



**verope**  <sup>®</sup>  
rely on

Mining  
**Catalog**  
verope Special Wire Ropes











## Mining is our business

The concept of verope is to design and to manufacture Special Wire Ropes that best suit the different requirements as well as to provide affordable high quality products and services to the market.

verope Special Wire Ropes demonstrate in diverse and demanding applications worldwide high performance and reliability. This is our incentive to consistently develop verope together with our partners.

We are proud to present you with this catalog, in addition to proven also newly developed verope Special Wire Ropes, recognized by leading hoist manufacturers.

**verope** ®  
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Besides continuous product development verope is increasingly investing in service and logistics. Our service centers in Singapore, China and Germany make an important contribution to the regional customer service today. verope AG products and services are certified by LRQA in accordance with ISO 9001:2008.

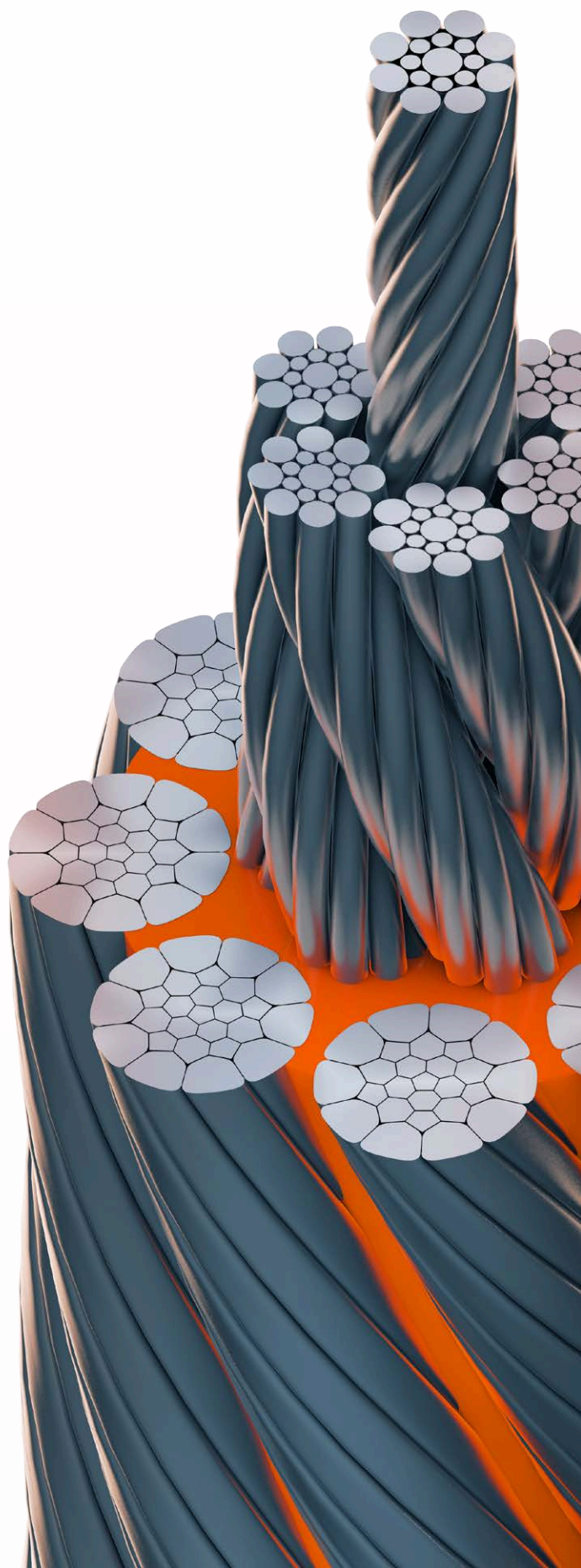
The ever-expanding verope team remains your reliable partner who advises you on the best and most competitive rope construction for your application. The basis for this is our high quality product range that you can rely on.

Your requirements are our focus.



**Pierre Verreet**







# Why Special Wire Ropes?

## Safety

Special Wire Ropes are supremely engineered products, carefully designed and tested to achieve an increased level of safety. The high number of parallel lay wires in strands as well as parallel lay compacted strands in the rope composition with steel-plastic combination concept allow for safe use of the rope. Ropes with higher breaking loads offer an increased service life under a lower specific level of stress. A well balanced wire rope construction prevent the rope core from being overloaded.

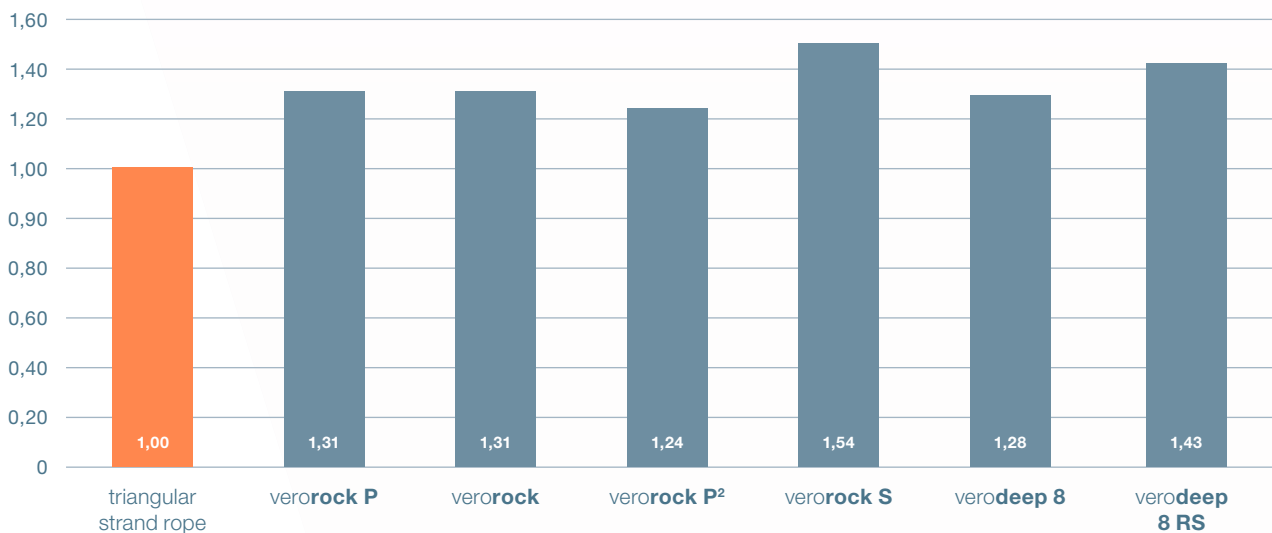
The discard criteria according to the international standards must always be applied.



## Breaking Load

verope Special Wire Ropes are designed to achieve high breaking loads and better strength-to-weight ratios. High ductility wires drawn to controlled tolerances are stranded and closed into a rope constructed with optimised gap spacing between the individual rope elements.

verope products achieve an increased fill factor by using compacted strands as well as rotary swaging in their method of rope construction. Parallel lay elements in the rope composition increase the metallic cross sectional area.





## Rotation

Rotation resistant ropes are manufactured with a steel core closed in the opposite direction to the outer strands.

When under load, the strands of the independent wire rope core (IWRC) have a tendency to twist in one direction, while the outer strands tend to rotate in the opposite direction.

- Rotation resistant ropes are used as hoist ropes for unguided loads.
- Non-rotation resistant ropes are used as hoist ropes for guided loads.

## Bending Fatigue

The design concept of verope Special Wire Ropes offer many advantages to perform in a variety of demanding applications.

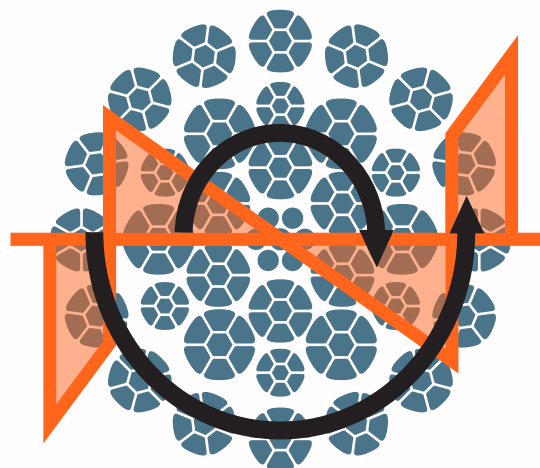
The working conditions for wire ropes are very demanding with frequent changes in loads and operating at high rope speeds. The angle of deflection between the rope, sheave and drum all considerably influence the service life of the rope.

Increasing the number of strands and the number of wires in a rope enlarges the contact surface area between rope and sheave groove/rope and drum which in turn reduce the radial pressure. Compacted and rotary swaged ropes increase the surface area and reduce the pressure even further.

Flexible rope constructions improve the spooling behaviour.

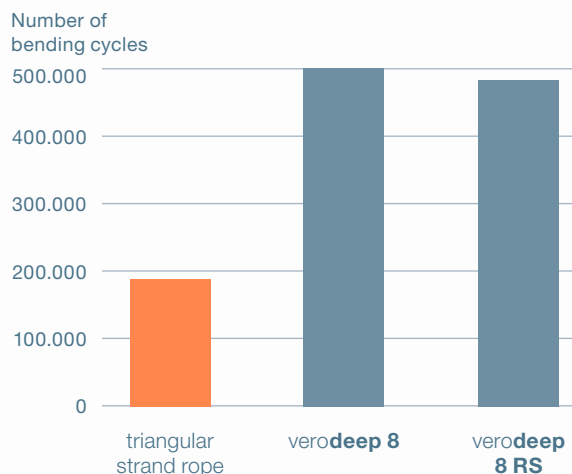
### The main advantage is:

Good rotational stability over a wide load spectrum for torque balanced rotation resistant ropes.



The steel-plastic combination rope construction stabilises the rope structure during installation and prolongs the actual service by reducing the risk of internal wire breaks.

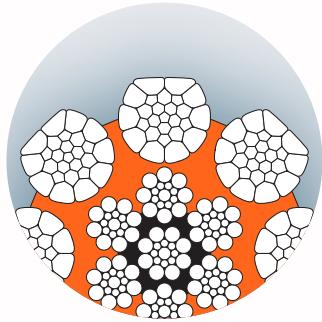
Due to the high service life, verope Special Wire Ropes can be used cost efficiently compared with standard rope constructions. Continuous quality improvements guarantee a calculable rope life.







