

HOW TO ORDER WIRE ROPES

In order to prevent errors, you have to describe the wire rope in the correct manner when ordering or inquiring.

This description is best to be taken over from a previous commission or account. If you haven't ordered the required wire rope before, you have to provide the following information:

- The amount of pieces and the length of the rope
- Sort of material : plain, countersink, stainless
- Diameter or outline (see pict.)
- Construction
- Core
- Tensile strength
- Twist
- Moulded or not
- Potential end joints
- In case of prestressed wire ropes with accurate length :
The strain under which this length must be reached.

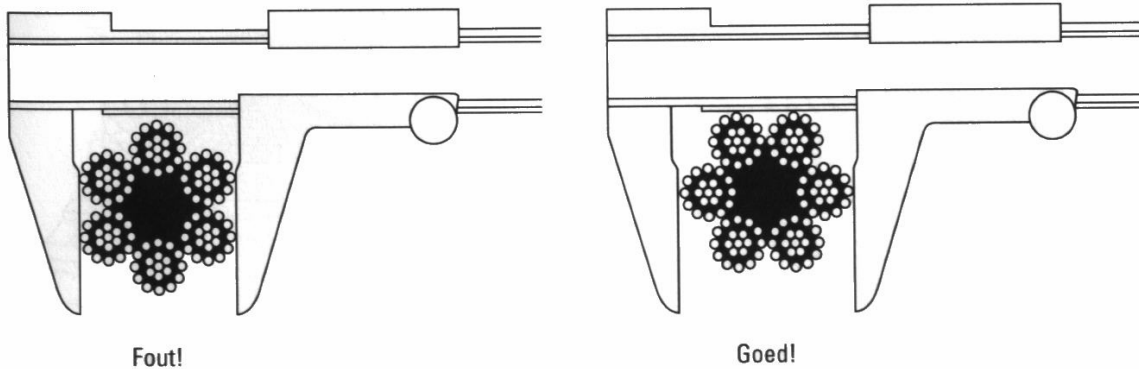
Example :

1 x 100 m. effective length, plain wire rope, 18 mm., construction 6 x 19 wires Seale + 1 fibre core, tensile strength 1770 N/mm², regular lay right stranded moulded, with cable shoe for 40 mm. diameter pin.

For wire ropes used in hoisting cranes you may find the above mentioned ordering-information in the crane book

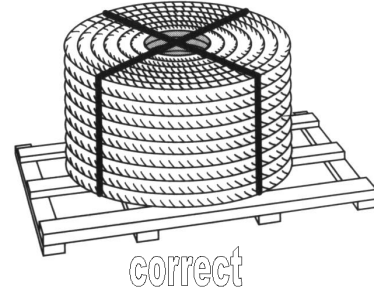
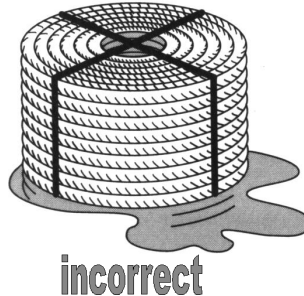
where they must be stated. Changing to another wire rope without consulting the wire rope-manufacturer or supplier may cause unpleasant results. You have to consider that the cable constructions in hoisting cranes often are developed for this purpose only.

If some information isn't provided, the wire rope will be delivered in the most used construction. So it is always useful to mention the use of the wire rope.



THE HANDLING OF WIRE ROPES

You probably know how unpleasant it is when there is a hitch somewhere. Something you counted on, can't be realised and not often with far-reaching consequences. A quirk in your wire rope may cost you a lot of money, but most importantly, you haven't got control on your safety. Therefore alone you have to take the utmost care on your wire rope.



Wire rope has to be taken care of with the utmost precaution. A wrong treatment may cause disadvantages, namely: Service life may be shorted considerably.

