



# Sutlej Ropes Pvt. Ltd

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# 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



# 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 Pendants
  - c. Topping Lifts
  - d. Guy Pendants
- 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



**भारतीय मानक ब्यूरो**  
BUREAU OF INDIAN STANDARDS

Address: Plot No. 4-A,  
Sector 27-B,  
Medhvi Marg,  
Chandigarh  
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Chandigarh Branch Office-I,  
Northern Regional Office,  
Bureau of Indian Standards

web: <http://www.bis.org.in>

लाइसेंस संख्या सी एम 9526386 की संलग्नी  
ATTACHMENT TO LICENCE NO. CML-9526386

| सी एम/एल<br>संख्या<br>CML/NO | लाइसेंसधारी का पता सहित नाम<br>NAME OF THE LICENSEE WITH<br>THE ADDRESS                              | उत्पाद का नाम<br>NAME OF THE PRODUCT             | भा मा संख्या<br>IS NO. |
|------------------------------|--|--|------------------------|
| 9526386                      | M/s Sutlej Ropes Pvt Ltd<br>583/584, Industrial Area-B,<br>Ludhiana, Distt. Sangrur<br>PUNJAB-141003 | Wire Ropes and Strands for<br>Suspension Bridges | IS 9282 : 2002         |

पुनरांकन संख्या 15 दिनांक  
ENDORSEMENT NO. 15 DATED : 13-07-2020

लाइसेंस 30-06-2020 तक वैध था,  
Whereas, the licence was valid upto 30-06-2020.  
अब, नवीनीकरण के परिणामस्वरूप मे दिये गये लाइसेंस की वैधता को  
एक जुलाई दो हजार बीस से तीस जून दो हजार इक्कीस तक बढ़ा दिया गया है।  
Now, consequent upon renewal, the validity of the licence has been extended from  
First July Two Thousand and Twenty to Thirtieth June Two Thousand and Twenty One.

लाइसेंस की अन्य निबन्धन व शर्तें यथावत हैं।  
Other terms and conditions of Licence remain the same.

अभिहित प्राधिकारी के हस्ताक्षर

*(Signature)*  
13/07/2020

(राम सिंह)  
वैधानिक सी



**भारतीय मानक ब्यूरो**  
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web: <http://www.bis.org.in>

लाइसेंस संख्या सी एम 9529897 की संलग्नी  
ATTACHMENT TO LICENCE NO. CML-9529897

| सी एम/एल<br>संख्या<br>CML/NO | लाइसेंसधारी का पता सहित नाम<br>NAME OF THE LICENSEE WITH<br>THE ADDRESS                  | उत्पाद का नाम<br>NAME OF THE PRODUCT                  | भा मा संख्या<br>IS NO. |
|------------------------------|--|---|------------------------|
| 9529897                      | M/s Sutlej Ropes Pvt Ltd<br>Dhandari kalan Near Rahan Tyre<br>Ludhiana,<br>PUNJAB-141003 | Wire Ropes Used in Oil Wells<br>and Oil Well Drilling | IS 4521 : 2001         |

पुनरांकन संख्या 14 दिनांक  
ENDORSEMENT NO. 14 DATED : 13-07-2020

लाइसेंस 30-06-2020 तक वैध था,  
Whereas, the licence was valid upto 30-06-2020.  
अब, नवीनीकरण के परिणामस्वरूप मे दिये गये लाइसेंस की वैधता को  
एक जुलाई दो हजार बीस से तीस जून दो हजार इक्कीस तक बढ़ा दिया गया है।  
Now, consequent upon renewal, the validity of the licence has been extended from  
First July Two Thousand and Twenty to Thirtieth June Two Thousand and Twenty One

लाइसेंस की अन्य निबन्धन व शर्तें यथावत हैं।  
Other terms and conditions of Licence remain the same.