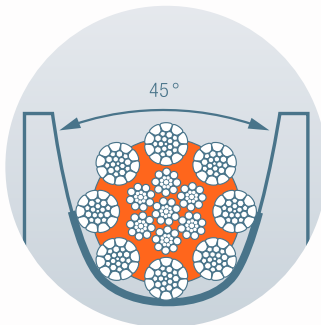
**6** Lay types of **wire ropes**  
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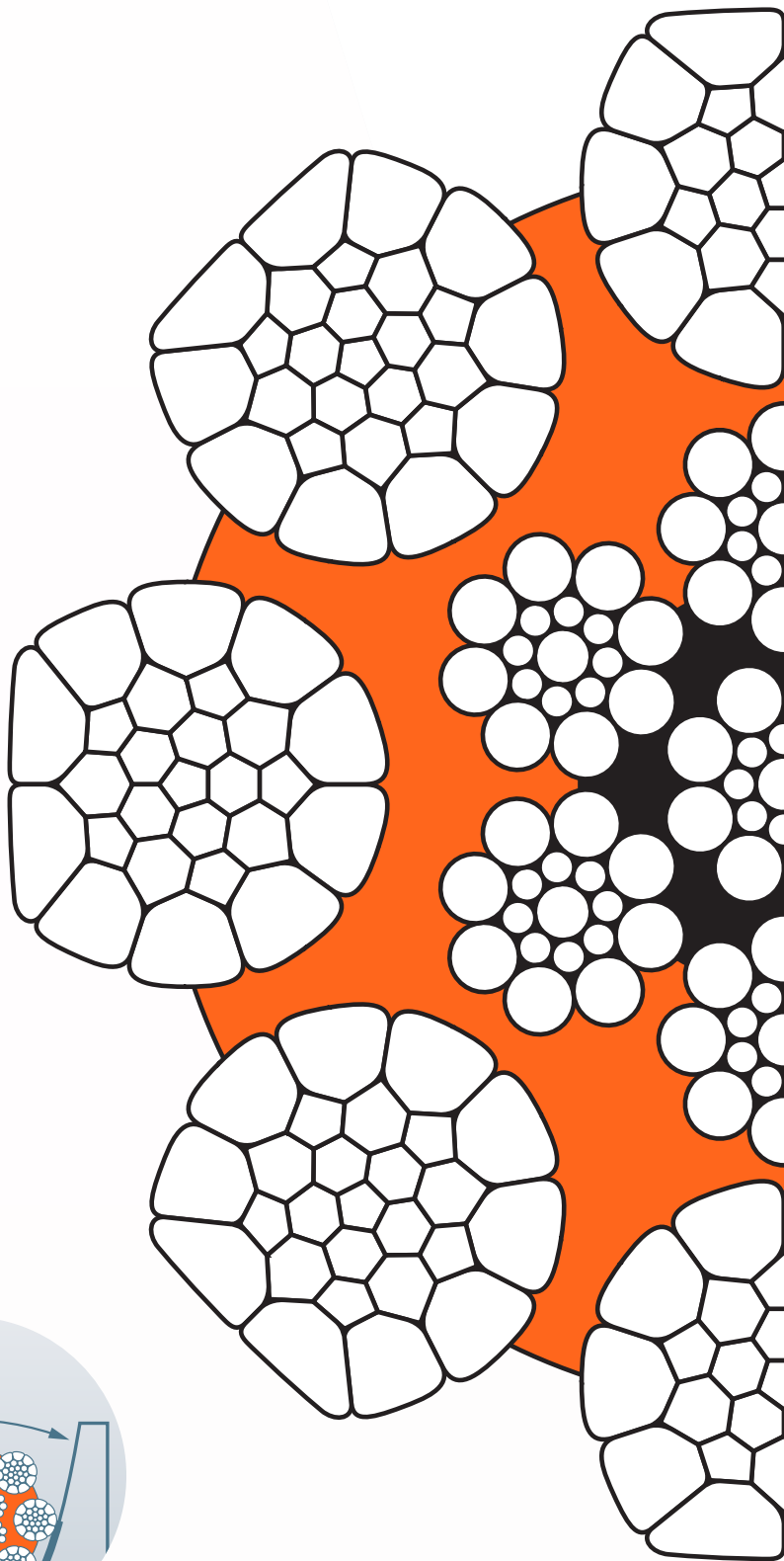
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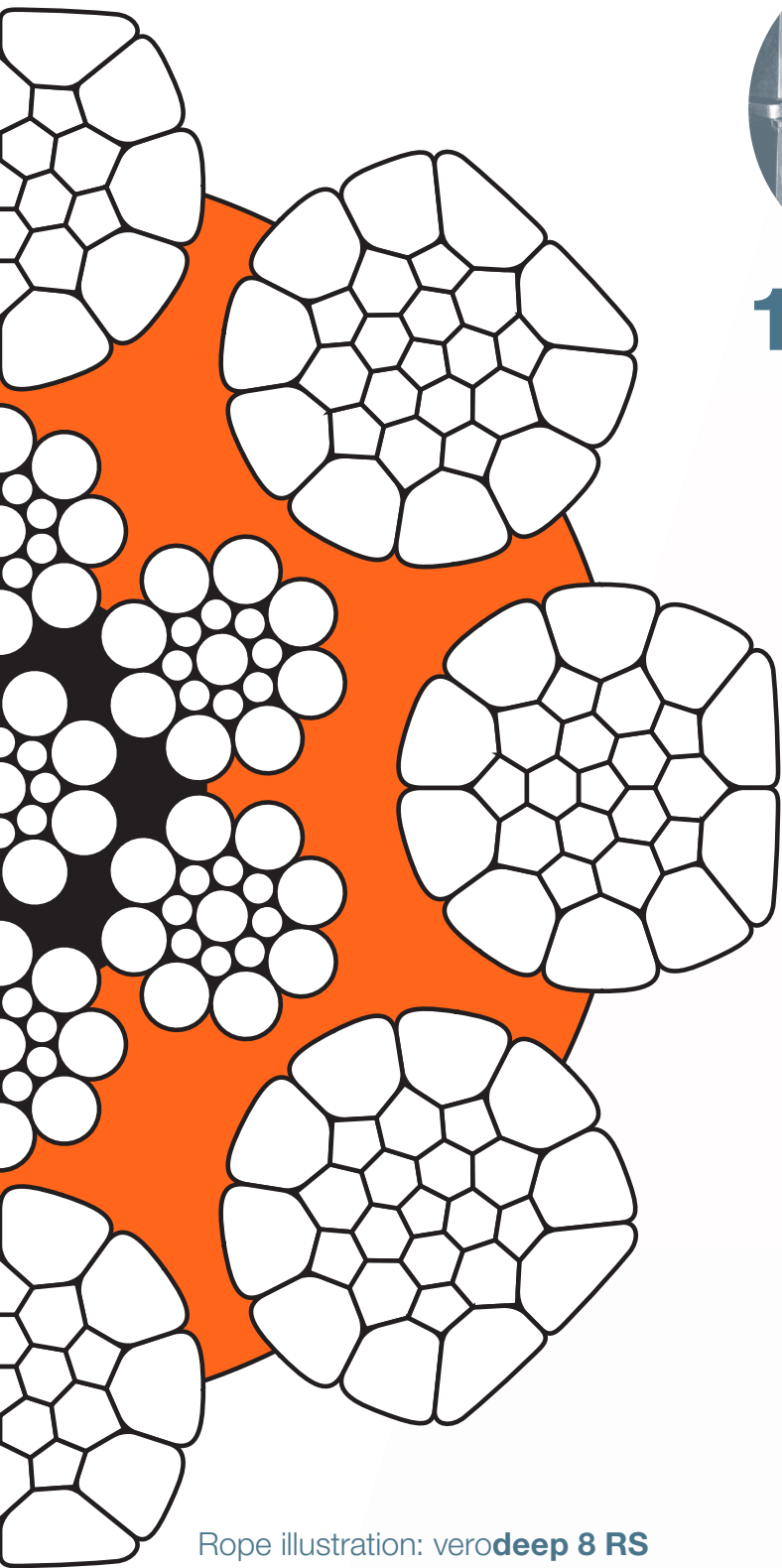
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Rope illustration: verodeep 8 RS



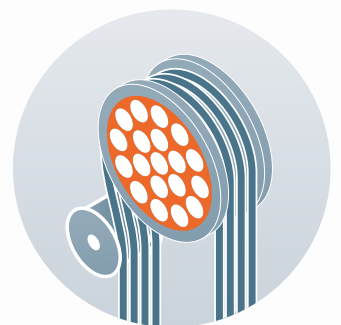
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Name of installation and
Name of mine
* Type of installation
* Relevant standard (TA
* Type of shaft guides
Number of head

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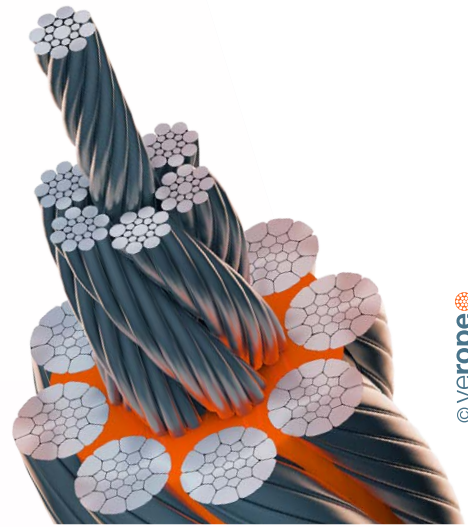
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## special mining rope features

### Construction by Computer Aided Design

#### The main advantages are:

- State of the art wire rope design
- Continuously improved custom software
- Prototype development
- Production constraints
- Compacting and Rotary Swaging
- Filling grades
- Gap optimisation
- Torque minimisation
- 2D cross section views
- Realistic 3D views



© verope

verodeep 8 constructed by Computer Aided Design

### Lay types of wire ropes

Two lay types are to be considered:  
Regular or ordinary lay and lang's lay.

In regular lay ropes the lay direction of the wires in the strands are opposite to the lay direction of the strands in the rope. We distinguish between regular lay left hand (right hand strand, left hand rope, zS) and regular lay right hand (left hand strand, right hand rope, sZ).

In lang's lay ropes the lay direction of the wires in the strands is equal to the strands in the rope. We distinguish between lang's lay left hand (left hand strand, left hand rope, sS) and lang's lay right hand (right hand strand, right hand rope, zZ).

#### The advantages of regular lay ropes are:

- Better structural stability
- Higher number of broken wires are allowed
- Easier identification of broken wires

#### The advantages of lang's lay ropes are:

- Better contact in the groove of the sheaves
- Superior resistance to wear
- Longer lifetime in case of high dead loads
- Considerably better spooling behavior on a multi-layer drum



Regular lay  
left hand  
(zS)



Regular lay  
right hand  
(sZ)



Lang's Lay  
left hand  
(sS)



Lang's Lay  
right hand  
(zZ)

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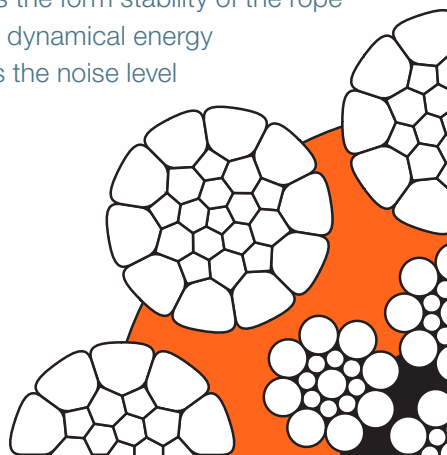
## Plastic Layer

Many verope products have a plastic layer between the steel core and the outer strands. This intermediate layer stabilizes the form stability of the rope like a flexible corset and increases the lifetime of a rope especially under difficult working conditions.

The intermediate plastic layer prevents the infiltration of water and dirt, which helps avoid corrosion from occurring in the steel core. This cushion avoids internal steel-to-steel cross over contacts and limits as such the damage caused by this phenomenon.

### The main advantages are:

- Prevents internal wire breaks
- Seals in rope lubricant
- Prevents infiltration of water, dust, etc.
- Reduces the internal stress
- Improves the form stability of the rope
- Absorbs dynamical energy
- Reduces the noise level



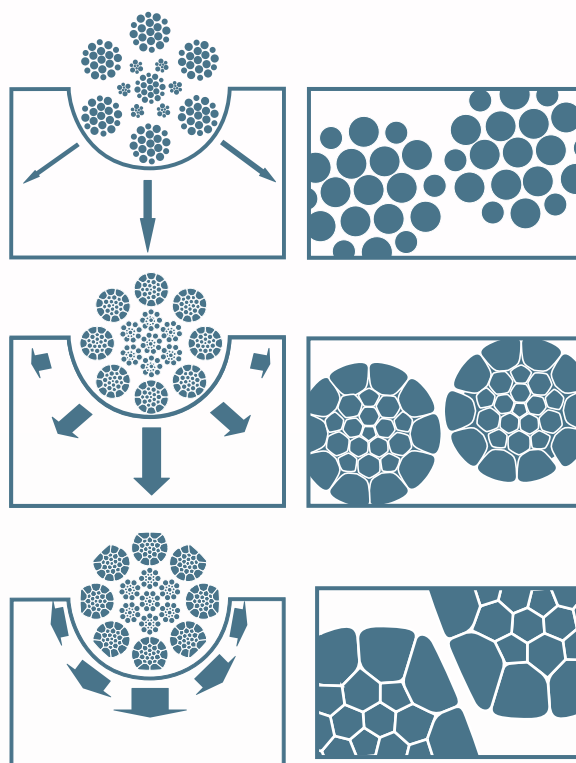
© verope

## Compacting and Rotary Swaging

Compacting of individual strands or of a complete wire rope has two main objectives: to increase the breaking load and to give the strand/rope a smoother surface. At verope, the compacting is made by passing the rope through a set of compacting rollers. This method has been proved to be the best in view of the plastic deformation of the steel. Rotary swaging of the finished rope gives the rope an extreme smooth surface of course. verope has some products in its program where this technique is applied.

### The main advantages are:

- Smooth surface
- Linear contact between individual wires
- Better contact between rope surface and sheaves
- Higher metallic area and higher breaking strength
- Good structural stability for multilayer spooling systems
- Better resistance to abrasion
- Reduced rope crushing



## Drums

Drums are used to pull in and store steel wire ropes. The rope can be spooled in single-layer or in multi-layer spooling.

Single-layer drums can be ungrooved or have a helical groove. The pitch of the drum will typically be nominal rope diameter +10%.

Multi-layer drums can be helical or have a Lebus<sup>®</sup>-type groove. While helical-type grooves have a constant pitch of the drum, the Lebus<sup>®</sup>-type grooves show on 1/3 of the circumference of the drum a pitch of 0° (means they are parallel to the flange), followed by drum grooves which are inclined by 3° on about 1/6 of the circumference of the drum. The Lebus<sup>®</sup>-type grooves typically have a pitch of about nominal rope diameter +4% or to +5%.

The flexibility and the radial stability of a steel wire rope and the D/d ratio of the drum are important influences for the quality of the spooling.

In order to avoid twisting of the wire rope by the drum, the drum rule should be obeyed. A right hand drum should be operated with a left hand lay rope, a left hand drum should be operated with a right hand lay rope.

In multi-layer drums, the direction of the drum changes with every layer. Here the lay direction of the steel wire rope should be chosen for the most used layer of the drum.

## Sheaves

Sheaves are used to change the direction of a steel wire rope. When entering a sheave, a steel wire rope will be bent and subjected to half a bending cycle. When leaving the sheave on the other side, the rope section will be straightened and thereby be subjected to another half a bending cycle.

The diameter of a sheave is often measured as a multiple of a rope diameter, the D/d ratio.

A D/d ratio of 20 means that the sheave diameter (measured from center rope to center rope) is 20 times the nominal rope diameter). The tread diameter here is 19 x d.

The fatigue life of a steel wire rope will increase with increasing D/d ratio.

If a rope travels over a sheave under a fleet angle, it will roll down the flanges and get twisted. Tests have shown that the amount of twist brought into the rope is a function of the groove angle: The larger the groove angle, the less twisting will occur.

A steel wire rope diameter can measure up to nominal rope diameter +5%. In order to accommodate a steel wire rope, according to most standards the groove diameter should therefore measure between nominal rope diameter +5% to +10%, at least 1% greater than the actual diameter of the new rope.



