25 A [kg]	B					C		D	E	F
						l1 min. [m]	l1 max. [m]			
500	RS 500	SupraPlus 500			EK 500	0,375	30		1:7	PES
1000	RS 1000	SupraPlus 1000	Twintex 1000		EK 1000	0,375	30		1:7	PES
2000	RS 2000	SupraPlus 2000	Twintex 2000		EK 2000	0,375	30		1:7	PES
3000	RS 3000	SupraPlus 3000	Twintex 3000		EK 3000	0,375	30		1:7	PES
4000	RS 4000	SupraPlus 4000	Twintex 4000		EK 4000	0,5	30		1:7	PES
5000	RS 5000	SupraPlus 5000	Twintex 5000		EK 5000	0,5	30		1:7	PES
6000	RS 6000	SupraPlus 6000	Twintex 6000		EK 6000	1	30		1:7	PES
8000	RS 8000	SupraPlus 8000	Twintex 8000		EK 8000	1	30		1:7	PES
10.000	RS 10.000			MagnumPlus 10.000	EK 10.000	1	60		1:7	PES
15.000	RS 15.000			MagnumPlus 15.000	EK 15.000	1	60		1:7	PES
20.000	RS 20.000			MagnumPlus 20.000	EK 20.000	1	60		1:7	PES
25.000	RS 25.000			MagnumPlus 25.000	EK 25.000	1	60		1:7	PES
30.000	RS 30.000			MagnumPlus 30.000	EK 30.000	1	60		1:7	PES
40.000	RS 40.000			MagnumPlus 40.000	EK 40.000	3	60		1:7	PES
50.000	RS 50.000			MagnumPlus 50.000	EK 50.000	3	60		1:7	PES
60.000	RS 60.000			MagnumPlus 60.000	EK 60.000	3	30		1:7	PES
80.000	RS 80.000			MagnumPlus 80.000	EK 80.000	3	30		1:7	PES
100.000	RS 100.000			MagnumPlus 100.000	EK 100.000	3	30		1:7	PES
120.000				MagnumPlus 120.000	EK 120.000	3,5	30		1:7	PES
150.000				MagnumPlus 150.000	EK 150.000	3,5	30		1:7	PES
200.000				MagnumPlus 200.000	EK 200.000	3,5	30		1:5	PES

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CE

EN

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EN **Operation Manual**
DIN EN 1492-2 Round sling Page 12 - 21

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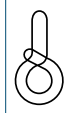
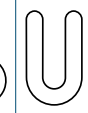
20

a	b	c
		
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21

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	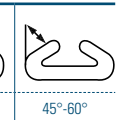
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22

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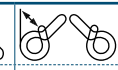
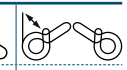
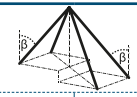
			