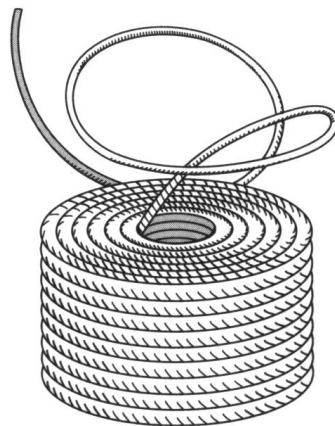
Check a wire rope-hawser or -reel at arrival on damages. When storing you have to make sure you have got a dry storage and at least dry subsoil; A wooden plank-bridge is sufficient. When storing for a longer period you should check on a frequent base for corrosion.

You also must prevent that a wire rope is damaged during transport due to sharp objects, like lose bricks and so on. Sand and mud also belong to the culprits. This is also important when unwinding the reel. Hawasers never may unreeled from the inside, this surtenly will give quirns; The hawser must be "rolled" out.

When a wire rope is reeled over from a hawser to a drum, you have to rol it from the bottom side of the reel to the bottom side of the drum or from the topside of the reel to the topside of the drum. By doing so an opposed bending working is prevented, which reduces the wear.

When chiselling a wire rope the strands have the tendency to twist apart. In order to comply you have to untie the wire rope immediately. For this you can use a soft steel wire or a strand of some steel wires.

Fatigue, wear and/or corrosion may cause that the safety of the wire rope isn't acceptable anymore. Therefor you should let the wire rope get inspected by an expert. In that manner you also prevent that a wire rope is replaced while it isn't necessary.



incorrect



correct

MAINTENANCE OF WIRE ROPES

Maintenance a must !

Maintenance of wire ropes is necessary. For safety, life and from economical reasons. If wire ropes have to be maintained, the best way to do so is to use versatile maintenance products, which comply with the most working conditions.

How to handle when inspecting the wire ropes

A wire rope is a 'consumer good'. An important reason for inspecting wire ropes periodical. A wire rope is actually being 'consumed' and therefor gradually loses his strength. The reason to execute an inspection is simple: A wire rope loses much in reliability between two inspections. If there will be a next inspection ...

That regular inspections by certain governmental measures are obligatory, is in some way of minor importance, the necessity to execute inspections will always exist. The Government may expect from the machine owner and/or user that they will execute regular and directed inspections and holds inspection reports. The owner/user is responsible for this. Perhaps the basic rule for inspecting a wire rope, from any machinetype or tool, that every wire rope must be reviewed separately.

This 'individual' approach is of special interest when inspecting 'non-moving wire ropes' like guy wires, carrying rope and so on. For example extension-guy wires, which hold a long crane, jib and mostly have various lengths. Each of these guys is an isolated wire rope and has to be reviewed separately. Because there are different measures for these 'non-moving' wire ropes you have to inspect them separately from the 'moving' wire ropes. It is possible, for practical reasons, that you inspect the 'moving' and 'non-moving' in the same inspection round, for instance in high or hard to reach places. But notwithstanding this every wire rope must have separate attention. The obtained information has to be written down separately. It is obvious that a proper inspection can't be executed when a wire rope is under strain or is moving. A wire rope has to be unloaded and in rest during the inspection.

How often do I inspect?

You may divide wire rope-inspections in two groups: Daily checks and periodical inspections.

The daily checks are being executed by the operating personnel of the machine and exist of, if possible, reviewing the operation of the ropes and noticing any disruptions or distortions.

Any variation of some extent has to be reported.

The periodical inspections are fixed, dependent on the use and working conditions. So it's obvious that at intensive use the periodical inspections will succeed each other more rapidly. The Government also may prescribe periodical inspections, which you have, seen as 'added' inspections. They don't relieve the owner or user of the duty to inspect periodically.

For the minimum amount of periodical inspections you may use the following schedule: The first and second periodical inspection at one quarter of the ropes service life.