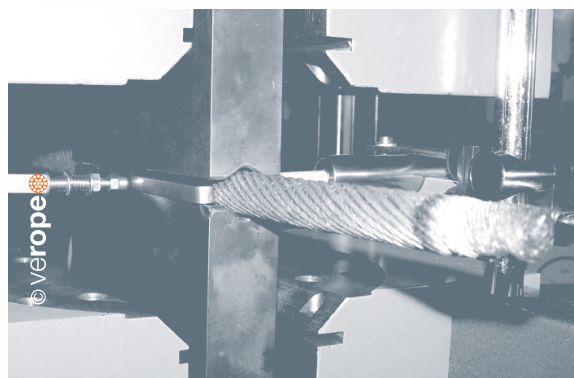
verope offers sheave gauges to measure the actual groove diameter



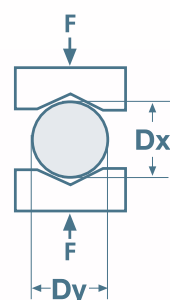
## Radial stability with and without load

In multi-layer spooling wire ropes are additionally to tensile and bending loads exposed to enormous transverse loads. In order to be able to withstand these loads and to avoid spooling problems, a high degree of radial stability is necessary.

The radial stability of the rope also influences the deforming behavior of the drum. That's why it is important for the designer of the drum to know the radial stability in the form of the transverse modulus of elasticity of the ropes. Radial stability is defined as the resistance of a wire rope against transverse (radial) deformation (Ovalization). verope measures the radial stability of its products with and without load.



Testing device



## Lubrication

### → Wire rope lubricant

The wire rope lubricant has two major tasks: it should protect the rope from corrosion and it should minimize the friction between the rope elements themselves. A reduction of the friction minimizes the wear of the rope.

We differentiate between wax-based lubricants and oil-based lubricants.

While wax-based lubricants offer a better handling of the ropes, the oil-based lubricants advantage is a better closing of the lubrication film due to the gravitational force of the oil.

The quality of the wire rope lubricant has a great impact on the fatigue resistance of a wire rope.

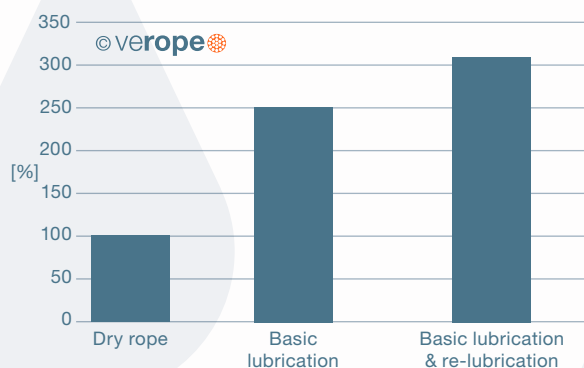


### → Re-lubrication

Generally wire ropes are lubricated during the production process. Nevertheless, this initial lubrication has to be renewed regularly during the whole rope's lifetime.

Regular re-lubrication contributes to an increase in the rope's service life.

The lubricant used for re-lubrication needs to be compatible with the lubricant used during production.



## Safety Instructions

### Please note that wrong selection and use of wire ropes can be dangerous!

#### Don't hesitate to contact us.

- Wire ropes must be properly transported, stored, installed and maintained. Please refer to the relevant literature on these topics.
- Always inspect wire rope and wire rope termination for wear, damage or abuse before use. Never use wire rope or wire rope termination that is worn out, damaged or abused.
- Never overload or shock load a wire rope.
- Please note that very high or very low ambient temperatures may dramatically change the behavior of the wire rope as well as the wire rope termination. Please contact us if there is any doubt regarding the safe use in a certain environment.

With the following information, we would like to bring your attention to a few key points for proper selection, use and monitoring of wire ropes. In addition to general technical literature on wire ropes, national and international standards your verope team is happy to assist regarding all rope related questions you may have.

- Wire ropes and wire rope terminations are regarded as expendable products. For safe and proper use, maintenance and inspection are required. Wire ropes and wire rope terminations have to be discarded when the results of inspection indicate that further use would be unsafe. Please refer to applicable international or national standards in their relevant version and other general technical literature or regulations concerning inspection, examination and discard criteria for both wire ropes and wire rope terminations.
- Our products are subject to modifications, this may change the specifications.
- The cross-sections on our data sheets show a typical rope diameter and can vary within the range.

### Protect yourself and others – failure of wire rope or wire rope terminations may cause serious injury or death!



## Koepe winder / friction winder data required for rope quotation (\*) and for technical evaluation

<b>Mine</b>	Name of installation and shaft		
	Name of mine		
	* Type of installation		
	* Relevant standard (TAS, SABS, ISO ...)		
<b>Head rope</b>	* Type of shaft guides		
	* Number of head ropes		
	* Head rope construction used before		
	* Nominal head rope diameter used before		mm
	* Tensile grade used before (1770, 1960, ...)		N/mm <sup>2</sup>
	* Lay type and direction of lay		<input type="checkbox"/> Ordinary <input type="checkbox"/> Lang's <input type="checkbox"/> Left <input type="checkbox"/> Right
	* Rope wire finish		<input type="checkbox"/> Bright <input type="checkbox"/> Galvanized <input type="checkbox"/> Zn+Al
	* Total head rope length		m
	* Max suspended head rope length		m
	Length of wind		m
	* Mass of head rope		kg/m
	* Required head rope MBL		kN
	Type of lubrication used before		
	Mass of lubrication		<input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy
	* Safety factor (design factor) required		
	* End connection		
<b>Drum &amp; sheave</b>	Number of head ropes per Koepe drum		
	Distance between head ropes		mm
	Diameter of Koepe drum		mm
	Angle of wrap on Koepe drum		°
	Diameter of deflection sheave if installed		mm
	Angle of wrap on deflection sheave		°
	Distance of deflection sheave to Koepe drum		m
	Sheave diameter		mm
	Sheave maximum nominal tread pressure		Mpa
	Current average rope life		months

Please note reverse side! →

Please note that verope will keep your data confidential and will use it only for the purpose of producing a technically correct rope selection and quotation. verope needs the answers to the questions marked with an asterisk (\*). Answers to the non marked questions are welcome but not absolutely necessary. Please feel free to fill out this table and send it to sales@verope.com You can also find this sheet digitally by scanning the QR code and send it via mail.



## Koepe winder / friction winder data required for rope quotation (\*) and for technical evaluation

<b>Tail rope</b>	* Number of tail ropes		
	* Tail rope construction used before		
	* Nominal tail rope diameter used before		mm
	* Tensile grade used before (1770, 1960, ...)		N/mm <sup>2</sup>
	* Lay type and direction of lay	<input type="checkbox"/> Ordinary <input type="checkbox"/> Lang's <input type="checkbox"/> Left <input type="checkbox"/> Right	
	* Rope wire finish	<input type="checkbox"/> Bright <input type="checkbox"/> Galvanized <input type="checkbox"/> Zn+Al	
	* Total tail rope length		m
	* Suspended tail rope length with skip in loading station		m
	* Suspended tail rope length with skip in unloading position		m
	* Mass of tail rope		kg/m
	* Required tail rope MBL		kN
	Type of lubrication use before (brand)		
	Mass of lubrication (light / medium / heavy)	<input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy	
	* Safety factor (design factor) required		
	* End connection		
	* D/d ratio of tail rope loop		
Current average rope life		months	
<b>Application</b>	Tower or ground mounted Koepe drum		
	Mass of empty skip and attachments [kg]		kg
	Payload of skip [kg]		kg
	Skip factor (empty skip mass: payload)		
	How is rope tension monitored	<input type="checkbox"/> Manual <input type="checkbox"/> Load Cell	
	Max rope speed		m/sec
	Acceleration / deceleration		m/sec <sup>2</sup>

← Please note reverse side!

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## Shaft sinking data required for rope quotation (\*) and for technical evaluation

<b>Mine</b>	Name of installation and shaft				
	Name of mine				
	* Relevant standard (TAS, SABS, ISO, ...)				
<b>Hoist</b>	* Number of ropes				
	* Rope construction ( / non-rotation resistant)	<input type="checkbox"/> rotation resistant	<input type="checkbox"/> non-rotation resistant		
	* Nominal rope diameter		mm		
	* Tensile grade (1770, 1960, ...)		N/mm <sup>2</sup>		
	* Lay type and direction of lay	<input type="checkbox"/> Ordinary	<input type="checkbox"/> Lang's	<input type="checkbox"/> Left	<input type="checkbox"/> Right
	* Rope wire finish	<input type="checkbox"/> Bright	<input type="checkbox"/> Galvanized	<input type="checkbox"/> Zn+Al	
	* Total rope length		m		
	* Max suspended rope length		m		
	* Required MBL		kN		
	Mass of lubrication (light / medium / heavy)	<input type="checkbox"/> Light	<input type="checkbox"/> Medium	<input type="checkbox"/> Heavy	
	* Safety factor (design factor) required				
	* End connection				
	Max rope speed		m/sec		
<b>Drums, sheaves &amp; stage</b>	Drum diameter		mm		
	Pitch of grooving		mm		
	Type of drum grooving (e.g. LeBus®, helicoidal, flat)				
	Type of drum cross over	<input type="checkbox"/> Grooved	<input type="checkbox"/> Non grooved		
	Maximum number of rope layers on drum				
	Sheave diameter		mm		
	* Drawing of reeving system				
	Mass of stage and attachments		kg		

Please note reverse side! →

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## Shaft sinking data required for rope quotation (\*) and for technical evaluation

<b>Kibble rope</b>	* Number of ropes		
	* Rope construction	<input type="checkbox"/> rotation resistant	<input type="checkbox"/> non-rotation resistant
	* Nominal rope diameter		mm
	* Tensile grade (1770, 1960, ...)		N/mm <sup>2</sup>
	* Lay type and direction of lay	<input type="checkbox"/> Ordinary	<input type="checkbox"/> Lang's <input type="checkbox"/> Left <input type="checkbox"/> Right
	* Rope wire finish	<input type="checkbox"/> Bright	<input type="checkbox"/> Galvanized <input type="checkbox"/> Zn+Al
	* Total rope length		m
	* Max suspended rope length		m
	* Required MBL		kN
	Mass of lubrication	<input type="checkbox"/> Light	<input type="checkbox"/> Medium <input type="checkbox"/> Heavy
	* safety factor (desing factor) required		
	* End connection		
	Max rope speed		m/sec
<b>Drums, sheaves &amp; stage</b>	* Drum diameter		mm
	Pitch of grooving		mm
	Type of drum grooving (e.g. LeBus®, helicoidal, flat)		
	Maximum number of rope layers on drum		
	Sheave diameter		mm
	* Drawing of reeving system		
	Mass of empty kibble and attachments		kg
	Payload of kibble		kg

← Please note reverse side!

Please note that verope will keep your data confidential and will use it only for the purpose of producing a technically correct rope selection and quotation. verope needs the answers to the questions marked with an asterisk (\*). Answers to the non marked questions are welcome but not absolutely necessary. Please feel free to fill out this table and send it to [sales@verope.com](mailto:sales@verope.com). You can also find this sheet digitally by scanning the QR code and send it via mail.





## Drum winder data required for rope quotation (\*) and for technical evaluation

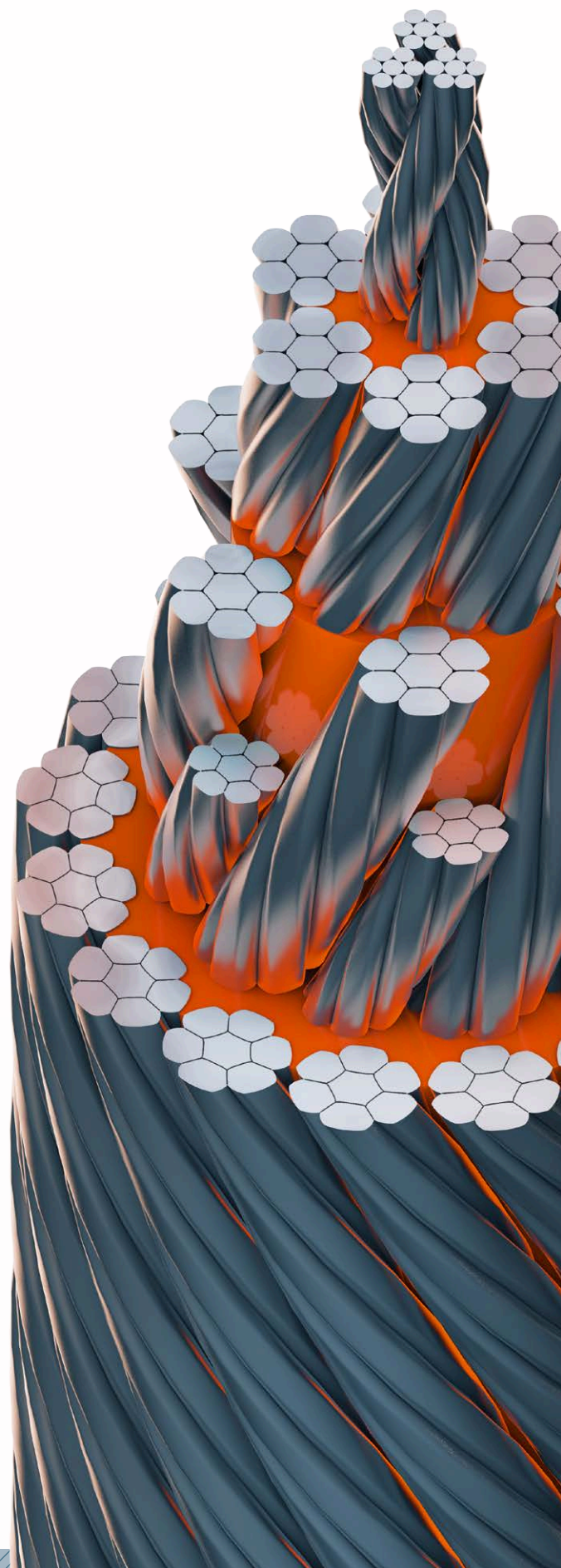
<b>Mine</b>	Name of installation and shaft		
	Name of mine		
	* Type of installation		
	* Type of shaft guides		
	* Relevant standard (TAS, SABS, ISO ...)		
<b>Rope</b>	* Rope construction used before		
	* Nominal rope diameter used before		mm
	* Tensile grade used before (1770, 1960 ...)		N/mm <sup>2</sup>
	* Lay type and direction of lay	<input type="checkbox"/> Ordinary <input type="checkbox"/> Lang's <input type="checkbox"/> Left <input type="checkbox"/> Right	
	* Rope wire finish	<input type="checkbox"/> Bright <input type="checkbox"/> Galvanized <input type="checkbox"/> Alumar	
	* Total rope length		m
	* Max suspended rope length		m
	Max length of wind		m
	* Mass of rope		kg/m
	* Required MBL		kN
	Type of lubrication (brand)		
	Mass of lubrication (light / medium / heavy)	<input type="checkbox"/> Light <input type="checkbox"/> Medium <input type="checkbox"/> Heavy	
	* Safety factor (design factor) required		
	* End connection		
<b>Drum &amp; Sheave</b>	Number of ropes per drum		
	Diameter of drum		mm
	Type of drum grooving (e.g. LeBus®, helicoidal, flat)		
	Pitch of grooving		mm
	Type of drum cross over (grooved / non grooved)	<input type="checkbox"/> Grooved <input type="checkbox"/> Non grooved	
	Maximum number of rope layers on drum		
	Sheave diameter		mm
	Sheave maximum nominal tread pressure		MPa
<b>Application</b>	Mass of skip and attachments as per winder certificate		
	Payload as per winder certificate		kg
	Skip factor (empty skip mass: payload)		
	Max rope speed		m/sec
	Acceleration / deceleration		m/sec <sup>2</sup>
	Current average rope life		months