0°-45°	0°-45°	45°-60°	45°-60°
*M 1,4	*M 1,12	*M 1,0	*M 0,8

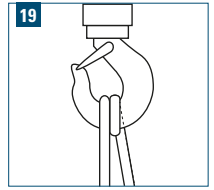
18

1	2		3		4	
						
-	0°-45°	45°-60°	0°-45°	45°-60°	0°-45°	45°-60°
*M 1	*M 1,4	*M 1	*M 2,1	*M 1,5	*M 2,1	*M 1,5

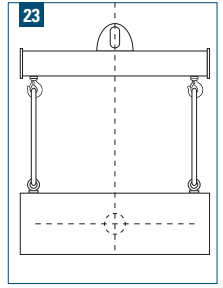
18

4	
	
0°-45°	45°-60°
*M 1,4	*M 1,0

19



23



26

A1 **24** [kg]	A2	A3	B LS	B GSH	B LS	B GSH	B LS	B GSH	C l1 min. [m]	C l1 max. [m]	D	E	F
1000			RSG-1-1000 LS	RSG-1-1000 GSH					0,375	10		1:4	PES/Metall
1400	1400	1000			RSG-2-1400 LS	RSG-2-1400 GSH			0,375	10		1:4	PES/Metall
2100	2100	1500					RSG-4-2100 LS	RSG-4-2100 GSH	0,375	10		1:4	PES/Metall
2000			RSG-1-2000 LS	RSG-1-2000 GSH					0,375	10		1:4	PES/Metall
2800	2800	2000			RSG-2-2800 LS	RSG-2-2800 GSH			0,375	10		1:4	PES/Metall
4200	4200	3000					RSG-4-4200 LS	RSG-4-4200 GSH	0,375	10		1:4	PES/Metall
3000			RSG-1-3000 LS	RSG-1-3000 GSH					0,375	20		1:4	PES/Metall
4200	4200	3000			RSG-2-4200 LS	RSG-2-4200 GSH			0,375	20		1:4	PES/Metall
6300	6300	4500					RSG-4-6300 LS	RSG-4-6300 GSH	0,375	20		1:4	PES/Metall
4000			RSG-1-4000 LS	RSG-1-4000 GSH					0,375	20		1:4	PES/Metall
5600	5600	4000			RSG-2-5600 LS	RSG-2-5600 GSH			0,375	20		1:4	PES/Metall
8400	8400	6000					RSG-4-8400 LS	RSG-4-8400 GSH	0,375	20		1:4	PES/Metall
5000			RSG-1-5000 LS	RSG-1-5000 GSH					0,375	20		1:4	PES/Metall
7000	7000	5000			RSG-2-7000 LS	RSG-2-7000 GSH			0,375	20		1:4	PES/Metall
10.500	10.500	7500					RSG-4-10500 LS	RSG-4-10500 GSH	0,375	20		1:4	PES/Metall
6000			RSG-1-6000 LS						1	20		1:4	PES/Metall
8400	8400	6000			RSG-2-8400 LS				1	20		1:4	PES/Metall
12.600	12.600	9000					RSG-4-12600 LS		1	20		1:4	PES/Metall
8000			RSG-1-8000 LS						1	20		1:4	PES/Metall
11.200	11.200	8000			RSG-2-11200 LS				1	20		1:4	PES/Metall
16.800	16.800	12.000					RSG-4-16800 LS		1	20		1:4	PES/Metall
10.000			RSG-1-10000 LS						2,5	50		1:4	PES/Metall
14.000	14.000	10.000			RSG-2-14000 LS				2,5	50		1:4	PES/Metall
21.000	21.000	15.000					RSG-4-21000 LS		2,5	50		1:4	PES/Metall
15.000			RSG-1-15000 LS						2,5	50		1:4	PES/Metall
21.000	21.000	15.000			RSG-2-21000 LS				2,5	50		1:4	PES/Metall
31.500	31.500	22.500					RSG-4-31500 LS		2,5	50		1:4	PES/Metall
20.000			RSG-1-20000 LS						2,5	50		1:4	PES/Metall
28.000	28.000	20.000			RSG-2-28000 LS				2,5	50		1:4	PES/Metall
42.000	42.000	30.000					RSG-4-42000 LS		2,5	50		1:4	PES/Metall
25.000			RSG-1-25000 LS						2,5	50		1:4	PES/Metall
35.000	35.000	25.000			RSG-2-35000 LS				2,5	50		1:4	PES/Metall
52.500	52.500	37.500					RSG-4-52500 LS		2,5	50		1:4	PES/Metall
30.000			RSG-1-30000 LS						2,5	50		1:4	PES/Metall
42.000	42.000	30.000			RSG-2-42000 LS				2,5	50		1:4	PES/Metall
63.000	63.000	45.000					RSG-4-63000 LS		2,5	50		1:4	PES/Metall

DE Rundschlingen über 40t WLL in Anlehnung an DIN EN 1492-2

ES Correas portadoras redondas para más de 40t WLL en cumplimiento con la norma DIN EN 1492-2

NL Rondstroppen hoger dan 40t WLL volgens de bepalingen van DIN N 1492-2

EN round slings with a WLL over 40t comply with DIN EN 1492-2.

FR Rundschlingen über 40t WLL in Anlehnung an DIN EN 1492-2

IT Rfuni ad anello con portata oltre 40t WLL in conformità con la norma DIN EN 1492-2

Dear SpanSet customer, Thank you for purchasing SpanSet round slings. You have chosen a quality product that will last a long time when used as intended. This operating manual explains how to use them correctly and safely. Ask your SpanSet dealer or SpanSet application technician if you need further instructions. You can find more information on our lifting, fall protection and load protection technology and our services at www.spanset.de. The SpanSet group of companies

SpanSet round slings and round sling hangers are designed for commercial use. Do not use the round slings until you have completely read and understand the operating manual! Also, follow the general rules[1] for lifting loads. The operating manual must be kept for the entire period of use and passed along with the product.
Non-compliance may cause accidents, injury or even death!