अभिहित प्राधिकारी के हस्ताक्षर

*(Signature)*  
13/07/2020

(राम सिंह)  
वैधानिक सी



**भारतीय मानक ब्यूरो**  
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लाइसेंस संख्या सी एम 9510977 की संलग्नी  
ATTACHMENT TO LICENCE NO. CML-9510977

| सी एम/एल<br>संख्या<br>CML/NO | लाइसेंसधारी का पता सहित नाम<br>NAME OF THE LICENSEE WITH<br>THE ADDRESS                      | उत्पाद का नाम<br>NAME OF THE PRODUCT                 | भा मा संख्या<br>IS NO. |
|------------------------------|--|--|------------------------|
| 9510977                      | M/s Sutlej Ropes Pvt Ltd<br>Dhandari Kalan<br>Near Rahan Tyre,<br>Ludhiana,<br>PUNJAB-141003 | Steel Wire Ropes for General<br>Engineering Purposes | IS 2266 : 2002         |

पुनरांकन संख्या 16 दिनांक  
ENDORSEMENT NO. 16 DATED : 02-06-2020

लाइसेंस 31-03-2020 तक वैध था,  
Whereas, the licence was valid upto 31-03-2020.  
अब, नवीनीकरण के परिणामस्वरूप मे दिये गये लाइसेंस की वैधता को  
एक अप्रैल दो हजार बीस से तीस जून दो हजार इक्कीस तक बढ़ा दिया गया है।  
Now, consequent upon renewal, the validity of the licence has been extended from  
First April Two Thousand and Twenty to Thirtieth June Two Thousand and Twenty One.

लाइसेंस की अन्य निबन्धन व शर्तें यथावत हैं।  
Other terms and conditions of Licence remain the same.

*(Signature)*  
02/06/2020

(राम सिंह)  
वैधानिक सी



**भारतीय मानक ब्यूरो**  
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लाइसेंस संख्या सी एम 9700065921 की संलग्नी  
ATTACHMENT TO LICENCE NO. CML-9700065921

| सी एम/एल<br>संख्या<br>CML/NO | लाइसेंसधारी का पता सहित नाम<br>NAME OF THE LICENSEE WITH<br>THE ADDRESS                                      | उत्पाद का नाम<br>NAME OF THE PRODUCT     | भा मा संख्या<br>IS NO. |
|------------------------------|--|--|------------------------|
| 9700065921                   | M/s Sutlej Ropes Private Limited<br>583/584, Industrial Area-B,<br>Villigeran,<br>Ludhiana,<br>PUNJAB-141003 | Steel Wire Ropes for Haulage<br>Purposes | IS 1856 : 2005         |

पुनरांकन संख्या 03 दिनांक  
ENDORSEMENT NO. 03 DATED : 13/07/2020

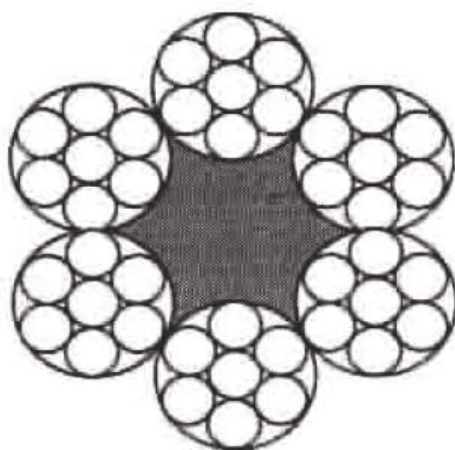
लाइसेंस 30-06-2020 तक वैध था,  
Whereas, the licence was valid upto 30-06-2020.  
अब, नवीनीकरण के परिणामस्वरूप मे दिये गये लाइसेंस की वैधता को  
एक जुलाई दो हजार बीस से तीस जून दो हजार इक्कीस तक बढ़ा दिया गया है।  
Now, consequent upon renewal, the validity of the licence has been extended from  
First July Two Thousand and Twenty to Thirtieth June Two Thousand and Twenty One.

लाइसेंस की अन्य निबन्धन व शर्तें यथावत हैं।  
Other terms and conditions of Licence remain the same.

अभिहित प्राधिकारी के हस्ताक्षर

*(Signature)*  
13/07/2020

(राम सिंह)  
वैधानिक सी

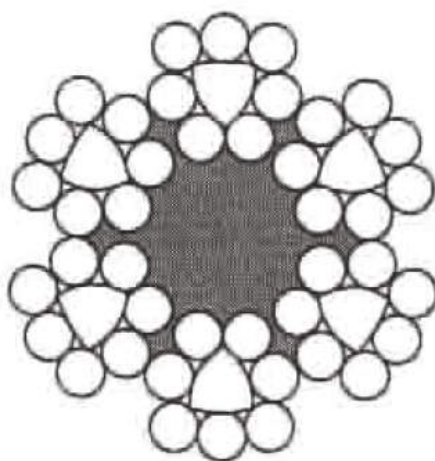


**TABLE I - 6X7 (6/1) CONSTRUCTION FIBRE CORE ROPES**

| Nominal Diameter | Approximate Mass | Minimum Breaking Load Corresponding to<br>Tensile Designation of Wires (N/mm <sup>2</sup> ) |      |      |
|------------------|------------------|---|------|------|
|                  |                  | 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  |

