

## Sutlej Ropes Pvt. Ltd



## **ABOUT US**



Sutlej Ropes is a steel wire and steel wire rope manufacturing company having a production capacity of 10,000 tons per annum.

Coming into existence in 2003, Sutlej Ropes manufacturing unit boasts of state of the art and modern machinery. Sutlej employs a number of

professionals with vast experience in their fields to cater to a wide list of international clientel.

Accredited with ISO 9001:2000, Sutlej Ropes is committed to manufacture & supply wire ropes of high quality at effectively optimized cost, through continual process improvement.

Strategically we are working towards being a global player in the wire rope industry. Growth, alliances and cost advantages are the key tools towards achieving our goals.

## **OUR PRODUCTS**

At Sutlej Ropes, we take pride in our product, its world-class quality and our range of specialized variants. Each unit of our steel wire ropes meets the most exacting standards of quality toughness, tensile strength,

flexibility, abrasion resistance and fatigue resistance. They are drawn to the strictest specifications and every coil of every variant is thoroughly tested to ensure that it complies with international standards.

But, to ensure this level of perfection in the product we make, we need to be sure of the quality of steel we use. In the older days, Crucible Cast Steel and Mild Plow Steel were used to make wire ropes. However, we do not use lower grades of carbon steel wire, since today's modern

machinery and equipment requires higher strength wire ropes, because of greater loads and fatigue. Keeping this in mind, we almost exclusively use Improved Plow Steel and Special Improved Plow Steel in the making of our wire ropes. Depending upon the industry-specific use, we make these ropes with a tensile strength ranging from 2,40,000 to 2,90,000 pounds per sq. inch. Our elevator wire ropes, however, are customized because they must be made of steel of low tensile strength and high flexibility.

Our integrated wire rope facilities include stranding machines with 6 bobbins, 12 bobbins, 18 bobbins, 36 bobbin machines and high speed wire rope closers. These stranding machines, along with our coiling and other equipment enable our production to include variations of all types of industrial steel wire ropes. These are the different variants of our Steel Wire Ropes –



**CRANES** 



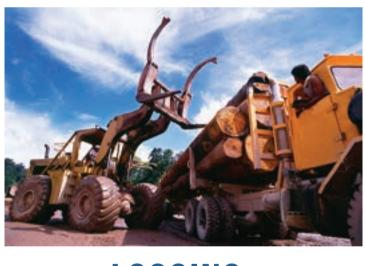
**AERIAL ROPES** 



**FISHING ROPES** 



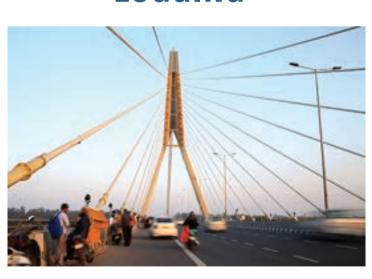
**LIFE BOAT ROPES** 



**LOGGING** 



**MINING** 



**SUSPENSION BRIDGE** 



**SHIPPING ROPES** 



**OIL EXPLORATION ROPES** 

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## **OUR PRODUCTS**

#### MINING

- 1. Underground Mining
  - (a) Haulage Rope
  - (b) Drum Winding Rope
  - (c) Friction Winder Rope
  - (d) Sinking Rope
  - (e) Balance Rope or Tail Rope
  - (f) Guide and Rubbing Rope
  - (g) Coal Cutting MachineRope
  - (h) Slusher Rope
  - (i) Roof Stitching Rope
- 2. Open Cast Mining (six stranded ropes)
  - a. Shovels
    - i. Bucket Hoist Rope
    - ii. Boom Hoist Rope
    - iii. Trip Rope
  - b. Draglines
    - i. Drag Ropes
    - ii. Hoist Rope
  - c. Dozers

### **FISHING ROPE**

A. Trawl Rope

### LIFE BOAT ROPES

- A. Life Boat Falls
- B. Life Boat Davit Guys

### SUSPENSION BRIDGES

- A. Main Cable
- B. Suspender
- C. Guy Rope

#### SHIPPING ROPES

- A. Standing Rigging
- B. Mooring Ropes
- C. Towing Rope

### **CRANES**

- (a) E.O.T. Cranes
- (b) Hot Metal E.O.T. Cranes
- (c) Stripper
- (d) Skip Hoist
- (e) Wagon Hauler
- (f) Wagon Trippler
  - a. Hoist Rope
  - b. Counter Weight Rope
- (g) Mobile Cranes
  - a. Hoist Rope
  - b. Guy Rope or Stay Rope