Danger! Failure to comply with this important instruction may lead to improper handling! This may cause accidents, injury or even death.

Please observe the symbols on the foldout pages, which are explained under the numbers below:

1. round slings/round sling hangers must not be used when transporting people and/or animals, because they are not designed for this application!
2. Do not overload round slings/round sling hangers, because they may become damaged or break!
3. Do not tie knots in round slings/round sling hangers. This will considerably reduce strength.
4. Do not fasten round slings/round sling hangers to a load if they are twisted. This will considerably reduce strength.
5. Damaged, overloaded or worn round slings/round sling hangers must immediately be removed from use. Load-bearing capacity is no longer guaranteed.
6. Do not use round slings/round sling hangers with a tilt angle of more than 60°. This will overload the round slings/round sling

[1] Also see "Training and important things to know"

hangers and break them.

7 Do not use the round slings in a chain sling. The round slings may slide together and the load may fall.

8 Never simply lay round slings/round sling hangers over the crane hook. The round slings/round sling hangers may slide and the load may fall.

9 round slings/round sling hangers must not be pinched or lie one above another. This will considerably reduce strength.

10 round slings/round sling hangers must not be placed against sharp edges, slide over them and/or be pulled across them. The lifting strap may be severed and the load may fall down (see the definition of sharp edge[1]).

11 Load hooks must not be loaded on the hook tip. The false load considerably reduces load capacity.

12 Do not put a load down on round slings/round sling hangers. round slings/round sling hangers may become damaged.

13 Load hooks must be used only in such a way as to prevent unintentional unhooking. The load may fall.

14 Metal fittings (such as load hooks) must never be used in acids. This will considerably reduce strength.

15 During lifting, the load should never get out of control. Swinging or rotating loads may hurt buildings, machines or people, and components may fall.

16 Observe local occupational safety regulations and manufacturers' instructions! Following these instructions helps prevent accidents.

17 round slings may take on an electrostatic charge, so their use is forbidden underground and in explosive zones.

Table of Contents

[1] A "sharp edge" means when the radius "r" of the transported goods' edge is smaller than or equal to the thickness "d" of the lifting strap or round sling.

1 Functional description and application

Round slings/round sling hangers are intended for slingers (authorized persons) to use for lifting loads. Round slings/round sling hangers must be used as intended. The various SpanSet round slings/round sling hangers can be clearly identified by their sewn label 26 [1] and accompanying documents. All modifications to round slings are forbidden. SpanSet Round slings/round sling hangers are made of reinforced synthetic fibres (e.g. polyester ,polyamide or polypropylene). Their production is DIN EN ISO 9001 certified.

2 Safety instructions and handling

⚠ Only trained (authorized) persons may fasten loads.

⚠ When choosing and using slings, the weight and fastening method must be considered 18 20 21 22 23. The weight, geometry, surface condition and design features of the load are crucial criteria for choosing the sling.

⚠ A sling's nominal load capacity can change depending on the fastening method. The change in load capacity is shown by the load fastening factor (M). A sling's nominal load capacity is indicated in the "simple direct" fastening method. The load fastening factor (M) for the rest of the fastening methods 18 20 21 22 23 can be found in this operating manual.

⚠ Using round slings/round sling hangers with chemicals is permitted only with manufacturer approval. The necessary data include: chemical, concentration, temperature and retention time.

⚠ Before storage and reuse, the user must clean round slings/round sling hangers that have come into contact with acids, lye or other aggressive substances. Ask your SpanSet dealer or SpanSet itself about cleaning processes.

[1] Exemplary label

When the temperature falls below freezing, ice crystals form in damp round slings/round sling hangers and damage the fabric. This can cause loss of strength, so damp round slings must be dried in ventilated areas before reuse.

round slings made of polyester (PES) have a blue label, and round slings of polyamide (PA) have a green label. It is safe to use polyester and polyamide round slings within a temperature range of 40°C to +100°C. Round slings made of polypropylene (PP) have a brown label and can be safely used within a range from -40°C to +80°C.

Never use round slings/round sling hangers with illegible or missing labels, because missing safety instructions can lead to improper use. To prevent the product label from being damaged or torn out (e.g. label and transponder), the chock hitch must not be placed in the label area, and the label must not lie on the load or in the crane hook.

