





## STAINLESS-STEEL WIRE ROPE

All of our stainless-steel wire rope is manufactured from 316L grade material. This provides high tensile steel wire, with maximum corrosion resistance. All wire rope is constructed with king wires providing support for the outer wires. Not only the material has been optimized to achieve maximum strength and minimum stretch, but also the arrangement of lay lengths has been adjusted to enhance these characteristics.

The dimensions and tensile grades of our stainless-steel wire correspond to the standard EN 1.4404 (AISI316L), which is the European norm for stainless-steel wire.

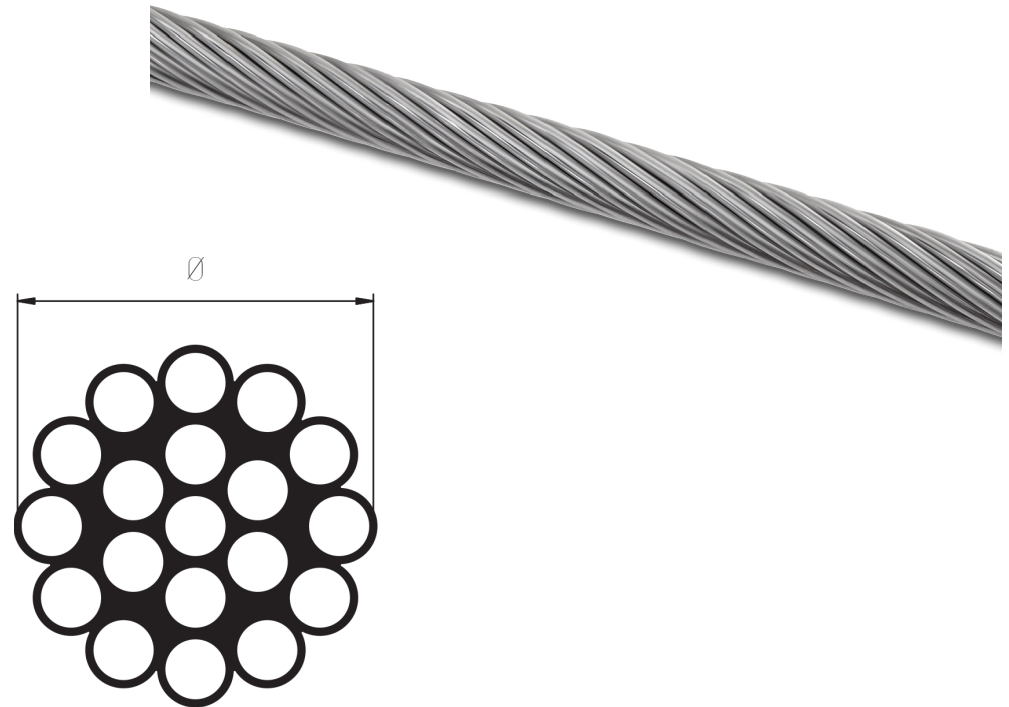
On special order, we also provide sizes above 26 mm. Please contact us for details and information on these sizes.

## 1x19 Stainless-steel cable

1x19 Cables are mostly used for yachting, balustrading, suspension and other tension members. This is because it has a higher rigidity, higher breaking strength and lower stretch than the 7x7 and the 7x19 constructions.

Flexibility: ••  
 Strength: •••  
 Stretch: ••

Wire rope 1x19								
Product no.	Nominal diameter	Minimum breaking load			Approximate weight		Stretch	
		mm	kg	lbs	kn	kg/100m	lbs/100ft	mm/mm/1000kg
NWR1192S	2	320	705	3,13	1,95	1,31	0,028961	0,0131642
NWR1192M	2,5	500	1100	4,90	3,05	2,05	0,018535	0,0084251
NWR1193	3	720	1590	7,06	4,49	3,02	0,012872	0,0058510
NWR1194	4	1280	2820	12,55	7,81	5,25	0,007378	0,0033537
NWR1195	5	2000	4400	19,61	12,20	8,20	0,004627	0,0021032
NWR1196	6	2880	6350	28,24	17,60	11,80	0,003224	0,0014655
NWR1197	7	3550	7800	34,81	23,90	16,10	0,002274	0,0010336
NWR1198	8	4640	10300	45,50	31,20	21,00	0,001833	0,0008332
NWR11910	10	7250	16000	71,10	48,80	32,80	0,001157	0,0005259
NWR11912	12	10400	22930	101,99	70,30	47,20	0,000806	0,0003664
NWR11914	14	14180	31260	139,06	95,70	64,30	0,000566	0,0002573
NWR11916	16	18560	40920	182,02	125,00	84,00	0,000460	0,0002091
NWR11919	19	21620	47660	212,03	176,00	118,00	0,000319	0,0001450
NWR11922	22	29070	64090	285,08	236,00	159,00	0,000235	0,0001068
NWR11926	26	40600	89500	398,16	330,00	222,00	0,000180	0,0000818
NWR11928	28	52600	115960	515,84	383,00	257,00	0,000142	0,0000645
NWR11930	30	58800	129600	576,65	443,00	298,00	0,000127	0,0000577
NWR11932	32	62800	138450	615,87	500,00	336,00	0,000115	0,0000523