Please note that verope will keep your data confidential and will use it only for the purpose of producing a technically correct rope selection and quotation. verope needs the answers to the questions marked with an asterisk (\*). Answers to the non marked questions are welcome but not absolutely necessary. Please feel free to fill out this table and send it to sales@verope.com You can also find this sheet digitally by scanning the QR code and send it via mail.



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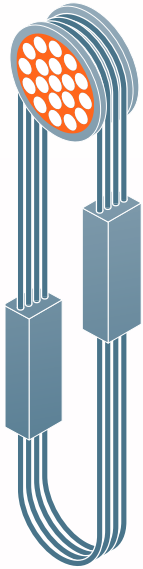




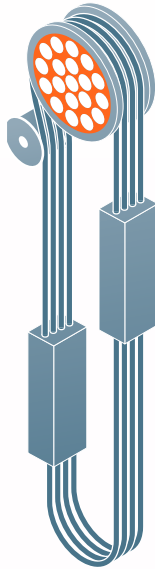


## Koepe friction winder

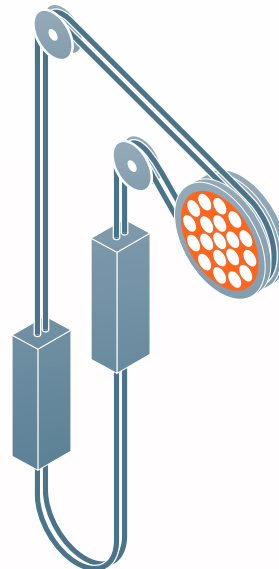
Tower mounted koepe friction winder multi-rope  
**no** deflection sheaves



Tower mounted koepe friction winder multi-rope  
**with** deflection sheaves

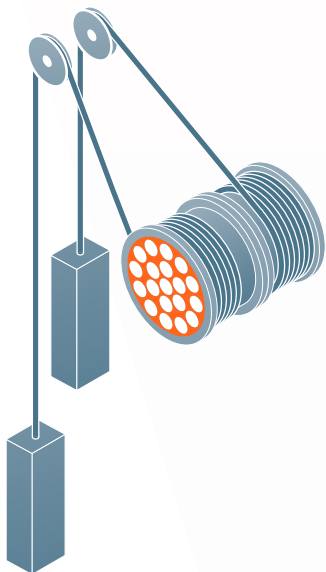


Ground mounted koepe friction winder multi-rope

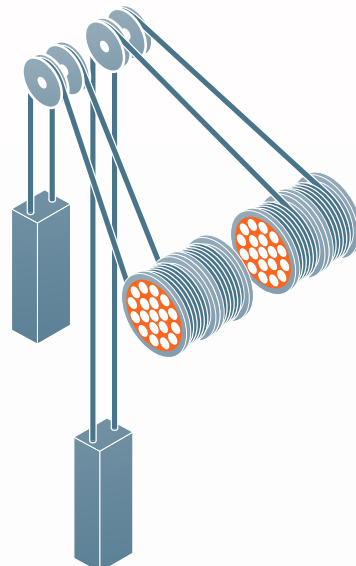


## Drum winder

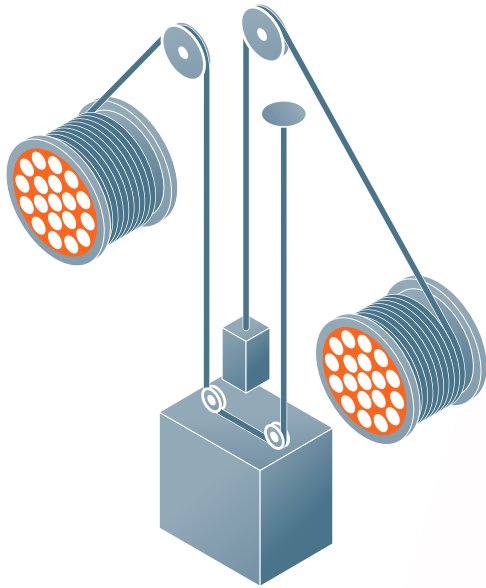
Double drum winder



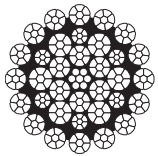
Blair multi-rope (BMR) winder



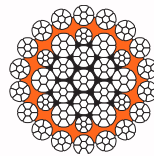
## Shaft **sinking**



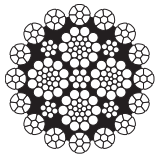
## Special wire ropes **for mining applications**



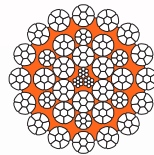
veror**rock** is a very flexible rotation-resistant rope with compacted strands.



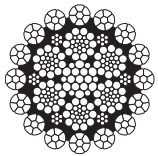
veror**rock P** is a rotation-resistant rope with compacted strands and a rope core covered with a plastic layer.



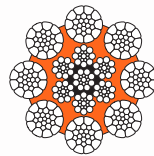
veror**rock E** is a flexible rotation-resistant rope with compacted outer strands.



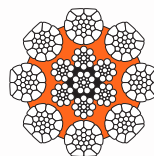
veror**rock P<sup>2</sup>** is a rotation resistant rope with compacted strands. The rope core is fully filled with plastic.



veror**rock S** is a very flexible rotation-resistant rope with compacted outer strands and very high breaking strength.



vero**deep 8** is an 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.



vero**deep 8 RS** is a rotary swaged 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.

# verorock

A superior balanced rope when resistance to rotation becomes most critical.



Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1960	2160	1960	2160
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	231.8	1.959	374.1	384.3	454.4	500.8
21	255.6	2.160	412.4	423.7	501.0	552.1
22	280.5	2.371	452.6	465.0	549.9	606.0
23	306.6	2.591	494.7	508.3	601.0	662.3
24	333.9	2.821	538.7	553.4	654.4	721.1
25	362.3	3.061	584.5	600.5	710.0	782.5
26	391.8	3.311	632.2	649.5	768.0	846.3
27	422.5	3.571	681.8	700.4	828.2	912.7
28	454.4	3.840	733.2	753.3	890.7	981.6
29	487.5	4.119	786.5	808.1	955.4	1053
30	521.7	4.408	841.7	864.7	1022	1127
31	557.0	4.707	898.7	923.4	1092	1203
32	593.5	5.015	957.7	983.9	1163	1282
33	631.2	5.334	1018.4	1046.3	1237	1363
34	670.0	5.662	1081.1	1110.7	1313	1447
35	710.0	6.000	1145.6	1177.0	1392	1534
36	751.2	6.348	1212.0	1245.2	1472	1623
37	793.5	6.705	1280.3	1315.4	1555	1714
38	837.0	7.072	1350.4	1387.4	1640	1808
39	881.6	7.450	1422.4	1461.4	1728	1904
40	927.4	7.837	1496.3	1537.3	1818	2003
41	974.3	8.233	1572.1	1615.1	1910	2105
42	1022.5	8.640	1649.7	1694.9	2004	2209
43	1071.7	9.056	1729.2	1776.6	2101	2315
44	1122.2	9.482	1810.6	1860.2	2199	2424
45	1173.7	9.918	1893.8	1945.7	2301	2535
46	1226.5	10.364	1978.9	2033.1	2404	2649
47	1280.4	10.819	2065.9	2122.5	2510	2766
48	1335.5	11.285	2154.7	2213.7	2617	2885
49	1391.7	11.760	2245.4	2306.9	2728	3006
50	1449.1	12.245	2338.0	2402.1	2840	3130
51	1507.6	12.739	2432.5	2499.1	2955	3256
52	1567.3	13.244	2528.8	2598.1	3072	3385
53	1628.2	13.758	2627.0	2699.0	3191	3517
54	1690.2	14.282	2727.1		3313	
55	1753.4	14.816	2829.0		3437	
56	1817.7	15.360	2932.8		3563	

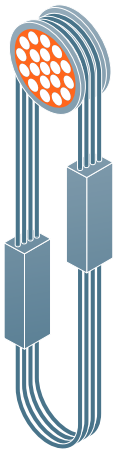
\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

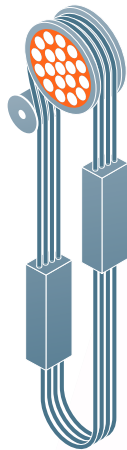


## Applications

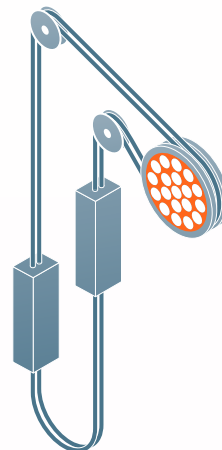
Tower mounted koepe friction winder single-rope  
**no** deflection sheaves



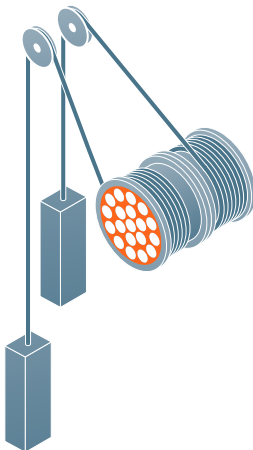
Tower mounted koepe friction winder single-rope  
**with** deflection sheaves



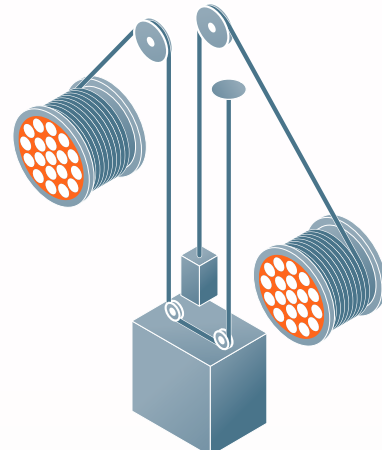
Ground mounted koepe friction winder multi-rope



Double drum winder



Shaft sinking

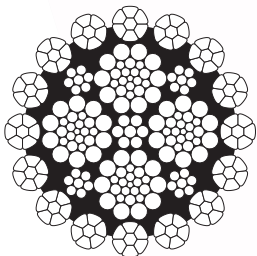


verorock is a very flexible rotation-resistant rope with compacted strands.