### LOGGING

- A. Tractor Logging
  - a. Archlines and Winch lines
  - b. Chokers
- B. Portable High Lead System (Steel Spar)
  - a. Main Line
  - b. Haulback Line
  - c. Straw Line
  - d. Guys (Drum Tensioned)
  - e. Choker
- C. Tight Skyline System
  - a. Sky Line
  - b. Mainline Skidding Line
  - c. Haulback Line
  - d. Strawline
  - e. Choker
- D. Slack Line System (Fixed)
  - a. Main Line or Skidding Line
  - b. Haulback Line
  - c. Tightening Line
  - d. Chokers

#### E. Ground Skidders

- a. Mainline
- b. Haulback Line
- F. Cargo Working Gear
  - a. Cargo Falls and Cargo Runners
  - b. Topping Pendents
  - c. Topping Lifts
  - d. Guy Pendents
- G. Preventer Stays

### **OIL EXPLORATION ROPES**

- A. Casing Line Ropes
- B. Sand Line Ropes
- C. Bull Line Ropes
- D. Pig Tail Ropes

### **AERIAL ROPES**

## **CERTIFICATION**











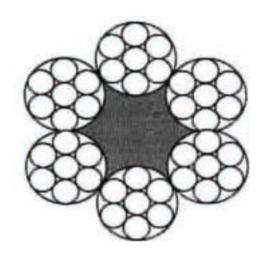
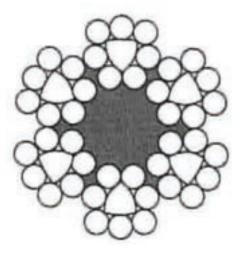


TABLE I - 6X7 (6/1) CONSTRUCTION FIBRE CORE ROPES

Nominal Diameter	Approximate Mass		eaking Load Correspo slgnatlon of Wires (N	_
		1570	1770	1960
1	2	3	4	5
mm	kg/100m	kN	kN	kN
13	60.3	88	99	110
14	70.0	102	115	128
16	91.5	133	151	167
18	116	169	190	211
19	129	188	212	235
20	143	209	235	260
21	158	230	259	287
22	173	252	285	315
24	206	300	339	375
25	223	326	367	407
26	242	352	397	440
27	260	380	429	475
28	280	409	461	510
29	300	439	494	548

<sup>(</sup>a) Approx. mass with Steel Core = Value in Col.  $2 \times 1.10$ 

<sup>(</sup>b) Breaking load value with Steel Core=Values In Col. 3 & 4 X 108

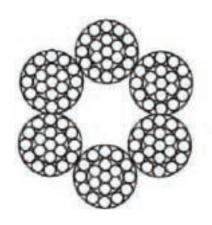


## TABLE II - BREAKING LOAD AND MASS FOR 6 x 9 (8 / CONSTRUCTION

Nominal Diameter	Approxin	nate Mass	Minimum Breaking Load Corresponding to Tensile Designation of Wires							
	Fibre Core	Steel Core	157	70	177	70				
			FtbreCore	Steel Core	flbre Core	Steel Core				
1	2	3	4	5	6	7				
mm	kg/100m	kg/100m	kn	kn	kn	kn				
13 14 16 18	68.9 79.9 104 132	75.1 87.0 114 144	95 110 143 181	100 116 152 192	107 124 161 204	113 131 171 217				
19 20 22 24	147 163 197 235	160 178 215 256	202 224 271 322	214 237 287 342	228 252 305 363	241 267 324 385				
26 28 32 36	275 319 417 528	300 348 455 576	378 438 573 725	401 465 607 768	426 494 646 817	452 524 684 866				

NOTE:

- (a) To obtain the calculated breaking loads, multiply the figures given in col. 4, 6 and 8 by 1.137 end those given in col. 5, 7 and 9 by 1.18
- (b) In case of  $\;$  wire, 3 or more wires may be used.