Following inspections at one eighth of the rope service life. The number of inspections increases if the working conditions demand so, or when an inspection, daily or periodical, shows a variation.

It must be mentioned that if a tool isn't used for a period of time also may have disadvantageous consequences for wire ropes. It's recommended inspecting all wire ropes before use.

Vulnerable places

Every wire rope has places that need more than usual attention. Certain places are under great tension or greater external forces and risk. You have to determine all 'vulnerable' places for more intensive inspection. Especially in those places where errors may occur. These 'vulnerable' places have to be compared at every following inspection. Places which are most likely to get more then usual attention:

- starting and stopping places
- end fastenings

- balanced sheaves
- drums
- sheaves
- heat
- 'shiny' spots

End fastenings

All end fastenings have one thing in common: They restrict the free movement of the strains in the end of the wire rope. Due to the restricted movement and possibility to adjust the strains at the end of the rope, it's possible that strains will break eventually at those places where they are oppressed. Therefore broken strains are the first thing to inspect at end fastenings. With one single strain breakage normal use is possible, but more than one is often reason enough to condemn the whole machine! Caution! Broken strains are usually harder to detect at end fastenings than at other parts of the wire rope. Thrust a piercer at those places where the wire rope enters the end fastening, often the broken strains will become visible that otherwise wouldn't show.

Oxidation

An other problem is corrosion and rust.

Oxidation may easily hide broken strains. Increase of oxidation may 'gnaw' at the surface of the strains or restrict the movement of the strains.

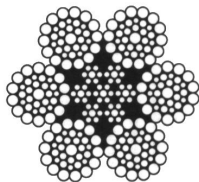
Also inspect the end fastening! A worn out loop or bracket, disappeared or cracked cable-shoes, open bend hooks, worn and torn pins, and so on.

Notice

Each periodical inspection consists of checking:

- The diameter
- Normal wear
- Internal damages
- The length of stroke
- Swivelling of the rope
- Broken strains
- Internal rope inspection
- Sheaves and drums

The results and remarks are noted. With these results and remarks you get a 'rating'. NEN 3233 gives guidance.



Countersink wire rope

Construction	: 6 x 36 WS + steelcore
Tensile strength	: 1770 N/mm ² = 180 kgf/mm ² 1960 N/mm ² = 200 kgf/mm ²
Twist	: Regular lay right or left (KSR or KSL)
Utilisation operand	: For WLL < 25 t = 5 For WLL 25 – 180 t = decreasing from 5 to 3.33
Use	: Tower crane (separate parts), mobile gantry, travelling crab, grabbing enterprises, dredging and towage towing.

Art nr. for:

1770 KSL: 10802012 t/m 17602012

1960 KSR: 10802004 t/m 17602004

1960 KSL: 10802014 t/m 17602014

Art. nr.	Nom. Ø	Min.breakforce				Weight per 100 m
		1770 N/mm ²		1960 N/mm ²		
1770 KSR	mm.	kN.	kg.	kN.	kg.	Ca. kg.
10802002	8	40.3	4110	44.7	4560	25.5
10902002	9	51.0	5200	56.5	5760	32.2
11002002	10	63.0	6420	69.8	7120	39.8
11102002	11	76.2	7770	84.4	8610	48.2
11202002	12	90.7	9250	100.0	10200	57.3
11302002	13	106.0	10800	118.0	12000	67.3
11402002	14	124.0	12600	137.0	14000	78.0
11502002	15	142.0	14500	157.0	16000	89.6
11602002	16	161.0	16400	179.0	18300	102.0
11802002	18	204.0	20800	226.0	23000	129.0
11902002	19	227.0	23100	252.0	25700	144.0
12002002	20	252.0	25700	279.0	28500	159.0
12202002	22	305.0	31100	338.0	34500	193.0
12402002	24	363.0	37000	402.0	41000	229.0
12602002	26	426.0	43400	472.0	48100	269.0
12802002	28	494.0	50400	547.0	55800	312.0
13002002	30	567.0	57800	628.0	64000	358.0
13202002	32	645.0	65800	715.0	72900	408.0
13402002	34	728.0	74200	807.0	82300	460.0
13602002	36	817.0	83300	904.0	92200	516.0
13802002	38	910.0	92800	1010.0	103000	575.0
14002002	40	1010.0	103000	1120.0	114000	637.0
14402002	44	1220.0	124000	1350.0	138000	771.0
14802002	48	1450.0	148000	1610.0	164000	917.0
15102002	51	1640.0	167000	1810.0	185000	1040.0
15202002	52	1700.0	173000	1890.0	193000	1080.0
15402002	54	1840.0	188000	2030.0	207000	1160.0
15602002	56	1980.0	202000	2190.0	223000	1250.0
15802002	58	2120.0	216000	2350.0	240000	1340.0
16002002	60	2270.0	231000	2510.0	256000	1430.0
16402002	64	2580.0	263000	2860.0	292000	1630.0
17602002	76	3640.0	371000	4030.0	411000	2300.0