## 7x7 Stainless-steel cable

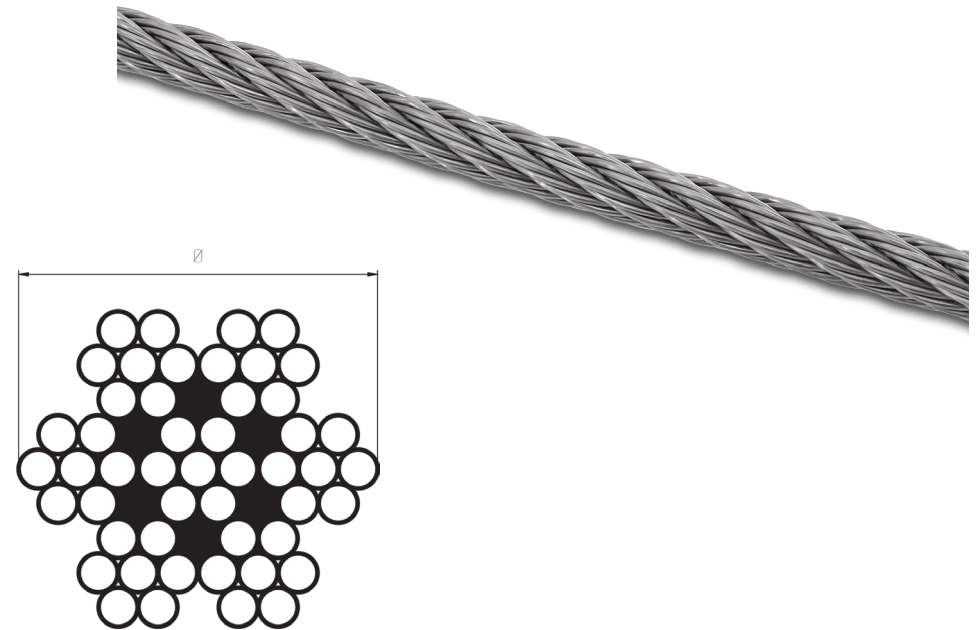
A 7x7 cable has a lower breaking strength than the 1x19 and is much more flexible due to the 7 strands of 7 small wires. It is often used for handrails and safety harness guide wires.

Flexibility: ●●●

Strength: ●●

Stretch: ●●●

Wire rope 7x7								
Product no.	Nominal diameter	Minimum breaking load			Approximate weight		Stretch	
		mm	kg	lbs	kn	kg/100m	lbs/100ft	mm/mm/1000kg
NWR772	2	242	532	2,37	1,51	1,01	0,065672	0,0298511
NWR773	3	545	1199	5,34	3,40	2,28	0,029188	0,0132671
NWR774	4	968	2130	9,49	6,05	4,06	0,016418	0,0074628
NWR775	5	1510	3322	14,81	9,46	6,36	0,010508	0,0047762
NWR776	6	2180	4796	21,38	13,60	9,14	0,007297	0,0033168
NWR777	7	2970	6534	29,13	18,50	12,40	0,005361	0,0024368
NWR778	8	3870	8514	37,95	24,20	16,30	0,004105	0,0018657
NWR7710	10	6050	13310	59,33	37,80	25,40	0,002627	0,0011940
NWR7712	12	8710	19162	85,42	54,50	36,60	0,001824	0,0008292