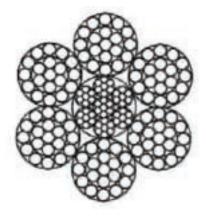
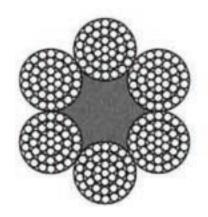
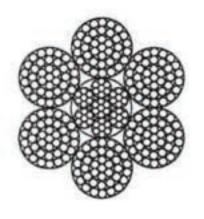


TABLE III - 6X1 9(12/6/1) CONSTRUCTION

Nominal Diameter	Approxir Mass	nate S		Mi	inimum Brea Desig	aking Load C nation of Wi	orrespondir res (N/mm²)	ng Tensile		
	Fibre Core	steel Core	1230	1420	15	70	177	70	196	60
					Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1) mm	(2) Kg/100m	(3) Kg/100m	(4) kN	(5) kN	(6) kN	(7) kN	(8) kN	(9) kN	(10) kN	(11) kN
6 7 8 9 10 11	12.5 17.0 22.1 28.0 34.6 41.9	 24.3 30.8 38.0 46.0	13.6 18.5 24 31 38 46	15.7 21 28 36 44 53	17.4 23.7 31 39 48 58	  33 42 52 63	  35 44 54 66	 37.6 47.5 58.7 71.0	  39 49 60 73	 41.6 52.6 65.0 78.7
12 13 14 16	49.8 58.5 67.8 88.6	54.0 64.3 74.5 97.4	54   	63   	69 82 95 124	75 88 102 133	78 92 107 139	84.6 99 115 150	87 102 118 154	93.6 110 127 166
18 19 20 22	112 125 138 167	123.0 137.0 152.0 184.0	  	  	156 174 193 234	160 188 208 252	176 196 218 263	190 212 235 284	195 217 241 292	210 234 260 314
24 26 28 32	199 234 271 354	219.0 257.0  -	1 1 1 1	  	278 326 378 494	300 352  	313 368 426 557	338 397  	347 407 472 617	375 439  
36 38 40 44	448 499 554 670	219.0 257.0 	  	  	  	  	705 785 870 1053	  	781 870 964 1166	  
48 52	797 936		 	 	1112 1305	 	1253 1471	 	1388 1629	 





## TABLE IV- 6X37 (18/12/6/1) CONSTRUCTION

Nominal Diameter			Minimum Breaking Load Corresponding Tensile Designation of Wires (Nimmt²)					
	Fibre Core	steel Core	15	70	177	70	1960	
			Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
k/100m	Kg/100m	Kg/100m	kN	kN	kN	kN	kN	kN
8	22.1	24.4	30	32	33	36	37	40
9	28.0	30.8	37	40	42	46	47	51
10	34.6	38.1	46	50	52	56	58	62
11	41.9	46.1	56	60	63	68	70	76
12	49.8	54.8	67	72	75	81	83	90
13	58.5	64.3	78	84	88	95	98	105
14	67.8	74.6	91	98	102	110	113	122
16	88.6	97.4	118	128	134	144	148	160
18	112	123	150	162	169	183	187	202
19	125	137	167	180	188	203	209	225
20	138	152	185	200	209	225	231	250
22	167	184	224	242	253	273	280	302
24	199	219	267	288	301	325	333	359
26	234	257	313	338	353	381	391	422
28	271	297	363	392	409	442	452	489
32	354	389	474	512	534	577	592	639
36	448	492	600	648	676	730	749	809
38	499	549	668	722	753	813	834	901
40	554	608	741	800	835	902	924	998
44	670		896		1010		1119	

09

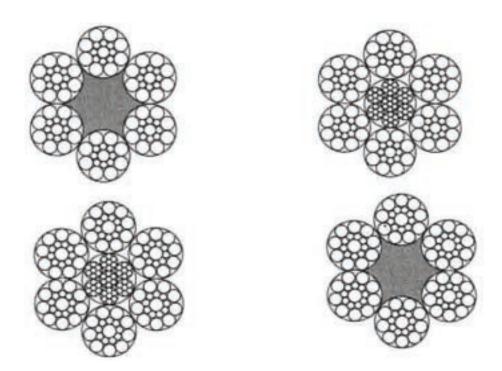
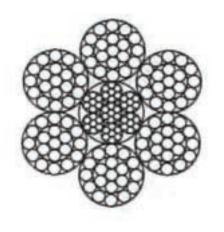