- has a very high breaking strength
- achieves very good bending fatigue results
- offers excellent resistance to crushing and abrasion
- possesses perfect spooling behavior on multilayer drum
- can be used either with or without swivel
- is a category 1 rotation-resistant rope in accordance with ASTM A1023

# verorock E

Combines high breaking strength and good rotation resistance with remarkable efficiency.



verorock E/2015/10/v1.0

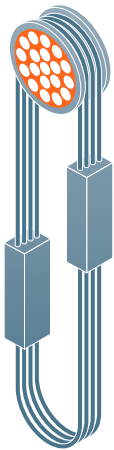
Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1960	2160	1960	2160
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	219.9	1.909	337.9	369.0	431.03	475.01
22	266.1	2.310	408.9	446.4	521.54	574.76
23	290.8	2.524	446.9	488.0	570.03	628.20
24	316.7	2.749	486.6	531.3	620.68	684.01
25	343.6	2.983	528.0	576.5	673.48	742.20
26	371.7	3.226	571.1	623.5	728.43	802.76
27	400.8	3.479	615.9	672.4	785.55	865.70
28	431.0	3.741	662.3	723.2	844.81	931.02
29	462.4	4.013	710.5	775.7	906.23	998.71
30	494.8	4.295	760.3	830.2	969.81	1068.77
32	563.0	4.887	865.1	944.5	1103.43	1216.02
34	635.5	5.517	964.2	1055.8	1245.67	1372.78
35	673.5	5.846	1021.7	1118.8	1320.02	1454.71
36	712.5	6.185	1080.9	1183.7	1396.53	1539.03
37	752.6	6.533	1158.0	1261.6	1475.19	1625.72
38	793.9	6.891	1204.4	1318.8	1556.01	1714.78
39	836.2	7.258	1268.6	1389.2	1638.98	1806.22
40	879.6	7.635	1334.5	1461.3	1724.11	1900.04

\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

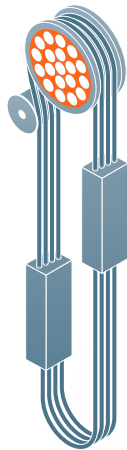
The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

## Applications

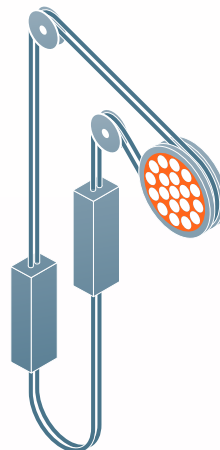
Tower mounted koepe  
friction winder single-rope  
**no** deflection sheaves



Tower mounted koepe  
friction winder single-rope  
**with** deflection sheaves



Ground mounted koepe  
friction winder multi-rope



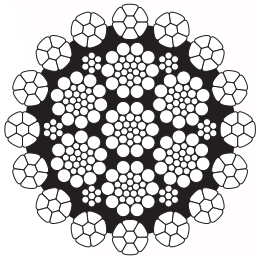
verorock **E** is a flexible rotation-resistant rope  
with compacted outer strands.

- has a high breaking strength
- achieves very good bending fatigue results
- offers great resistance to crushing and abrasion
- possesses perfect spooling behavior on multilayer drum
- can be used either with or without swivel
- is a category 1 rotation-resistant rope in accordance with ASTM A1023



# verorock S

Provides excellent breaking strength and very good resistance to rotation.



verorock S/2015/10/v1.0

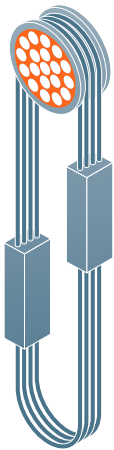
Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1960	2160	1960	2160
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	237.2	2.004	385.0	400.9	464.9	512.3
21	261.5	2.210	424.4	442.0	512.5	564.8
22	287.0	2.425	465.8	485.0	562.5	619.9
23	313.7	2.651	509.1	530.1	614.8	677.6
24	341.6	2.886	554.4	577.2	669.4	737.8
25	370.6	3.132	601.5	626.4	726.4	800.5
26	400.9	3.387	650.6	677.5	785.7	865.8
27	432.3	3.653	701.6	730.6	847.3	933.7
28	464.9	3.928	754.6	785.7	911.2	1004
29	498.7	4.214	809.4	842.8	977.4	1077
30	533.7	4.510	866.2	901.9	1046	1153
31	569.8	4.815	924.9	963.1	1117	1231
32	607.2	5.131	985.5	1026.2	1190	1312
33	645.8	5.457	1048.1	1091.4	1266	1395
34	685.5	5.792	1112.6	1158.5	1344	1481
35	726.4	6.138	1179.0	1227.6	1424	1569
36	768.5	6.494	1247.3	1298.8	1506	1660
37	811.8	6.860	1317.6	1372.0	1591	1753
38	856.3	7.235	1389.8	1447.1	1678	1850
39	901.9	7.621	1463.9	1524.3	1768	1948
40	948.8	8.017	1539.9	1603.5	1860	2049

\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

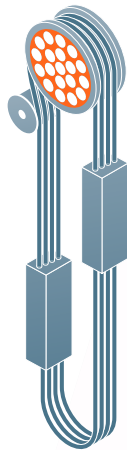
The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

## Applications

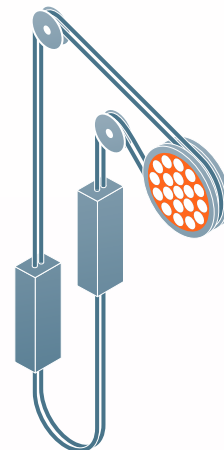
Tower mounted koepe  
friction winder single-rope  
**no** deflection sheaves



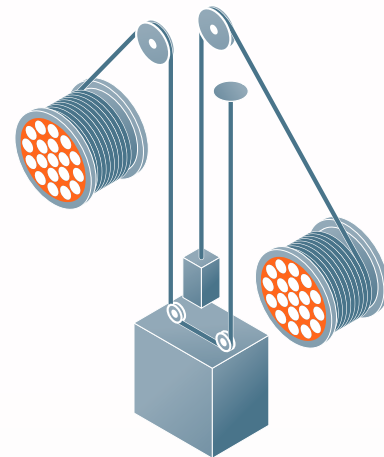
Tower mounted koepe  
friction winder single-rope  
**with** deflection sheaves



Ground mounted koepe  
friction winder multi-rope



Shaft sinking



verorock **S** is a very flexible rotation-resistant rope with compacted outer strands and very high breaking strength.

- is the strongest of all compacted rotation-resistant ropes
- achieves very good bending fatigue results.
- offers excellent resistance to crushing and abrasion
- possesses perfect spooling behavior on multilayer drum
- can be used either with or without swivel
- is a category 1 rotation-resistant rope in accordance with ASTM A1023

# verorock P

Provides a very stable rope structure and achieves excellent bending fatigue results.



Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1960	2160	1960	2160
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	229.3	1.949	370.0	386.9	449.5	495.4
21	252.8	2.149	408.0	426.6	495.6	546.1
22	277.5	2.359	447.7	468.2	543.9	599.4
23	303.3	2.578	489.4	511.7	594.5	655.1
24	330.2	2.807	532.8	557.2	647.3	713.3
25	358.3	3.046	578.2	604.6	702.3	774.0
26	387.6	3.294	625.3	653.9	759.7	837.2
27	418.0	3.553	674.4	705.2	819.2	902.8
28	449.5	3.821	725.3	758.4	881.0	970.9
29	482.2	4.099	778.0	813.5	945.1	1042
30	516.0	4.386	832.6	870.6	1011	1115
31	551.0	4.683	889.0	929.6	1080	1190
32	587.1	4.990	947.3	990.6	1151	1268
33	624.4	5.307	1007.4	1053.4	1224	1349
34	662.8	5.634	1069.4	1118.2	1299	1432
35	702.3	5.970	1133.2	1185.0	1377	1517
36	743.0	6.316	1198.9	1253.7	1456	1605
37	784.9	6.672	1266.4	1324.3	1538	1695
38	827.9	7.037	1335.8	1396.8	1623	1788
39	872.1	7.412	1407.0	1471.3	1709	1884
40	917.3	7.797	1480.1	1547.7	1798	1981
41	963.8	8.192	1555.0	1626.1	1889	2082
42	1011	8.597	1631.8	1706.4	1982	2185
43	1060	9.011	1710.5	1788.6	2078	2290
44	1110	9.435	1790.9	1872.8	2176	2398
45	1161	9.869	1873.3	1958.9	2276	2508
46	1213	10.312	1957.4	2046.9	2378	2620
47	1267	10.765	2043.5	2136.8	2482	2736
48	1321	11.228	2131.4	2228.7	2589	2853
49	1377	11.701	2221.1	2322.6	2698	2973
50	1433	12.183	2312.7	2418.3	2809	3096
51	1491	12.676	2406.1	2516.0	2923	3221
52	1550	13.178	2501.4	2615.7	3039	3349
53	1611	13.689	2598.5	2717.3	3157	3479
54	1672	14.211	2697.5	2820.8	3277	3611

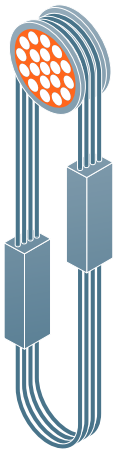
\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

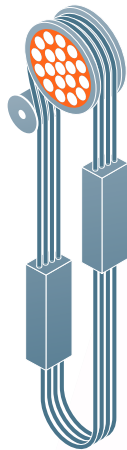


## Applications

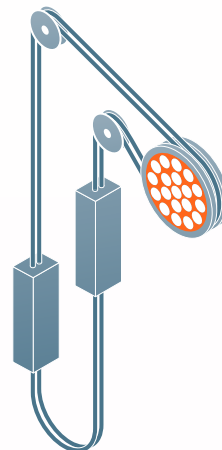
Tower mounted koepe friction winder single-rope  
**no** deflection sheaves



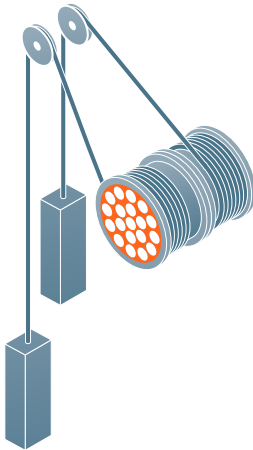
Tower mounted koepe friction winder single-rope  
**with** deflection sheaves



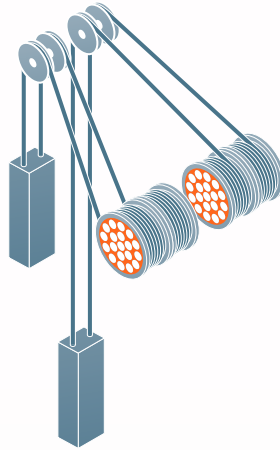
Ground mounted koepe friction winder multi-rope



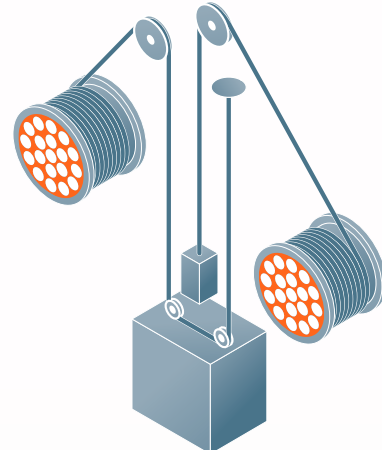
Double drum winder



Blair multi-rope (BMR) winder



Shaft sinking

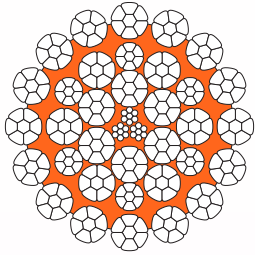


verorock **P** is a rotation-resistant rope with compacted strands and a rope core covered with a plastic layer.

- has a very high breaking strength
- provides a very stable rope structure and achieves excellent bending fatigue results
- offers excellent crushing and very good abrasion resistance
- possesses perfect spooling behavior on multilayer drum
- can be used either with or without swivel
- is a category 1 rotation-resistant rope in accordance with ASTM A1023

# verorock P<sup>2</sup>

Provides an excellent stable rope structure and achieves very good bending fatigue results.



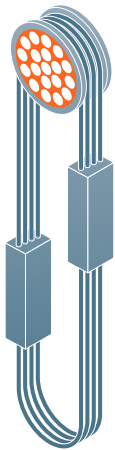
Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1960	2160	1960	2160
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	210.2	1.818	332.2	341.7	411.9	454.0
21	231.7	2.004	366.3	376.7	454.2	500.5
22	254.3	2.200	402.0	413.4	498.4	549.3
23	278.0	2.404	439.4	451.9	544.8	600.4
24	302.6	2.618	478.4	492.0	593.2	653.7
25	328.4	2.841	519.1	533.9	643.7	709.3
26	355.2	3.072	561.5	577.4	696.2	767.2
27	383.0	3.313	605.5	622.7	750.8	827.4
28	411.9	3.563	651.2	669.7	807.4	889.8
29	441.9	3.822	698.5	718.4	866.1	954.5
30	472.9	4.090	747.6	768.8	926.9	1021.4
31	504.9	4.368	798.2	820.9	989.7	1090.7
32	538.0	4.654	850.5	874.7	1054.6	1162.2
33	572.2	4.949	904.5	930.2	1121.5	1235.9
34	607.4	5.254	960.2	987.4	1190.5	1312.0
35	643.7	5.568	1017.5	1046.4	1261.6	1390.3
36	681.0	5.890	1076.5	1107.0	1334.7	1470.9
37	719.3	6.222	1137.1	1169.4	1409.9	1553.7
38	758.7	6.563	1199.4	1233.5	1487.1	1638.8
39	799.2	6.913	1263.4	1299.2	1566.4	1726.2
40	840.7	7.272	1329.0	1366.7	1647.8	1815.9
41	883.3	7.640	1396.3	1435.9	1731.2	1907.8
42	926.9	8.017	1465.2	1506.8	1816.6	2002.0
43	971.5	8.404	1535.8	1579.4	1904.2	2098.5
44	1017.2	8.799	1608.1	1653.7	1993.8	2197.2
45	1064.0	9.204	1682.0	1729.7	2085.4	2298.2
46	1111.8	9.617	1757.6	1807.5	2179.2	2401.5
47	1160.7	10.040	1834.8	1886.9	2274.9	2507.1
48	1210.6	10.472	1913.7	1968.1	2372.8	2614.9
49	1261.6	10.913	1994.3	2050.9	2472.7	2725.0
50	1313.6	11.362	2076.5	2135.5	2574.6	2837.3
51	1366.6	11.821	2160.4	2221.8	2678.6	2952.0
52	1420.8	12.290	2246.0	2309.7	2784.7	3068.9
53	1475.9	12.767	2333.2	2399.4	2892.8	3188.0
54	1532.2	13.253	2422.1	2490.8	3003.0	3309.5

\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

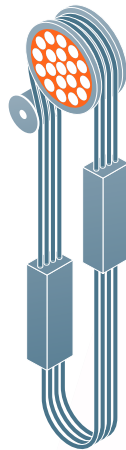
The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

## Applications

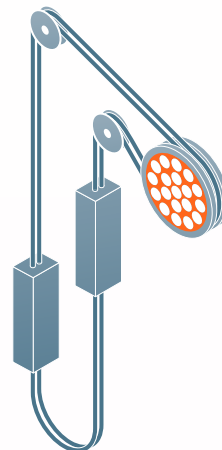
Tower mounted koepe  
friction winder single-rope  
**no** deflection sheaves



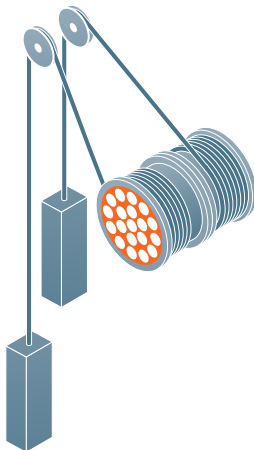
Tower mounted koepe  
friction winder single-rope  
**with** deflection sheaves



Ground mounted koepe  
friction winder multi-rope



Double drum winder

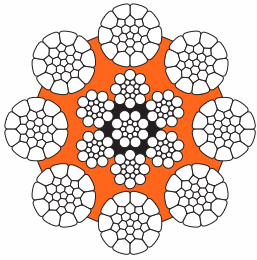


verorock **P<sup>2</sup>** is a rotation resistant rope with compacted strands and the rope core is fully filled with plastic.