(a) Approx. mass with Steel Core = Value in Col. 2 x 1.10

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



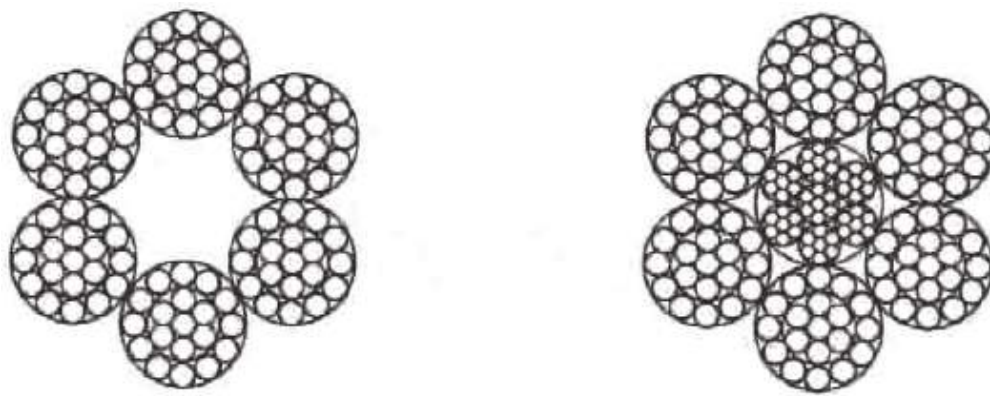
**TABLE II - BREAKING LOAD AND MASS FOR  
6 x 9 (8 / △) CONSTRUCTION**

| Nominal<br>Diameter | Approximate Mass |            | Minimum Breaking Load Corresponding to<br>Tensile Designation of Wires |            |            |            |
|---------------------|------------------|------------|--|------------|------------|------------|
|                     | Fibre Core       | Steel Core | 1570   |            | 1770       |            |
|                     |                  |            | Fibre Core   | Steel Core | Fibre Core | Steel Core |
| 1                   | 2                | 3          | 4  | 5          | 6          | 7          |
| mm                  | kg/100m          | kg/100m    | kn   | kn         | kn         | kn         |
| 13                  | 68.9             | 75.1       | 95   | 100        | 107        | 113        |
| 14                  | 79.9             | 87.0       | 110  | 116        | 124        | 131        |
| 16                  | 104              | 114        | 143  | 152        | 161        | 171        |
| 18                  | 132              | 144        | 181  | 192        | 204        | 217        |
| 19                  | 147              | 160        | 202  | 214        | 228        | 241        |
| 20                  | 163              | 178        | 224  | 237        | 252        | 267        |
| 22                  | 197              | 215        | 271  | 287        | 305        | 324        |
| 24                  | 235              | 256        | 322  | 342        | 363        | 385        |
| 26                  | 275              | 300        | 378  | 401        | 426        | 452        |
| 28                  | 319              | 348        | 438  | 465        | 494        | 524        |
| 32                  | 417              | 455        | 573  | 607        | 646        | 684        |
| 36                  | 528              | 576        | 725  | 768        | 817        | 866        |

**NOTE :**

(a) To obtain the calculated breaking loads, multiply the figures given in col. 4, 6 and 8 by 1.137 and those given in col. 5, 7 and 9 by 1.18

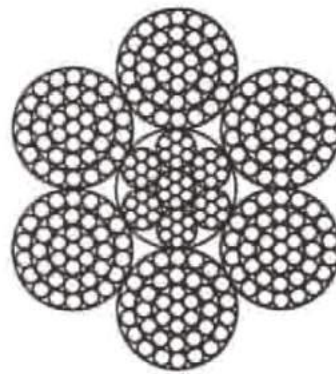
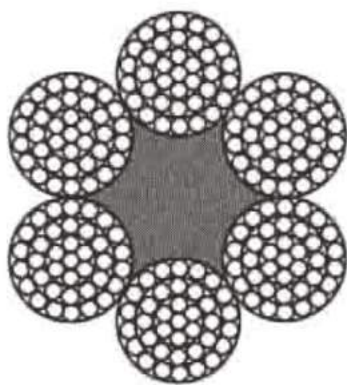
(b) In case of wire, 3 or more wires may be used.