TABLE V - 6X17 (8/8/1) & 6X19 (9/9/1) SEALE CONSTRUCTION

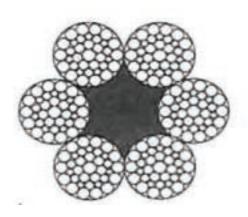
Nominal Diameter	Approxir Mass			Mi	Ainimum Breaking Load Corresponding Tensile Designation of Wires (N/mm²)					
	Fibre Core	steel Core	1230	1420	15	70	177	70	196	60
					Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1) mm	(2) Kg/100m	(3) Kg/100m	(4) kN	(5) kN	(6) kN	(7) kN	(8) kN	(9) kN	(10) kN	(11) kN
6 7 8 9 10	23.3 30.2 37.3 45.1	26.2 33.2 41.0 49.6	14.7 19.9 26 33 41 49	16.9 23 30 38 47 57	  33 42 52 63	  36 45 56 68	  37 47 59 71	  40 51 63 77	  42 53 65 78	  45 57 70 85
12 13 14 16	53.7 63.0 73.0 95.4	59.0 69.3 80.3 105	59 69 80 104	68 79 92 120	75 88 102 133	81 95 110 144	84 99 115 150	91 107 124 162	93 110 127 166	101 118 137 179
18 19 20 22	121 135 149 180	133 148 164 168	132 147 162 	152 170 188 	168 188 208 251	182 203 224 272	190 211 234 283	205 228 253 306	210 234 259 314	227 253 280 339
24 26 28 32	215 252 292 382	236 277 321 420	1 1 1	1 1 1	299 351 407 532	323 379 440 575	337 396 459 600	364 428 496 648	374 438 508 664	403 474 549 717
36 40 44 48 52	483 596 721 858 1008	531 656 794 944 1108	1 1	1 1 1	673 831 1006 1197 1405	727 898 1086 1293 1517	759 937 1134 1349 1584	820 1012 1225 1458 1711	841 1038 1256 1494 1754	908 1121 1356 1614 1894

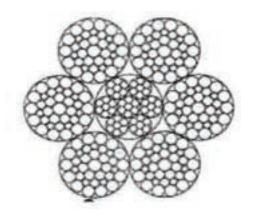




## TABLE VI - 6 X 19 (12/6 + 6F/1) FILLER CONSTRUCTION

Nominal Diameter	Approxir Mass			M	Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm²)					
	Fibre Core	steel Core	1230	1420	157	70	177	70	196	60
					Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1) mm	(2) Kg/100m	(3) Kg/100m	(4) kN	(5) kN	(6) kN	(7) kN	(8) kN	(9) kN	(10) kN	(11) kN
6 7 8 9 10	13.7 18.6 24.3 30.8 38.0 46.0	 26.8 33.9 41.8 50.6	15.0 20.4 27 34 42 50	17.3 23 31 39 48 58	  34 43 53 64	  37 46 57 69	  38 48 60 72	  41 52 65 78	  42 54 66 80	  46 58 71 86
12 13 14 16	54.7 64.3 74.5 97.3	60.2 70.7 82.0 107	60 70 81 106	69 81 94 123	76 90 104 136	82 97 112 147	86 101 117 153	93 109 127 165	95 112 130 169	103 121 140 183
18 19 20 22	123 137 152 184	135 151 167 202	135 150 166 	155 173 192 	172 191 212 257	186 207 229 277	194 216 239 289	209 233 258 312	214 239 265 320	232 258 286 346
24 26 28 32	219 257 298 389	241 283 328 428	- - -	  	305 358 416 543	330 387 449 586	344 404 469 612	372 436 506 661	381 447 519 678	412 483 560 732
36 40 44 48 52	493 608 736 876 1028	542 669 810 964 1131	  	  	687 848 1026 1222 1434	742 916 1109 1319 1548	775 956 1157 1377 1616	837 1033 1250 1487 1745	858 1059 1281 1525 1790	926 1144 1384 1647 1933