- has a very high breaking strength
- provides an excellent rope structure and achieves very good bending fatigue results
- avoids internal damages
- can be used either with or without swivel
- is a category 1 rotation-resistant rope in accordance with ASTM A1023

# verodeep 8

Rope with very high structural stability,  
achieves excellent bending fatigue results.



Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1770	1960	1770	1960
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	209.2	1.799	319.4	353.3	370.3	410.1
21	230.7	1.984	352.2	389.5	408.3	452.1
22	253.2	2.177	386.5	427.5	448.1	496.2
23	276.7	2.380	422.4	467.2	489.8	542.3
24	301.3	2.591	460.0	508.8	533.3	590.5
25	326.9	2.812	499.1	552.0	578.7	640.8
26	353.6	3.041	539.8	597.1	625.9	693.1
27	381.3	3.279	582.1	643.9	674.9	747.4
28	410.1	3.527	626.1	692.5	725.9	803.8
29	439.9	3.783	671.6	742.8	778.6	862.2
30	470.8	4.049	718.7	794.9	833.3	922.7
31	502.7	4.323	767.4	848.8	889.7	985.2
32	535.6	4.606	817.7	904.4	948.1	1050
33	569.6	4.899	869.6	961.9	1008	1116
34	604.7	5.200	923.1	1021.0	1070	1185
35	640.8	5.511	978.2	1082.0	1134	1256
36	677.9	5.830	1034.9	1144.7	1200	1329
37	716.1	6.158	1093.2	1209.2	1267	1404
38	755.3	6.496	1153.1	1275.4	1337	1480
39	795.6	6.842	1214.6	1343.4	1408	1559
40	836.9	7.198	1277.7	1413.2	1481	1640
41	879.3	7.562	1342.3	1484.7	1556	1723
42	922.7	7.935	1408.6	1558.1	1633	1809
44	1013	8.709	1546.0	1710.0	1792	1985
45	1059	9.109	1617.0	1788.6	1875	2076
46	1107	9.519	1689.7	1869.0	1959	2169
47	1155	9.937	1764.0	1951.1	2045	2265
48	1205	10.364	1839.8	2035.0	2133	2362
49	1256	10.801	1917.3	2120.7	2223	2462
50	1308	11.246	1996.3	2208.1	2315	2563
51	1361	11.700	2077.0	2297.3	2408	2667
52	1414	12.164	2159.2	2388.3	2503	2772
53	1469	12.636	2243.1	2481.1	2601	2880
54	1525	13.117	2328.5	2575.6	2700	2990
55	1582	13.608	2415.6	2671.8	2801	3101
56	1640	14.107	2504.2	2769.9	2903	3215
57	1699	14.615	2594.4	2869.7	3008	3331
58	1760	15.133	2686.3	2971.3	3115	3449
59	1821	15.659	2779.7	3074.6	3223	3569
60	1883	16.194	2874.7	3179.7	3333	3691

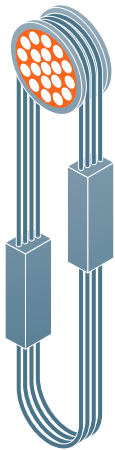
\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

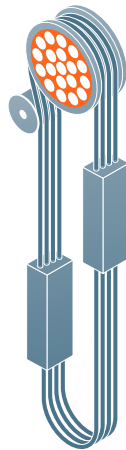


## Applications

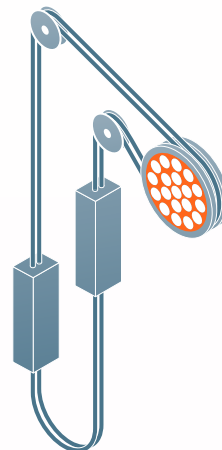
Tower mounted koepe friction winder single-rope  
**no** deflection sheaves



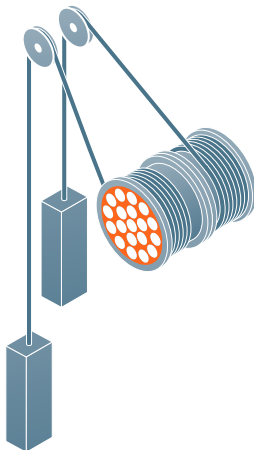
Tower mounted koepe friction winder single-rope  
**with** deflection sheaves



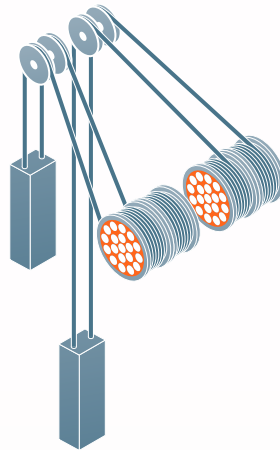
Ground mounted koepe friction winder multi-rope



Double drum winder



Blair multi-rope (BMR) winder



verodeep 8 is an 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.

- has a very high breaking strength
- has a very stable rope structure and achieves excellent bending fatigue results
- offers excellent resistance to crushing and abrasion
- possesses perfect spooling behavior on multilayer drum
- may not be used with a swivel

# verodeep 8 RS

Provides excellent resistance to abrasion and has a very high breaking strength.



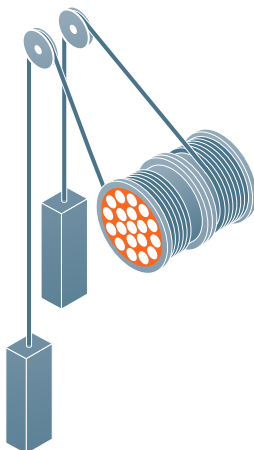
Nominal rope diameter	Metallic cross section	Approx mass	Minimum breaking force		Calculated breaking force	
			Rope grade		Rope grade	
			1770	1960	1770	1960
mm*	mm <sup>2</sup>	kg/m	kN	kN	kN	kN
20	215.2	1.851	330.6	365.8	380.9	421.8
21	237.3	2.040	364.5	403.3	419.9	465.0
22	260.4	2.239	400.1	442.6	460.9	510.4
23	284.6	2.448	437.2	483.8	503.7	557.8
24	309.9	2.665	476.1	526.8	548.5	607.4
25	336.2	2.892	516.6	571.6	595.2	659.0
26	363.7	3.128	558.8	618.2	643.7	712.8
27	392.2	3.373	602.6	666.7	694.2	768.7
28	421.8	3.627	648.0	717.0	746.6	826.7
29	452.5	3.891	695.1	769.1	800.8	886.8
30	484.2	4.164	743.9	823.1	857.0	949.0
31	517.0	4.446	794.3	878.9	915.1	1013
32	550.9	4.738	846.4	936.5	975.1	1080
33	585.9	5.039	900.1	995.9	1037.0	1148
34	621.9	5.349	955.5	1057.2	1100.8	1219
35	659.0	5.668	1012.5	1120.3	1166.5	1292
36	697.2	5.996	1071.2	1185.3	1234.1	1367
37	736.5	6.334	1131.6	1252.0	1303.6	1444
38	776.9	6.681	1193.6	1320.6	1375.1	1523
39	818.3	7.037	1257.2	1391.0	1448.4	1604
40	860.8	7.403	1322.5	1463.3	1523.6	1687
41	904.4	7.778	1389.4	1537.4	1600.7	1773
42	949.0	8.162	1458.0	1613.3	1679.8	1860
43	994.8	8.555	1528.3	1691.0	1760.7	1950
44	1041.6	8.957	1600.2	1770.6	1843.6	2041
45	1089.4	9.369	1673.8	1852.0	1928.3	2135
46	1138.4	9.790	1749.0	1935.2	2015.0	2231
47	1188.4	10.221	1825.9	2020.2	2103.5	2329
48	1239.5	10.660	1904.4	2107.1	2194.0	2430

\* Standard tolerance: +2% to +4%, other tolerances possible upon agreement.  
Other and special rope diameters are available upon request.

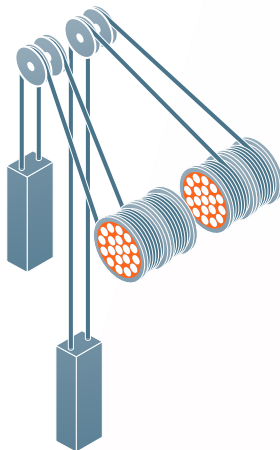
The rope data provided in the above table is for reference only and may be adjusted by applying slight changes to the rope design.

## Applications

Double drum winder



Blair multi-rope (BMR) winder



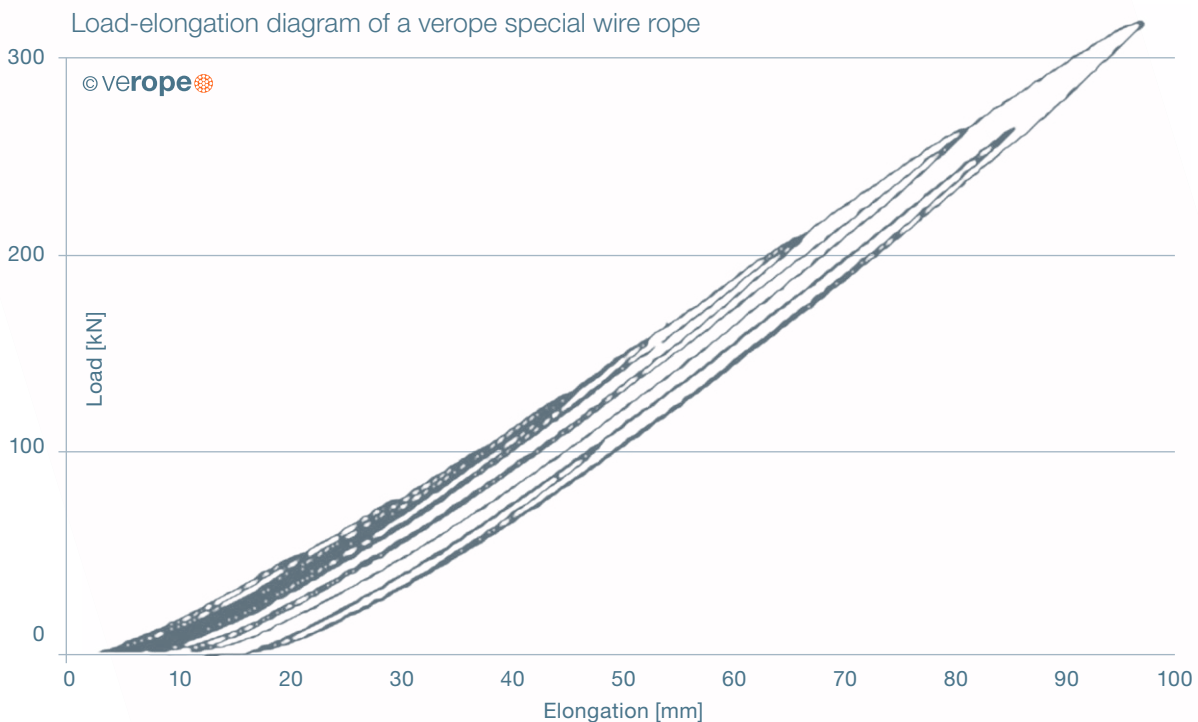
verodeep **8 RS** is a rotary swaged 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.

- has a very high breaking strength
- has a very stable rope structure and achieves excellent bending fatigue results
- offers superior crushing resistance and best resistance to abrasion
- possesses excellent spooling behavior on multi-layer drum
- may not be used with a swivel

## Deformation behaviour

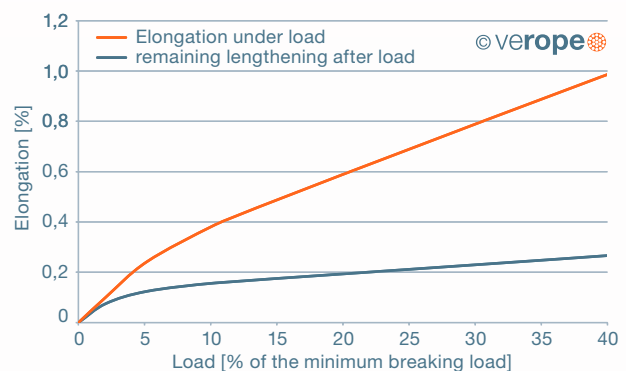
In many applications the exact knowledge of the deformation behavior of wire ropes is of great importance. verope has investigated in many work-intensive tests the modulus of elasticity (lengthwise and transverse), the elastic and plastic deformation as well as the diameter reductions of its products. Many technical parameters of the rope can be determined by the creation of a load-elongation diagram.

verope loads and relieves the ropes in steps and determines out of this the elongation under load as well as the remaining elongation after discharge. The elasticity modulus is determined from the gradient of the linear area of the load curves. At the same time the diameter reduction in dependence of the load is measured. In order to be able to determine also the breaking strength and the elongation at break, the ropes are loaded up to the break.