**TABLE III - 6X19(12/6/1) CONSTRUCTION**

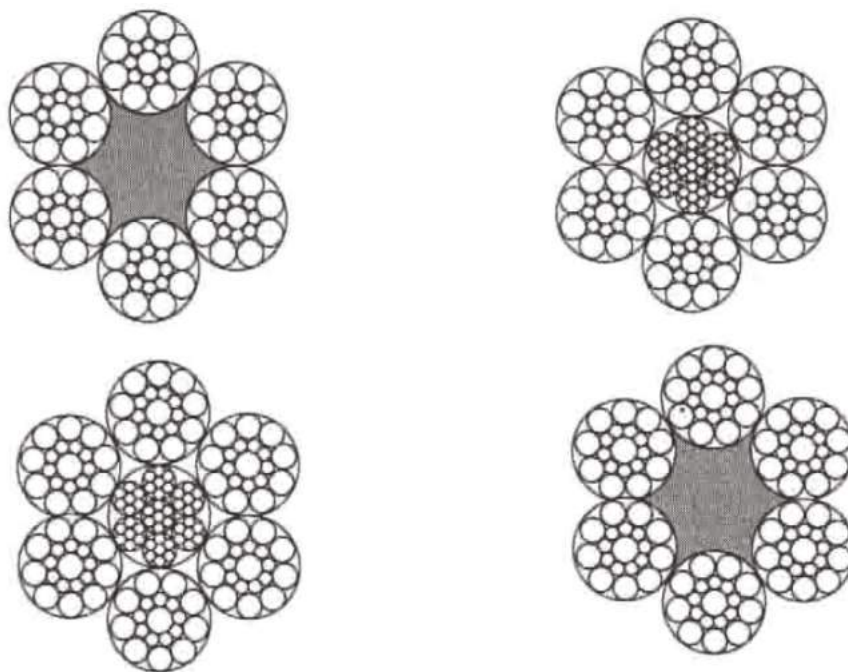
| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm <sup>2</sup> ) |           |            |            |            |            |            |            |
|------------------|------------------|----------------|---|-----------|------------|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1230  | 1420      | 1570       |            | 1770       |            | 1960       |            |
|                  |                  |                |   |           | Fibre Core | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>kN  | (10)<br>kN | (11)<br>kN |
| 6                | 12.5             | --             | 13.6  | 15.7      | 17.4       | --         | --         | --         | --         | --         |
| 7                | 17.0             | --             | 18.5  | 21        | 23.7       | --         | --         | --         | --         | --         |
| 8                | 22.1             | 24.3           | 24  | 28        | 31         | 33         | 35         | 37.6       | 39         | 41.6       |
| 9                | 28.0             | 30.8           | 31  | 36        | 39         | 42         | 44         | 47.5       | 49         | 52.6       |
| 10               | 34.6             | 38.0           | 38  | 44        | 48         | 52         | 54         | 58.7       | 60         | 65.0       |
| 11               | 41.9             | 46.0           | 46  | 53        | 58         | 63         | 66         | 71.0       | 73         | 78.7       |
| 12               | 49.8             | 54.0           | 54  | 63        | 69         | 75         | 78         | 84.6       | 87         | 93.6       |
| 13               | 58.5             | 64.3           | --  | --        | 82         | 88         | 92         | 99         | 102        | 110        |
| 14               | 67.8             | 74.5           | --  | --        | 95         | 102        | 107        | 115        | 118        | 127        |
| 16               | 88.6             | 97.4           | --  | --        | 124        | 133        | 139        | 150        | 154        | 166        |
| 18               | 112              | 123.0          | --  | --        | 156        | 160        | 176        | 190        | 195        | 210        |
| 19               | 125              | 137.0          | --  | --        | 174        | 188        | 196        | 212        | 217        | 234        |
| 20               | 138              | 152.0          | --  | --        | 193        | 208        | 218        | 235        | 241        | 260        |
| 22               | 167              | 184.0          | --  | --        | 234        | 252        | 263        | 284        | 292        | 314        |
| 24               | 199              | 219.0          | --  | --        | 278        | 300        | 313        | 338        | 347        | 375        |
| 26               | 234              | 257.0          | --  | --        | 326        | 352        | 368        | 397        | 407        | 439        |
| 28               | 271              | --             | --  | --        | 378        | --         | 426        | --         | 472        | --         |
| 32               | 354              | -              | -   | -         | 494        | --         | 557        | --         | 617        | --         |
| 36               | 448              | 219.0          | --  | --        | --         | --         | 705        | --         | 781        | --         |
| 38               | 499              | 257.0          | --  | --        | --         | --         | 785        | --         | 870        | --         |
| 40               | 554              | --             | --  | --        | --         | --         | 870        | --         | 964        | --         |
| 44               | 670              | --             | --  | --        | --         | --         | 1053       | --         | 1166       | --         |
| 48               | 797              | --             | --  | --        | 1112       | --         | 1253       | --         | 1388       | --         |
| 52               | 936              | --             | --  | --        | 1305       | --         | 1471       | --         | 1629       | --         |