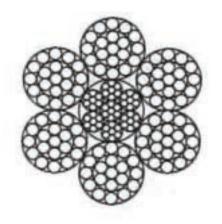




## TABLE VII- BREAKING LOAD AND MASS FOR 6X36 (14/7 + 7/17/1) SEALE - WARRINGTON CONSTRUCTION

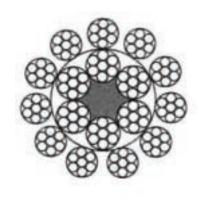
Nominal Diameter	Approxirnate Mass		M	linimum Bre Desig	aking Load ( nation of Wi	Correspondi res (N/mmt	ng Tensile	
	Fibre Core	steel Core		1570		1770	196	60
			Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
mm	Kg/100m	Kg/100m	kN	kN	kN	kN	kN	kN
9	30.8	33.9	42	45	47	51	52	57
10	38.0	41.8	52	56	58	63	65	70
11	46.0	50.8	63	68	71	76	78	85
12	54.7	60.2	75	81	84	92	93	100
13	64.3	70.7	88	97	99	106	109	118
14	74.5	82.0	102	112	114	124	127	137
16	97.3	107	133	143	149	161	166	178
18	123	135	168	181	189	204	210	226
19	137	151	187	202	211	228	233	252
20	152	167	207	224	234	252	259	279
22	184	202	251	271	283	305	313	338
24	219	241	298	322	336	363	372	402
26	257	283	350	378	395	426	437	472
28	298	328	406	439	458	494	507	547
32	389	428	530	573	598	646	662	715
36	493	542	671	725	757	817	840	905
40	608	669	829	895	934	1009	1035	1117
44	736	810	1003	1083	1131	1221	1252	1352
48	876	964	1193	1289	1345	1453	1490	1609
52	1028	1131	1401	1513	1579	1705	1748	1888
56	1192	1311	1624	1754	1831	1978	2028	2190
60	1369	1506	1865	2014	2102	2270	2328	2514
64	1557	1713	2122	2291	2392	2583	2648	2860
68	1758	1934	2395	2587	2700	2916	2990	3229
72	1971	2168	2685	2900	3027	3269	3352	3620
76	2196	2416	2992	3331	3373	3643	3755	4034
80	2433	2676	3315	3580	3737	4036	4438	4469
84	2681	2951	3655	3947	4120	4450	4562	4928

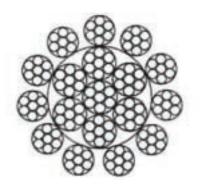


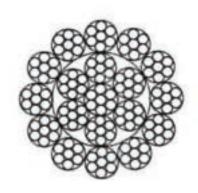


## TABLE VIII - BREAKING LOAD AND MASS FOR 8 X 19(9/9/1) SEALE CONSTRUCTION

Nominal Diameter	Approxir Mass	nate S		Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm²)						
	Fibre Core	steel Core	1230	1420	15	70	177	70	196	60
					Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
mm	Kg/100m	Kg/100m	kN	kN	kN	kN	kN	kN	kN	kN
8	22.3	27.2	23	26	29	34	33	38	36	42
9	28.2	34.4	29	36	36	43	41	49	46	54
10	34.8	42.5	35	45	45	53	51	60	56	66
11	42.2	51.4	43	55	55	64	61	73	68	80
12	50.2	61.2	51	69	65	77	86	93	95	103
13	58.9	71.9	60	81	76	90	101	109	112	121
14	68.3	83.3	69	94	88	104	117	127	130	140
16	89.2	109	90	123	115	136	153	165	169	183
18	113	138	114	132	146	172	165	194	182	215
19	126	153	127	147	163	192	183	216	203	240
20	139	170	141	162	180	213	203	240	225	
22	169	206			218	257	246	290	278	
24 26 28 32 36	201 236 273 357 452	245 287 333 435 551	  -	  -	260 305 353 461 584	306 359 417 544 689	293 343 398 520 658	345 405 470 614 777	324 380 441 570 729	   







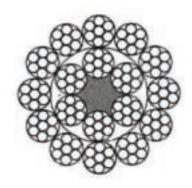


TABLE IX -17X7 (6/1) AND 18X7 (6/1) FIBRE CORE & WSC NON-ROTATING ROPES

Nominal	Approx	kirnate	M	Minimum Breaking Load Corresponding Tensile						
Diameter	Ma	ISS		Designation of Wires (Nimm²)						
	Fibre Core	steel Core		1570		1770	196	60		
				Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		
mm	Kg/100m	Kg/100m	kN	kN	kN	kN	kN	kN		
8	24.5	25.7	32	33	36	37	40	41		
9	31.0	32.6	41	42	46	47	51	52		
10	38.3	40.2	50	52	56	58	62	64		
11	46.3	48.6	61	62	68	70	76	78		
12	55.8	57.9	72	74	81	84	90	93		
13	64.7	67.9	85	87	98	98	106	109		
14	75.0	78.8	98	101	111	114	122	126		
16	98.0	103	128	132	144	149	160	165		
18	124	130	162	167	183	188	202	208		
19	138	145	181	186	204	210	225	232		
20	153	161	200	206	226	232	250	257		
22	185	195	242	249	273	284	302	311		
24	220	231	288	297	325	335	359	370		
26	259	272	338	348	381	393	421	434		
28	300	315	392	404	442	455	488	503		
32	392	412	512	527	577	595				