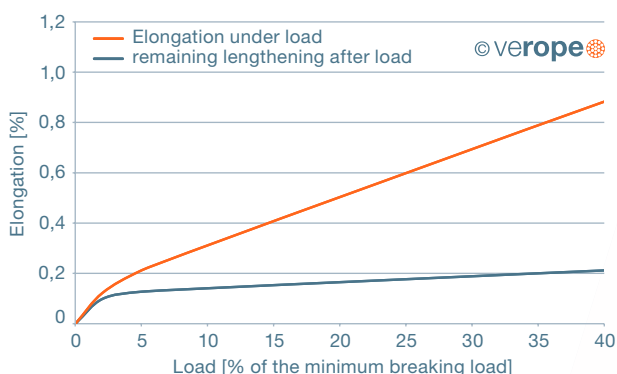
### → Elongation

In particular with suspension ropes, but also with running ropes, an exact knowledge of the elongation of the rope under load and the remaining rope lengthening after load is important. verope has measured these relevant values for all its products with high precision on long test lengths. You will find here measured values of typical verope rope constructions. We are pleased to provide you with the results of other verope rope construction for your interpretations.

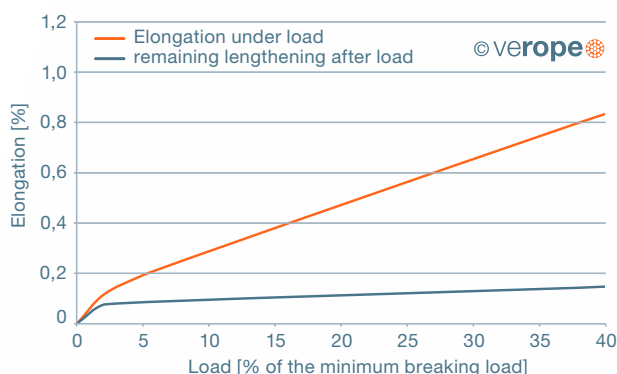


**Figure right:** Elongation under load (upper graph) and remaining lengthening after load (lower graph) depending on the line pull (verodeep 8, ordinary lay, 1960 N/mm<sup>2</sup>)





Elongation under load (upper graph) and remaining lengthening after load (lower graph) depending on the line pull (verorock P, lang's lay, 1960 N/mm<sup>2</sup>)



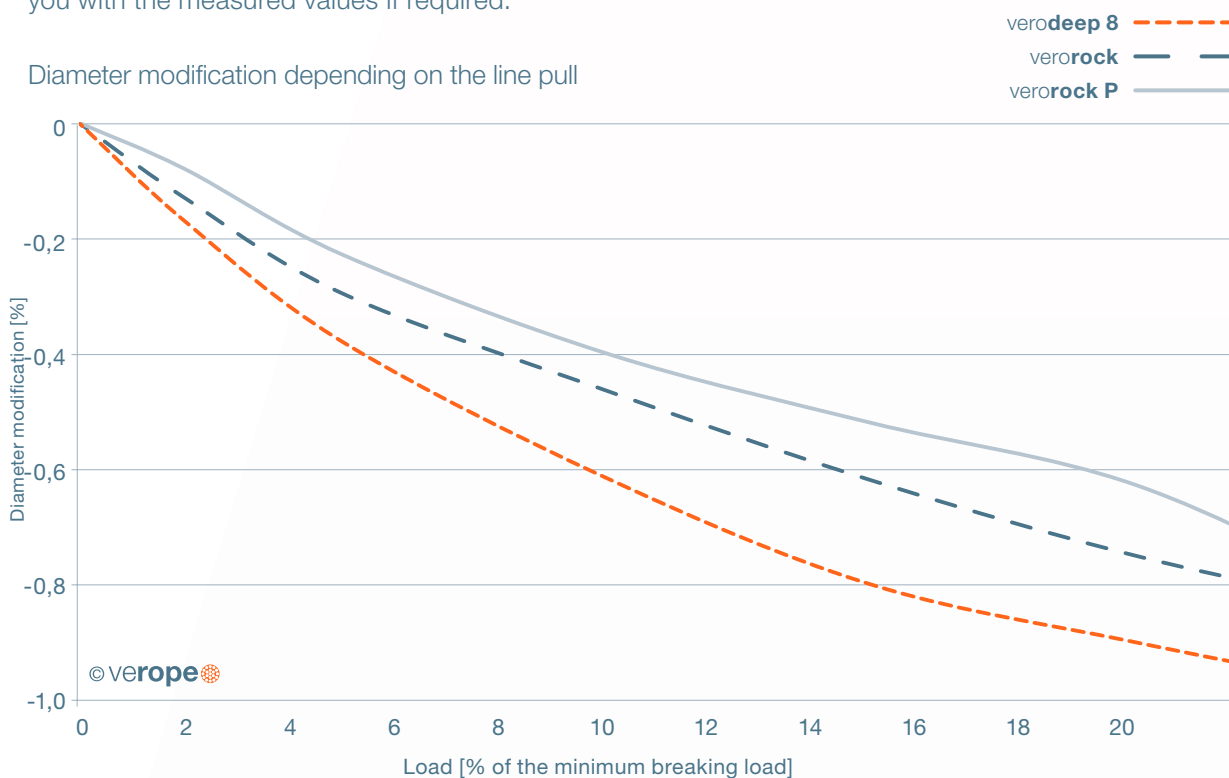
Elongation under load (upper graph) and remaining lengthening after load (lower graph) depending on the line pull (verodeep 8, lang's lay, 1960 N/mm<sup>2</sup>)

→ **Diameter reduction**

A rope becomes longer and thinner under load. The diameter reduction can influence the rope behavior in multi-layer spooling strongly.

verope has measured the diameter reduction of all its products and will be pleased to provide you with the measured values if required.

Diameter modification depending on the line pull

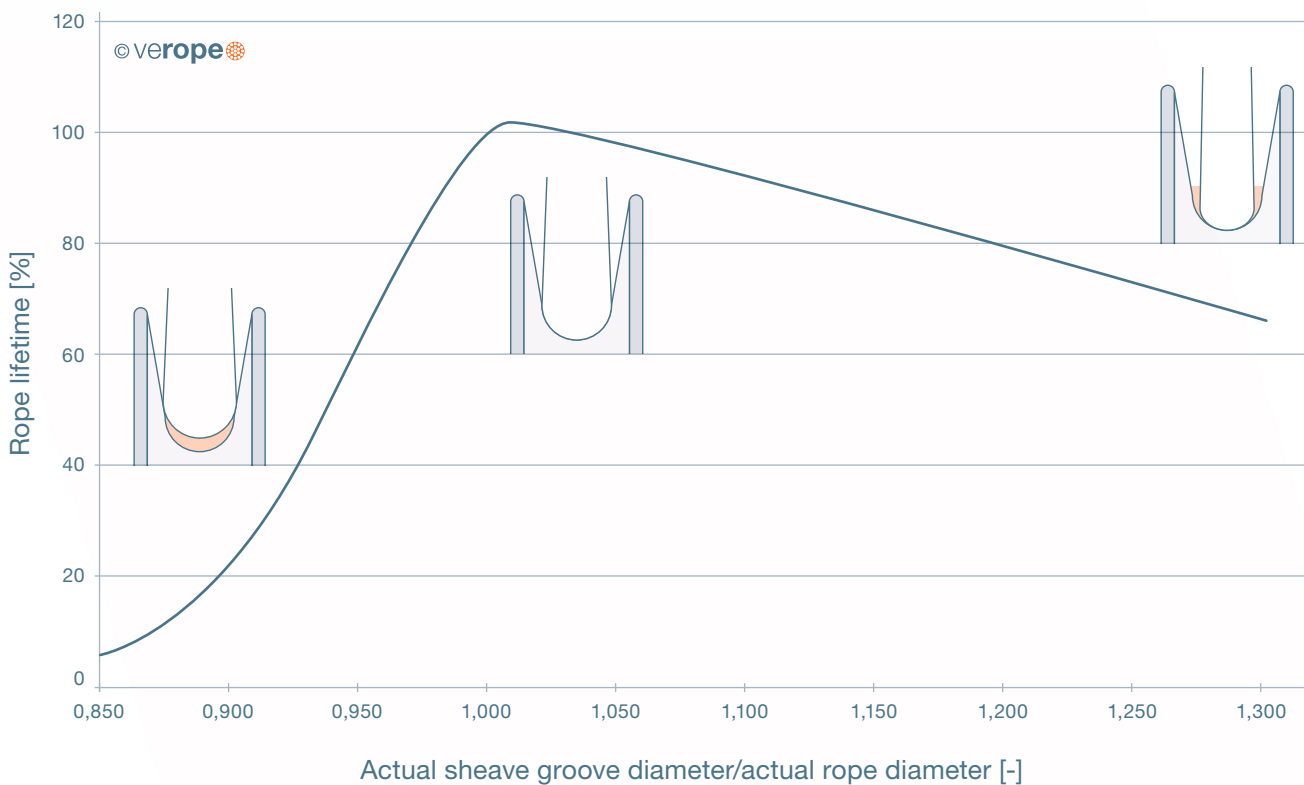


## Technical information

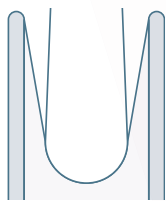
### Recommendation of verope:

groove size of deflection-, head or reverse sheaves, should be in a range of +5% up to +10% to the nominal rope diameter.

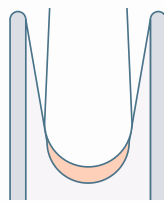
### Influence of the groove diameter onto the rope lifetime



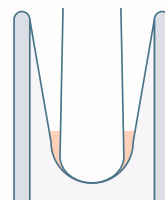
### Possible outcomes of the groove inspection



Case A



Case B



Case C

© verope

**Case A:** The groove is ok.

**Case B:** The dimension of the groove is smaller than required by the standard. In this case the rope should not be installed because it would be clamped and therefore damaged in the groove.

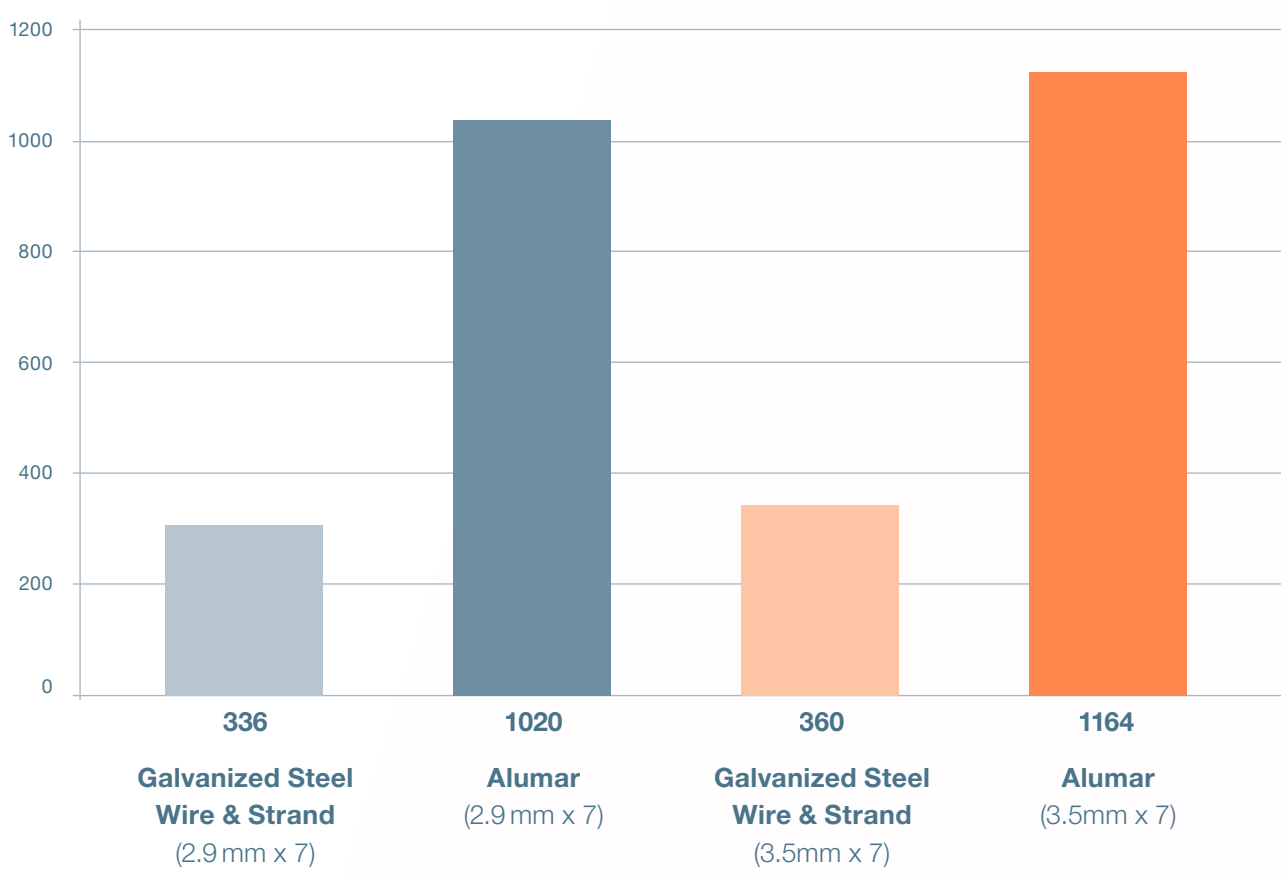
Unavoidable damages of the rope structure would be the consequence.