## 7x19 Stainless-steel cable

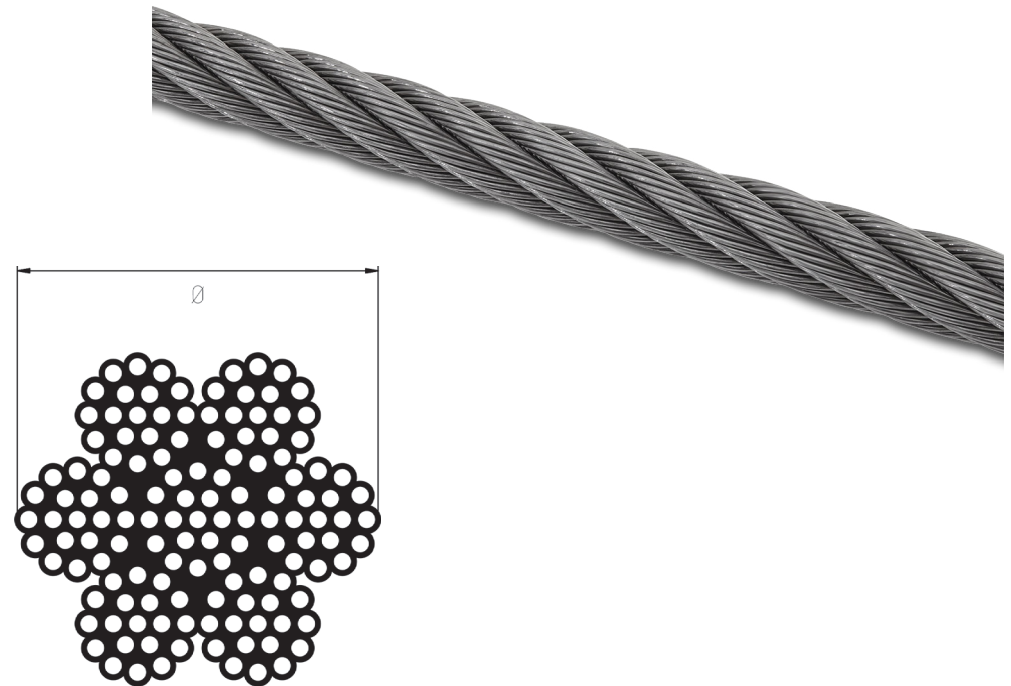
7x19 Wire rope has the highest flexibility and stretch. Due to its lower breaking strength, it is not commonly used for balustrading or as canopy ties. It is rather used for running load applications and is ideal for winch cables, because of its high flexibility. This wire is ideal for forming loops. The wire can easily be bent without damaging it.

Flexibility: ●●●●

Strength: ●

Stretch: ●●●●

Wire rope 7x19								
Product no.	Nominal diameter	Minimum breaking load			Approximate weight		Stretch	
		mm	kg	lbs	kn	kg/100m	lbs/100ft	mm/mm/1000kg
NWR7192S	2	226	498	2,21	1,53	1,03	0,065672	0,0298511
NWR7192M	2,5	355	783	3,48	2,38	1,60	0,04203	0,0191047
NWR7193	3	510	1120	5,00	3,34	2,24	0,029188	0,0132671
NWR7194	4	907	2000	8,89	5,94	3,99	0,016418	0,0074628
NWR7195	5	1420	3130	13,92	9,29	6,24	0,010508	0,0047762
NWR7196	6	2040	4500	20,00	13,40	9,00	0,007297	0,0033168
NWR7197	7	2780	6130	27,26	18,20	12,23	0,005361	0,0024368
NWR7198	8	3630	8000	35,60	23,80	15,99	0,004105	0,0018657
NWR71910	10	5670	12500	55,60	37,20	25,00	0,002627	0,001194
NWR71912	12	8160	18000	80,02	53,50	35,95	0,001824	0,0008292
NWR71914	14	11100	24500	108,86	72,80	48,92	0,00134	0,0006092
NWR71916	16	13600	30000	133,37	99,00	66,52	0,001026	0,0004664