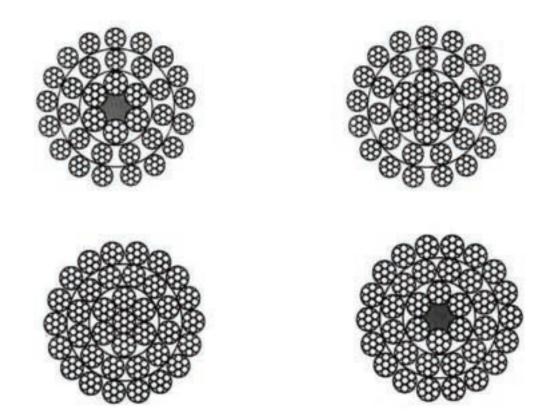
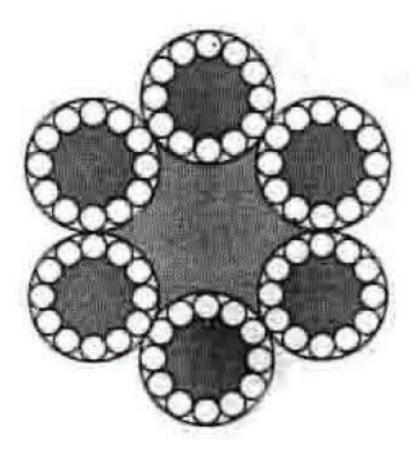


TABLE X - 34 X 7 (16/1) AND 36X7 (6/1) WITH FIBRE CORE NON-ROTATING ROPES

Nominal Diameter	Approx Ma		V	Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm²)						
	Fibre Core	steel Core	15	70	17	70	196	60		
		Fibre	Steel	Fibre	Steel	Fibre	Steel			
		Core	Core	Core	Core	Core	Core			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		
mm	Kg/100m	Kg/100m	kN	kN	kN	kN	kN	kN		
12	56.2	57.9	71	72	80	81	88	90		
13	65.9	67.9	83	84	93	95	103	105		
14	76.5	78.8	96	98	108	110	120	122		
16	99.9	103	125	128	141	144	157	160		
18	126	130	159	162	179	183	198	202		
19	141	145	177	181	199	203	221	225		
20	156	161	196	200	221	225	245	250		
22	189	195	237	242	267	273	296	302		
24	225	231	282	268	318	325	352	359		
26	264	272	331	338	374	381	414	422		
28	306	315	384	392	433	442	480	489		
32	400	412	502	512	566	577	627	639		
36	506	521	634	648	716	730	739	809		
40	624	643	784	800	884	902	979	999		



## TABLE XI-BREAKING LOAD AND MASS OF 6 X 12 CONSTRUCTION

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of 1420 (N/mm²)
(1)	(2)	(3)
mm	kg/100m	kN
8 9 10 11	16.0 20.3 25.1 30.3	19.0 24 30 36
12 14 16 18 20	36.1 49.1 64.2 81.2 100	43 58 76 96 118

16

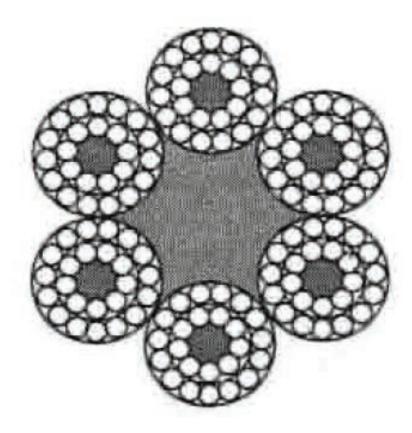


TABLE XII-BREAKING LOAD AND MASS OF 6 X 12 CONSTRUCTION

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of 1420 (N/mm2)
(1)	(2)	(3)
mm	kg/100m	kN
8	20.4	26
9	25.8	32
10	31.8	40
11	38.5	48
12	45.8	57
14	62.4	78
16	81.5	102
18	103	129
20	127	159
22	154	193
24	183	229
26	215	269
28	250	312
32	326	407
36	413	516
40	509	637