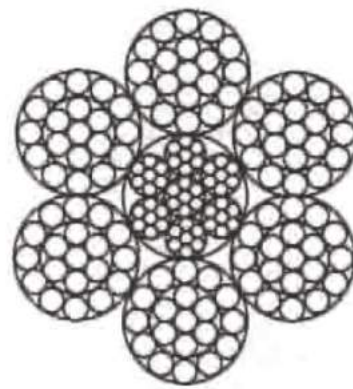
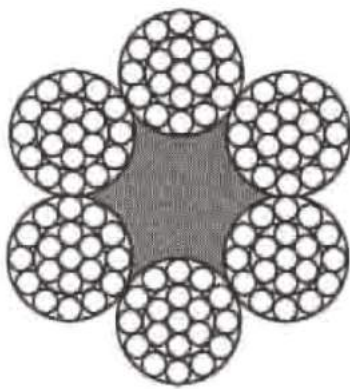
**TABLE IV- 6X37 (18/12/6/1) CONSTRUCTION**

| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (Nimmt <sup>2</sup> ) |            |            |            |            |            |
|------------------|------------------|----------------|--|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1570   |            | 1770       |            | 1960       |            |
|                  |                  |                | Fibre Core   | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>k/100m    | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN  | (5)<br>kN  | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>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       | --         |



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

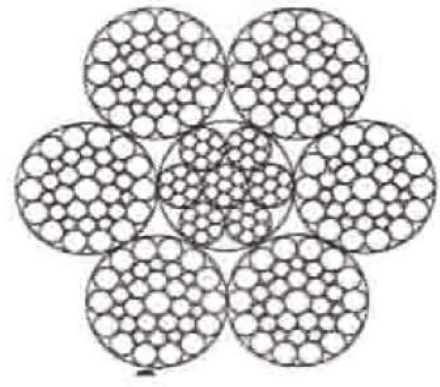
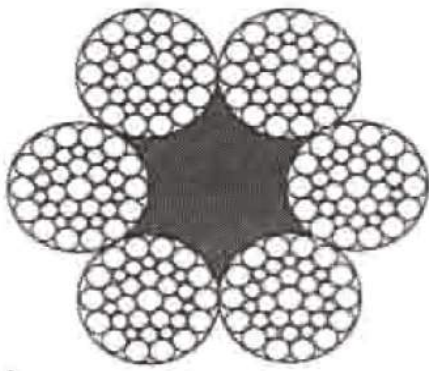
| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm <sup>2</sup> ) |           |            |            |            |            |            |            |
|------------------|------------------|----------------|---|-----------|------------|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1230  | 1420      | 1570       |            | 1770       |            | 1960       |            |
|                  |                  |                |   |           | Fibre Core | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>kN  | (10)<br>kN | (11)<br>kN |
| 6                | --               | --             | 14.7  | 16.9      | --         | --         | --         | --         | --         | --         |
| 7                | --               | --             | 19.9  | 23        | --         | --         | --         | --         | --         | --         |
| 8                | 23.3             | 26.2           | 26  | 30        | 33         | 36         | 37         | 40         | 42         | 45         |
| 9                | 30.2             | 33.2           | 33  | 38        | 42         | 45         | 47         | 51         | 53         | 57         |
| 10               | 37.3             | 41.0           | 41  | 47        | 52         | 56         | 59         | 63         | 65         | 70         |
| 11               | 45.1             | 49.6           | 49  | 57        | 63         | 68         | 71         | 77         | 78         | 85         |
| 12               | 53.7             | 59.0           | 59  | 68        | 75         | 81         | 84         | 91         | 93         | 101        |
| 13               | 63.0             | 69.3           | 69  | 79        | 88         | 95         | 99         | 107        | 110        | 118        |
| 14               | 73.0             | 80.3           | 80  | 92        | 102        | 110        | 115        | 124        | 127        | 137        |
| 16               | 95.4             | 105            | 104   | 120       | 133        | 144        | 150        | 162        | 166        | 179        |
| 18               | 121              | 133            | 132   | 152       | 168        | 182        | 190        | 205        | 210        | 227        |
| 19               | 135              | 148            | 147   | 170       | 188        | 203        | 211        | 228        | 234        | 253        |
| 20               | 149              | 164            | 162   | 188       | 208        | 224        | 234        | 253        | 259        | 280        |
| 22               | 180              | 168            | --  | --        | 251        | 272        | 283        | 306        | 314        | 339        |
| 24               | 215              | 236            | --  | --        | 299        | 323        | 337        | 364        | 374        | 403        |
| 26               | 252              | 277            | --  | --        | 351        | 379        | 396        | 428        | 438        | 474        |
| 28               | 292              | 321            | --  | --        | 407        | 440        | 459        | 496        | 508        | 549        |
| 32               | 382              | 420            | -   | -         | 532        | 575        | 600        | 648        | 664        | 717        |
| 36               | 483              | 531            | --  | --        | 673        | 727        | 759        | 820        | 841        | 908        |
| 40               | 596              | 656            | --  | --        | 831        | 898        | 937        | 1012       | 1038       | 1121       |
| 44               | 721              | 794            | --  | --        | 1006       | 1086       | 1134       | 1225       | 1256       | 1356       |
| 48               | 858              | 944            | --  | --        | 1197       | 1293       | 1349       | 1458       | 1494       | 1614       |
| 52               | 1008             | 1108           | --  | --        | 1405       | 1517       | 1584       | 1711       | 1754       | 1894       |