Never lift or lower the load in a jerky manner. This creates forces that can't be controlled. The round slings/round sling hangers may tear or become damaged.

If there are people in the danger zone, they must be warned that a lifting process is being performed and, if necessary, they must be removed from the area of immediate danger. It is prohibited for anyone to be under a suspended load!

Hands and body parts must be kept away from the slings in order to prevent injury if the slings tighten.

Plan the load's fastening, lifting and lowering process with the greatest of care before the actual lifting process. Reckless fastening can damage the load the round sling or endanger employees' life and health!

For shortening, the round slings can be laid around a crane hook 19.

When lifting sharp-edged loads, protect round slings/round sling hangers with safety tubes (e.g. secutex safety tubes or NoCut®).

For net weight of 25 kg and above, ergonomic handling of round slings/round sling hangers requires technical equipment, such as pulleys.

Note that UV radiation (sunlight) may impair the properties of the sling.

Use round slings so that the latter may be removed without damage after the lifting process.

3 Operating round slings/round sling hangers

3.1 First use

Before first use, the user must inspect the round slings/round sling hangers for compliance with the order, completeness of accompanying documents (e.g. declaration of conformity and manufacturer certificate) and conformance of the data in the accompanying documents with the product labels. Upon first use, an authorized person must make a visual check and document it according to BGR 500. For this, a chart can be created or an inspection card filled out and saved. Equipping products with RFID tags and electronic documentation of commissioning, such as with IDXpert® (database), speeds up and simplifies the routine described.

3.2 Choosing the right round slings/round sling hangers

Determine the load's weight by weighing or calculation! Find out the position of the load's centre of gravity from design documents or calculate it! The crane hook must be positioned perpendicularly to the load's centre of gravity, and the length and angle of the round slings must be determined.

20 21 Common fastening methods for round slings:
a) direct
b) simple threading
c) simple hooked on without an inclination angle
d) simply hooked on with an inclination angle

22 Common fastening methods for using round slings in pairs
a) direct 23
b) threaded

If more than one lifting strap is used for the lifting process, they must all be identical.

Uneven stretching of the round slings poses a danger of tilting the load.

With symmetrical load distribution, equal strap lengths and equal angles according to BGR 500 for a 4-strap hanger, only three straps are considered to bear load.

With asymmetrical load distribution and/or unequal angles, with 2-strap hangers, only one strap can be considered load-bearing, and with 3-strap or 4-strap hangers, only two straps can be considered load-bearing.

If round slings are used in pairs, use of a cross member is recommended, so that the load is distributed evenly 23.

3.3 Choosing the nominal load capacity

The round slings' nominal load capacity must be greater than or equal to the load's mass. When choosing the round slings, pay attention to which fastening method and with what tilt angle the lifting process is to take place, because this affects the useful load capacity of the lifting strap. The lifting strap must lie completely on the load suspension device (e.g. crane hook) and on the load.

Attention: Too strong a lateral enclosure (pinching) decreases round slings' load capacity.

3.4 Arranging the load

Place the lifting strap on the load in such a way that it cannot slide on the load or even off the load during the lifting process. Make sure the lifting strap does not twist or intersect with the load. Use adequate edge protection[1] for coarse and/or sharp-edged loads. Make sure that the part of the load to be fastened to the lifting strap can take the force introduced during lifting.

4 Inspection, maintenance, repair and end of use

round slings/round sling hangers must be checked for defects before each use. If you detect defects, the round slings/round sling hangers must be set aside. An authorized person must perform the check according to the employer's specified inspection interval, but at least once per year. Depending on the usage and operational conditions, interim inspections may also be necessary. The inspections must be documented according to BGR 500. Additionally, all metallic fittings must undergo crack inspection at least once every three years. The inspection must be done according to EN 10228 Part 1 (Magnetic powder testing - "fluxes") or Part 2 (Penetration Test).

Speed up and simplify documentation of sling inspections. With IDXpert®, SpanSet offers the right software and hardware. You can find more information at our homepage: www.spanset.de.

Round slings/hangers can be repaired, for example, if:
- the label is missing and the manufacturer is known,
- a replaceable fitting is damaged,
- or only the tube sleeve is damaged.

Repairs can be made only by the manufacturer or a manufacturer-authorized person.