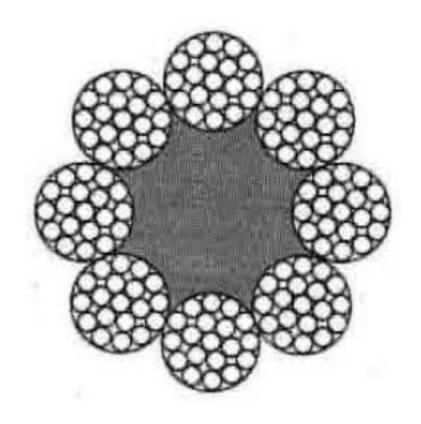
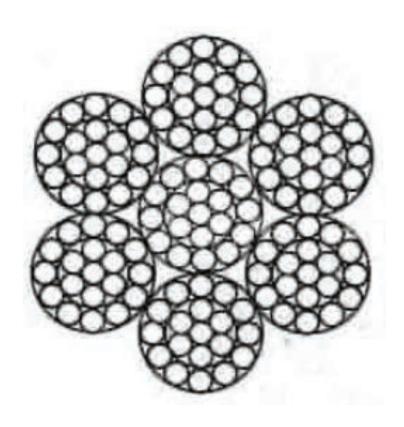


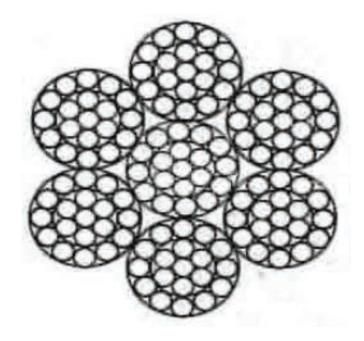
TABLE XIII- BREAKING LOAD AND MASS FOR 8 X 19 (12/6 + 6F/1) FILLER CONSTRUCTION WITH FIBRE CORE

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of 1420 (N/mm2)		
(1)	(2)	(3)	(4)	(5)
mm	kg/100m	kN	kN	kN
		1230	1420	1570
8	23.4	23	27	30
9	29.6	29	34	37
10	36.0	36	42	46
11	44.0	44	50	56
12	52.6	52	60	66
13	62.0	61	70	78
14	72.0	71	82	90
16	94.0	92	107	118



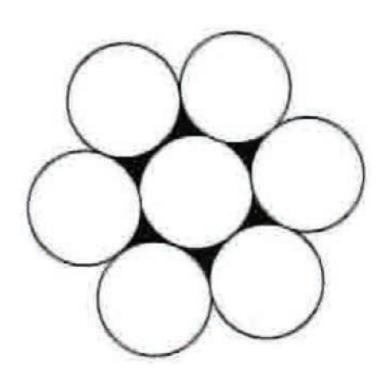
## TABLE XIV-BREAKING LOAD AND MASS OF 7 X 19 CONSTRUCTION

Nominal Diameter + percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of (N/mm²)	
		1420	1570
(1)	(2)	(3)	(4)
mm	kg/100m	kN	kN
22	180	250	276
24	214	297	328
26	251	349	386
28	291	405	448
32	380	529	585
36	481	669	740
38	536	746	825
39	565	786	869
40	594	826	915
41	624	868	960
42	633	913	1010
43	687	958	1060
44	719	1003	1110
45	752	1049	1180
46	786	1094	1210
47	821	1139	1260
48	856	1193	1320



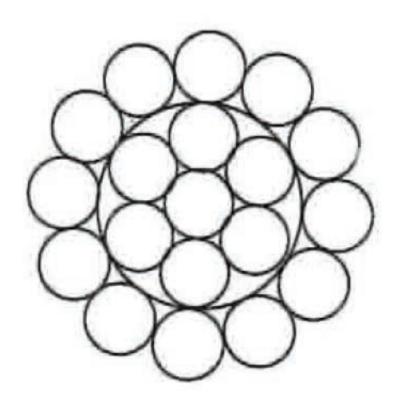
## TOBLE XV- ROUND STRAND 7X37(18/12/6/1) CONSTRUCTION WIRE ROPES

Nominal Diameter + 4 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding to Tensile Designation of Wire	
		1420	1570
(1)	(2)	(3)	(4)
mm	kg/100 mm	kN	kN
38	536	709	784
39	565	756	826
40	594	786	869
41	624	825	913
42	633	866	958
43	687	904	1000
44	719	949	1050
45	752	994	1100
46	786	1040	1150
47	821	1085	1200
48	856	1130	1250
49	892	1175	1300
50	929	1229	13060
51	966	1275	1410
52	1010	1329	1470
53	1040	1383	1530
54	1080	1428	1580
55	1120	1483	1640
56	1170	1537	1700
57	1210	1591	1760
58	1250	1654	1830
59	1290	1709	1890
60	1340	1763	1950
61	1380	1826	2020
62	1430	1889	2090
63	1470	1994	2150
64	1520	2007	2220