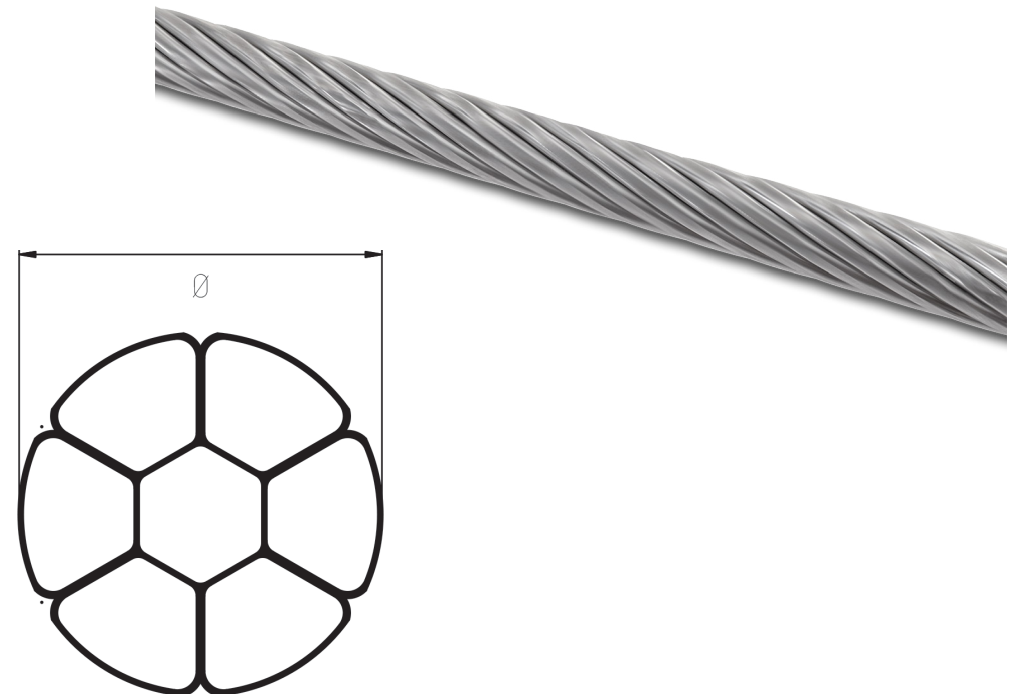


## Compact Strands

The compact strands are available in 1x7, 1x19, 1x25 and 1x31. They are made up of the same amount of wires as the regular steel cables, but are compressed so that there is more material compacted into the cross section. This leads to a higher breaking strength, less flexibility and less stretch. It is often used for high performance yachting, roof truss ties and similar applications where minimum stretch is required.

Flexibility: •  
 Strength: ••••  
 Stretch: •

Compact strands								
1x7 Compact strand								
Product no.	Nominal diameter	Minimum breaking load			Approximate weight		Stretch	
		kg	lbs	kn	kg/100m	lbs/100ft	mm/mm/1000kg	in/in/1000lb
NWRC17025	2,5	690	1521	6,77	3,4	2,28	0,014523	0,0066014
NWRC1703	3	1000	2205	9,81	4,9	3,29	0,010085	0,0045841
NWRC17035	3,5	1350	2976	13,24	6,7	4,50	0,00741	0,0033682
NWRC1704	4	1780	3924	17,46	8,8	5,91	0,005673	0,0025787
1x19 Compact strand								
NWRCC11905	5	2440	5379	23,93	13,5	9,07	0,003728	0,0016946
NWRCC11906	6	3550	7826	34,81	19,4	13,04	0,002589	0,0011768
NWRCC11907	7	4910	10825	48,15	26	17,47	0,001902	0,0008646
NWRCC11908	8	6150	13558	60,31	34,5	23,18	0,001456	0,0006618
NWRCC11910	10	9770	21539	95,81	54	36,29	0,000932	0,0004236
NWRCC11912	12	14400	31747	141,22	80,7	54,23	0,000647	0,0002941
1x25 Compact strand								
NWRCC12514	14	19300	42549	189,28	115	77,28	0,000476	0,0002164
NWRCC12516	16	25600	56438	251,06	147	98,78	0,000364	0,0001655
1x31 Compact strand								
NWRC13119	19	32000	70548	313,82	207	139,10	0,000258	0,0001173





# STRETCH

## Types of stretch

Wire rope stretches when load is applied to it. The more weight applied, the greater the stretch. There are, however, two different types of stretch: constructional stretch and elastic stretch.



### Constructional stretch

This is the initial inelastic and permanent stretch caused by the wires bedding in. Because of small gaps in between the individual wires, the wires have room to move closer together when a load is applied, leading the cable to stretch. This means that the cable becomes slightly longer and has a slightly smaller diameter.

### Elastic stretch

After the bedding in of the material, there is the elastic stretch. This is the stretch of the actual wire material itself. Elastic stretch is not permanent; once the load is removed, the material will return to its original length and diameter. Elastic stretch can be calculated using the formula pictured on the next page.

$$\text{Elastic stretch} = \frac{WxL}{ExA}$$

W = applied load (KN)

L = Cable length (mm)

E = Strand Modulus (KN/mm<sup>2</sup>)

A = Area of cable =  $\frac{D^2x\pi}{4}$

D = Nominal diameter (mm)

Typical values for the strand modulus are:

1x19: E = 107.5 KN/mm<sup>2</sup>

7x7: E = 57.3 KN/mm<sup>2</sup>

7x19: E = 47.5 KN/mm<sup>2</sup>

1x19 compact strand E = 133.7 KN/mm<sup>2</sup>

## Pre-stressing

Stainless-steel wire rope can be pre-stressed in order to remove constructional stretch. Elastic stretch cannot be removed, because the cable will return to its original form once the load has been removed. However, it can be tested how much the cable will stretch when the cable is pre-stressed with the exact same load that it will eventually have to hold. For compact strands, stretch is as low as 0,01%. Pre-stressing is therefore not needed for compact strands, since this is already achieved virtually on the initial loading.

Whether stretch is of concern depends on the eventual function of a cable. However, for the majority of (architectural) uses, constructional and elastic stretch will not be of importance.