**Case C:** Although too big sheave grooves reduce the lifetime of a rope, it is practically not that relevant, so first no action has to be taken.

# Alumar

Alumar is a revolutionary corrosion resistance coating developed through accumulated technology and know-how.

Alumar provides 50% more resistance against corrosion when compared to normal zinc coatings.

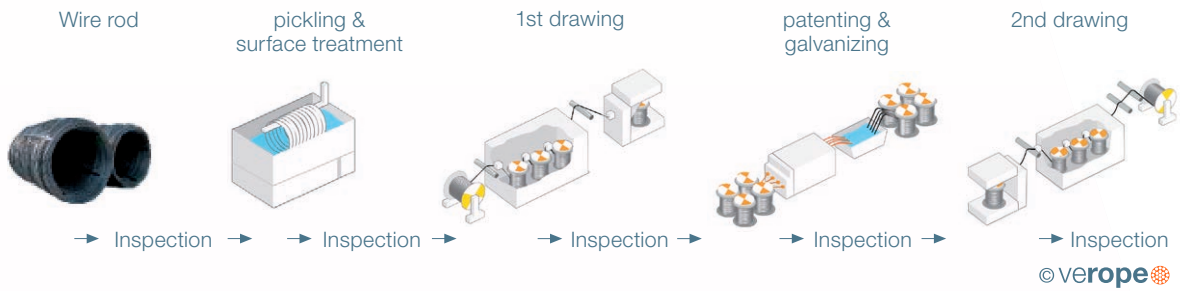


## Wire quality

verope's aim is to produce wire ropes to high quality standards. To start from optimal raw material is indispensable in this regard. As an inte-

grated manufacturer we start from wire rod raw material and control the complete process, from wire drawing to the closing of the ropes.

### Wire drawing process



## Quality monitoring & control during the entire process

### Wire rod

Procurement of high-quality and -purity wire rod from leading steel manufacturers

- meeting the international industrial standards
- using the designated, same-grade wire rod item by item for quality consistency

### Pickling & surface treatment

Automated in-line process with optimised control system for wire quality

### Drawing

- high-tensile and -ductility wire using up-to-date drawing machines
- homogeneous quality by optimum use of drawing dies

### Patenting & galvanizing

Automated in-line process with optimised control of microstructure (high tensile and ductility)





## verope Service and R&D Center

### verope – rely on

verope AG, founded in 2004 as a joint venture company of Pierre Verreet and Kiswire, stands for high quality Special Wire Ropes on which you can rely. Together we will continue to focus on the development of high quality products – the next generation of Special Wire Ropes.

### verope Service Center

Early in the new year 2011, verope started up its new Service and Logistics Center in Contwig close to Zweibrücken in Germany from where it serves the European customer base. Our aims are to improve the service offerings and to broaden the portfolio of the Special Wire Ropes and customer oriented assemblies. At the Service and Logistics Center, the high quality ropes are stocked and will be assembled expertly to suit your requirements.

The rope fabrication department is a core piece of the German location. Here we are now capable of expertly assembling all our ropes with the selected termination so the assembled rope meets precisely your machine demands.

The verope Service Center Team is pleased to provide its customers quality services you can rely on at any time.

### Research and Development

The verope AG has an innovative research and development center, which we consistently expand further. The new building which hosts now the R&D Department was opened in June 2014 and with it new innovative test machines are in operation.

Motivated by your needs, supported by the latest testing technology, our R&D team develops innovative high performance products.

Let us give you just one example:  
Our new philosophy of testing rope's bending fatigue performance, successfully implemented

for the first time worldwide on two test machines up to 34mm, opens incredible and fascinating insights to the pattern of bending fatigue. The fact that, compared with conventional testing methods, the test speed is significantly increased allowing us to be a step ahead of others, speeding up our product development enabling us to offer balanced and proven Special Wire Ropes to the market.

Furthermore verope offers the following services:

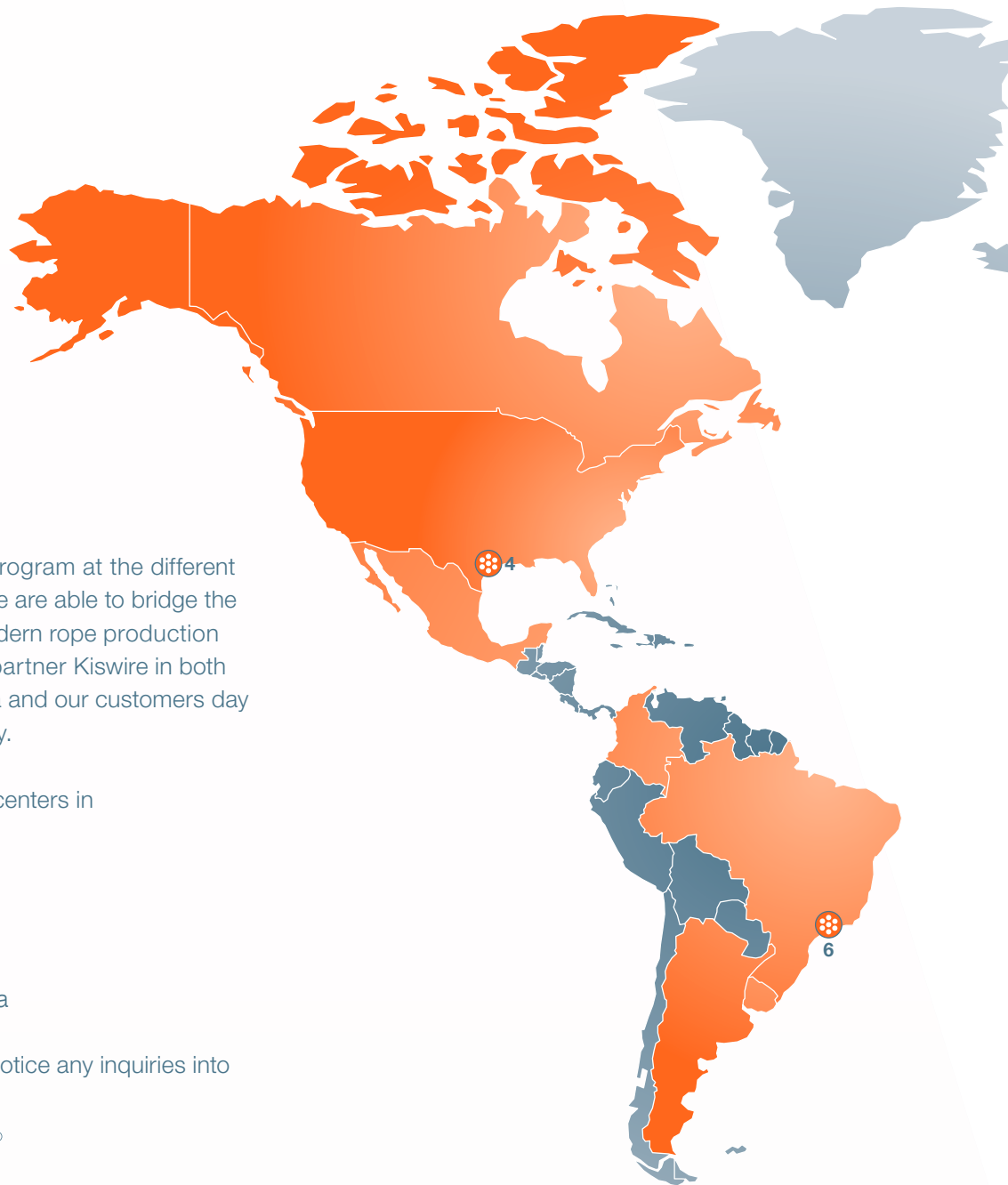
- Aftersales support
- Technical consultancy
- Rope inspections
- Theoretical lifetime calculations
- All kinds of testing:
  - Bending fatigue
  - Efficiency
  - Dynamic load
  - Tensile breaking tests



It would be our pleasure to provide you with more details regarding our novel and innovative concept and the benefits it offers also to you as our valued customer.

Please don't hesitate to contact us.

## Worldwide service and distribution



With our stock-keeping program at the different verope service centers, we are able to bridge the distance between our modern rope production facility and joint venture partner Kiswire in both South Korea and Malaysia and our customers day to day requirements locally.

Our service and logistics centers in

- Contwig, Germany
- Shanghai, China
- Singapore
- Houston, USA
- Resende, Brazil
- Mumbai & New Delhi, India
- Dubai, UAE

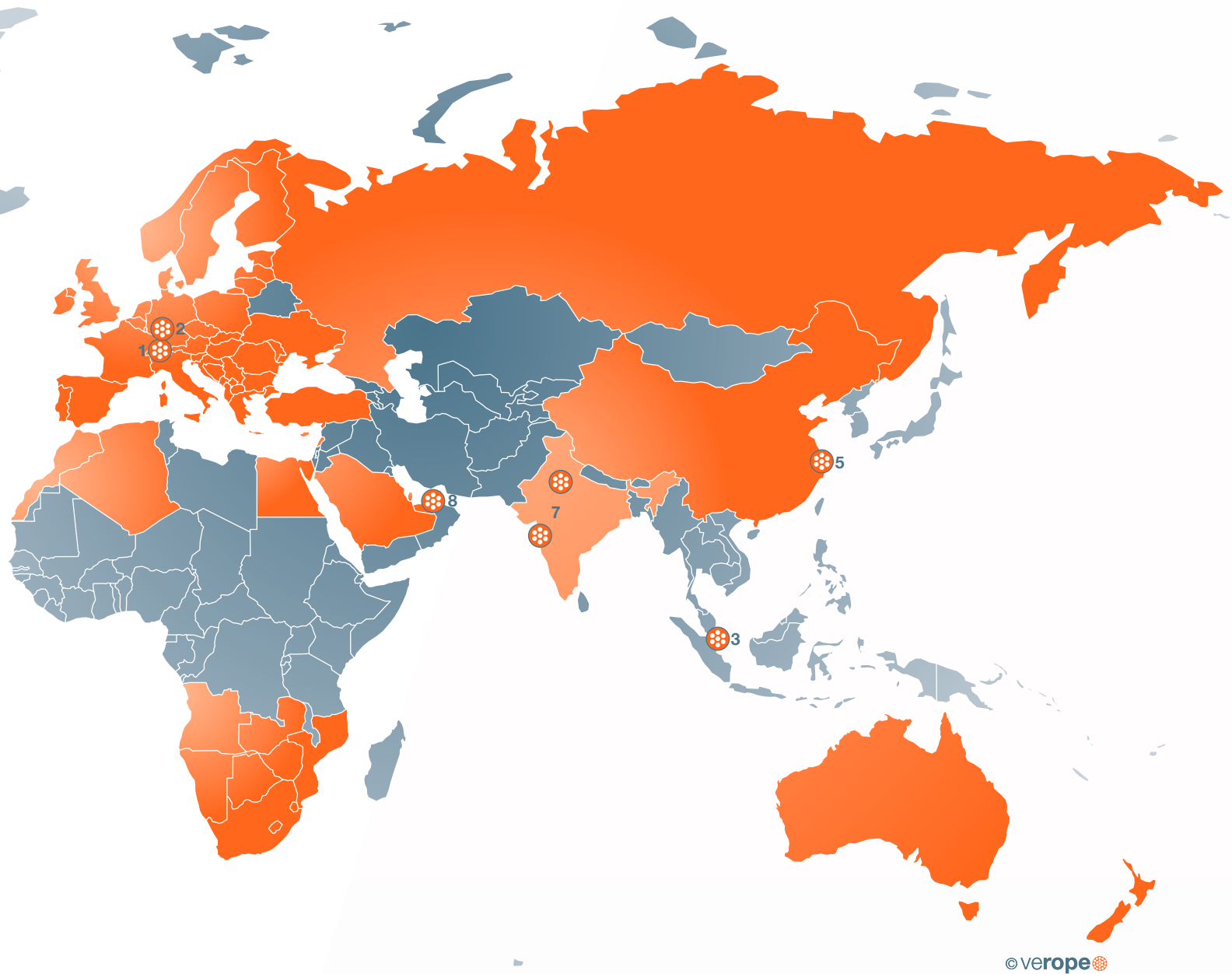
are able to turn on short notice any inquiries into action.

**verope** 

rely on

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- 1) verope AG/Headquarters – Zug, Switzerland
- 2) verope Service Center GmbH – Contwig, Germany
- 3) verope Distribution Singapore Pte. Ltd. – Singapore
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- 5) LTI Steel Wire Rope Co., Ltd. – Shanghai, China
- 6) verope do Brasil – Resende, RJ, Brazil
- 7) verope Steel Wire Ropes Private Limited – Mumbai & New Delhi, India
- 8) verope Middle East – Dubai, UAE



verope has a worldwide network of professional dealers who expertly select the correct high performance rope to suit your requirements regionally.

















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