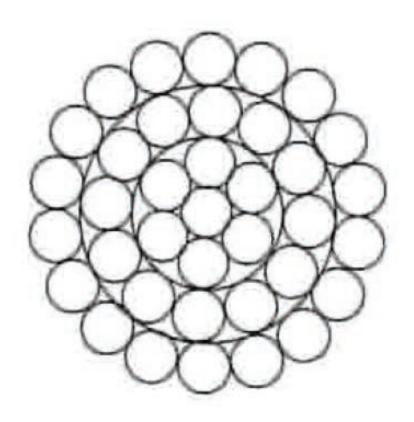
# TABLE XVI - BREAKING LOAD AND MASS OF SPIRAL STRAND 7(6/1)WIRES

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of (N/mm <sup>2)</sup>	
		1420	1570
(1)	(2)	(3)	(4)
mm	kg/100m	kN	kN
6	18.1	29	30.5
7	24.6	38	42.0
8	32.1	52	54.5
9	40.7	66	69.0
10	50.2	83	85.5
11	60.7	93	103
12	72.3	115	123
13	84.8	135	144
14	98.4	156	167
15	113	179	192



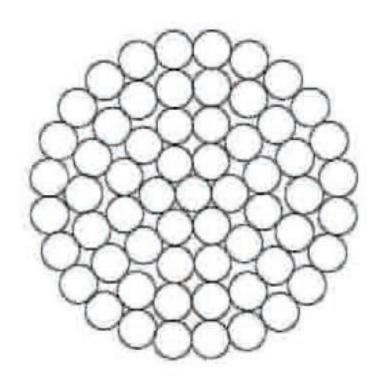
# TABLE XVII - BREAKING LOAD NAD MASS OF SPIRAL STRAND 19 (12/6/1) WIRES

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of (N/mm <sup>2)</sup>	
		1420	1570
(1)	(2)	(3)	(4)
mm	kg/100m	kN	kN
12	71.5	105	119
13	84.0	125	130
14	97.0	145	162
15	111	168	186
16	127	188	211
17	143	207	238
18	161	232	267
19	179	260	298
20	198	288	330
21	218	317	364
22	240	348	399
23	262	381	436
24	285	414	475
25	309	450	516



# TABLE XVII - BREAKING LOAD NAD MASS OF SPIRAL STRAND 37 (18/12/6/1) WIRES

Nominal Diameter + 6 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of (N/mm <sup>2)</sup>	
		1420	1570
(1)	(2)	(3)	(4)
mm	kg/100m	kN	kN
20	196	265	321
21	216	304	365
22	237	333	390
23	259	365	426
24	282	372	464
25	306	404	503
26	331	437	543
27	356	465.5	587
28	383	501	631
29	411	537	677
30	440	575	724
31	470	614	773
32	501	654	824
33	532	695	876
34	565	738	930
35	599	782	



# TABLE XIX-SPORAL STRAND 61 (24/18/12/6/1) WIRES

Nominal Diameter + 4 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of 1570
(1)	(2)	(3)
mm	kg/100m	kN
26	334	540
27	360	580
28	387	625
29	415	670
30	445	717
31	475	765
32	506	817
33	538	868
34	571	921
35	605	977
36	640	1030
37	675	1090
38	713	1150
39	751	1200
40	790	1270
41	830	1330
42	871	1400
43	913	1470
44	956	1550
45	1000	1620

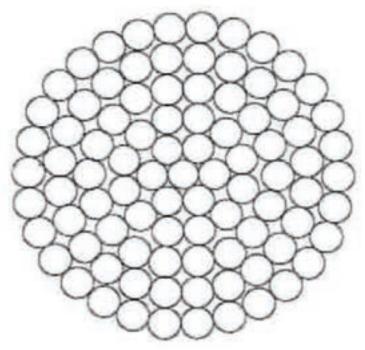


TABLE XX-SPIRAL STRAND 91 (30/24/18/12/6+6F/1)OR (30/24/18/12/6/1)WIRES

Nominal Diameter + 4 percent -1 percent	Approximata Mass	Minimum .Breaking Load Corresponding Tensile Designation of Wire of 1570
(1)	(2)	(3)
mm	kg/100m	kN
33 34 35 36 37 38 39 40	538 571 605 640 675 713 751	868 921 977 1030 1090 1150 1200
41	830	1330
42	871	1400
43	913	1470
44	956	1550
45	1000	1620
46	1040	1680
47	1090	1750
48	1140	1830
49	1190	1900
50	1240	1980
51	1280	2060
52	1340	2160
53	1390	2230
54	1440	2320
55	1490	2410
56	1550	2500



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