USAGE/WIRE ROPES FOR:		CONSTR./NAME
Barges Inland navigation	(mooring ropes) (mooring ropes) (mooring ropes)	6 x 24 + 7 6 x 12 + 7 6 x 15 + 7 6 x 19 + 1 6 x 24 + 7 6 x 25 Filling wire
Bridges – Sluices		8-str. Constr.
Constructors hoist		Stratolift/Stratoplast
Counterweights		8-str. Constr.
Crabtrrolley wire ropes Flap wire ropes Head- and closing ropes	(cranes, hoists, constructors hoists)	8-str. Constr. As 'Constructors hoists' 8-str. Constr.
Cranes	(separate parts for tower cranes, mobile gantry's, traversing crab)	6 x 36 WS Eurolift Stratolift/Stratoplast Starlift Twistfree 19 x 7 Twistfree 18 x 17 S/31 Twistfree 35 x 7
Davits		6 x 25 Filling wire
Dipper-dregder		6 x 19 + 1
Drag excavator		6 x 19 + 1 6 x 26 WS 6 x 26 WS cross twist
Dredging		6 x 19 + 1 6 x 24 + 7 6 x 36 WS 6 x 25 Filling wire
Electrical winches Electro hoist		As 'Tower cranes' Alphalift Eurolift
Fishing		6 x 25 Filling wire
General use	(no hoisting)	6 x 7 + 1 6 x 12 + 7 6 x 15 + 7
Grabbers		6 x 36 WS

USAGE/WIRE ROPES FOR:		CONSTR./NAME
Grommet		Grommet
Guy wire	(for cranes, Constructors hoists)	As 'Constructors hoists'
Hitches		6 x 19 + 1 6 x 24 + 7 6 x 36 WS 8 x 36 WS 8 x 41 WS Rope twist Grommets
Hoists		8 x 19 S Stratolift Stratoplast
Jib cables Jib adjust-wires		As 'Constructors hoists' 6 x 26 WS cross twist Quadrolift
Ladder hoisting		8-str. Constr.
Lengthen		As 'Hitches'
Lumber		6 x 19 + 1
Mooring ropes (light)		7 x 7 7 x 19
Movable cranes		6 x 25 Filling wire
Offshore		Heavy wire ropes 6- and 8-strands
Pontoons		6 x 19 + 1 6 x 25 Filling wire
Sea traffic	(mooring ropes)	6 x 24 + 7
Suction pipes		8-str. Constr.
Tension ropes	(for cranes, hoists, Constructors hoists)	As 'Constructors hoists'
"Tirfor" hoists		6 x 19 S + Steel core 6 x 24 V+ Steel core
Towage towing		6 x 36 WS Heavy wire ropes 6- and 8-strands As 'Offshore'
Traversing crab		As 'Tower cranes'
Winches		6 x 25 Filling wire
Wire rope-composition		As 'Hitches'