serious damage due to friction.
- 8 Webbing straps: Discard if/when edge wear/damage exceeds 5% of its width.
- 9 Webbing straps: Repair or discard when eye sleeving is worn out.

Tonnes	Rec. Min. tap diameter	Min. width roundslings
1	23 mm	35 mm
2	32 mm	40 mm
3	35 mm	47 mm
4	38 mm	50 mm
5	42 mm	53 mm
6	46 mm	60 mm
8	50 mm	67 mm
10	56 mm	75 mm
12	58 mm	80 mm
15	70 mm	96 mm
20	78 mm	104 mm
25	84 mm	112 mm

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