Round slings/hangers should no longer be used if, for example:
- the label is missing and the manufacturer is unknown,

[1] secutex, NoCut®

- the round sling's load-bearing core encased by the tube sleeve is damaged,
- the fabric has been damaged by acid or lye.
- the tube sleeve has been damaged by the effects of heat (such as welding beads),
- non-replaceable fittings have been distorted by overload or wear (bending, cutting, ground areas on the support points, etc.).

Especially if fittings show incipient cracks, lateral cracks, notches, breakage or corrosion, the affected slings must be removed from use. **Never take a risk!** round slings/round sling hangers can be disposed of with household waste as long as the fabric has not been contaminated with oils, raw materials, etc. If the fabric has been contaminated by chemicals, the round slings/round sling hangers must be disposed of as special waste. The metal fittings must be sent for recycling.

5 Storage and cleaning

Maintenance and proper storage prolong the quality and functionality of SpanSet round slings/round sling hangers. Therefore, inspect the round slings/round sling hangers after each use! Damaged round slings/round sling hangers must be removed from use or repaired, and soiled round slings/round sling hangers must be cleaned before they are put into storage (see 2 Safety instructions and handling). Keep the round slings/round sling hangers clean, dry and well ventilated, and protect them from direct sunlight and the effects of chemicals.

6 Training and important things to know

SpanSet round slings/round sling hangers fully meet the requirements of BGR 500, 1492-2, EC machine guideline 2006/42/EC, as well as ZH 1/324 and BGI 556. Please note that the standards and guidelines listed are only examples. Please be aware that specific industries and applications may have special safety requirements that must be complied with. When using textile slings, observe regional occupational safety regulations, such as the rules of the professional associations in Germany. You can get more information and access sources for the

regulations from your SpanSet dealer or directly from SpanSet.

Glossary:

EN Language: English

Please read the operating manual and follow the warnings and safety instructions.

Attention: Special caution and attention!

Forbidden!

Information: Handling instructions.

Get the benefits of SpanSet training for your employees. Our safety training centre regularly offers seminars in fastening, load safety and fall protection technology. Naturally, we also train on site. Ask us, or visit the seminar website: www.spanset-seminare.de.
Benefit from the expertise of SpanSet specialists in preparing, configuring, certification, risk assessment, hazard analysis and operating manuals. You can find more information on our services at our homepage.

24 Technical data, round slings, hanger types
25 Technical data, round sling types

A	- [1]Permissible WLL	C	- Useful length
A2	- [1]Permissible WLL (kg) to 45°	D	- Colour
A3	- [1]Permissible WLL (kg) to 60°	E	- [3]Safety factor (SF)
B	- [2]Item description/type	F	- Material

Please note:
The max. l1 of EK slings is 60 m.

[1] WLL = working load limit = max. permissible load capacity.
[2] RSG = round sling hanger with 1, 2 and 4 load-bearing cords.
[3] SF = relationship between permissible load capacity and minimum breaking strength.
[4] LS or GSH = alternative fittings (product types).

The manufacturer certificate per DIN EN 1492-1 and DIN EN 1492-2 is a part of this user manual. The relevant text passages are on a grey field.

EC Declaration of Conformity

pursuant to Appendix II Part A of EC Machine Directive 2006/42/EC

SpanSet GmbH & Co. KG • Jülicher Straße 49-51 • D - 52531 Übach-Palenberg

We hereby declare that the round sling described below, in the version we have marketed, conforms in its design and construction to the fundamental safety and health requirements of the EC Machine Directive. Any unapproved modification of the round sling voids this declaration. The round sling must be used only for the purposes described in the operating manual.

Description of machine:	round sling
Type:	See round sling statement below 24 25
Function:	Load suspension device
Serial No:	All serial numbers under the type description
Production year :	Starting in 2013
Applicable EC directives:	Machine Directive 2006/42/EC, Electromagnetic compatibility RL 2004/108/EC

Harmonized European standards applied

DIN EN ISO 12100, DIN EN ISO 13857

National standards and technical specifications applied

DIN EN 1492-2, DIN EN 1677-1, DIN EN 1677-2, DIN EN 1677-3, DIN EN 1677-4

Person(s) responsible for compiling the technical documentation:

SpanSet GmbH & Co KG (CE Representative)

Übach-Palenberg 15.07.2013		
(Location, Date)	Hans-Josef Neunfinger CEO	Patrik Schulte CEO