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

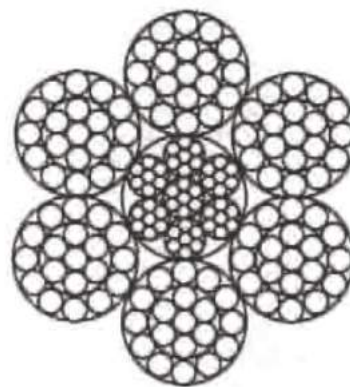
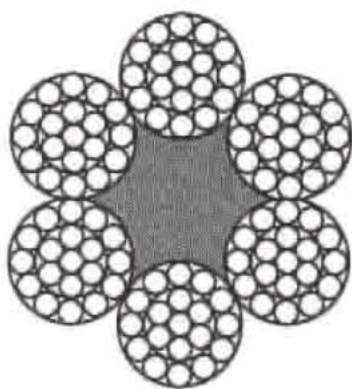
| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm <sup>2</sup> ) |           |            |            |            |            |            |            |
|------------------|------------------|----------------|---|-----------|------------|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1230  | 1420      | 1570       |            | 1770       |            | 1960       |            |
|                  |                  |                |   |           | Fibre Core | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>kN  | (10)<br>kN | (11)<br>kN |
| 6                | 13.7             | --             | 15.0  | 17.3      | --         | --         | --         | --         | --         | --         |
| 7                | 18.6             | --             | 20.4  | 23        | --         | --         | --         | --         | --         | --         |
| 8                | 24.3             | 26.8           | 27  | 31        | 34         | 37         | 38         | 41         | 42         | 46         |
| 9                | 30.8             | 33.9           | 34  | 39        | 43         | 46         | 48         | 52         | 54         | 58         |
| 10               | 38.0             | 41.8           | 42  | 48        | 53         | 57         | 60         | 65         | 66         | 71         |
| 11               | 46.0             | 50.6           | 50  | 58        | 64         | 69         | 72         | 78         | 80         | 86         |
| 12               | 54.7             | 60.2           | 60  | 69        | 76         | 82         | 86         | 93         | 95         | 103        |
| 13               | 64.3             | 70.7           | 70  | 81        | 90         | 97         | 101        | 109        | 112        | 121        |
| 14               | 74.5             | 82.0           | 81  | 94        | 104        | 112        | 117        | 127        | 130        | 140        |
| 16               | 97.3             | 107            | 106   | 123       | 136        | 147        | 153        | 165        | 169        | 183        |
| 18               | 123              | 135            | 135   | 155       | 172        | 186        | 194        | 209        | 214        | 232        |
| 19               | 137              | 151            | 150   | 173       | 191        | 207        | 216        | 233        | 239        | 258        |
| 20               | 152              | 167            | 166   | 192       | 212        | 229        | 239        | 258        | 265        | 286        |
| 22               | 184              | 202            | --  | --        | 257        | 277        | 289        | 312        | 320        | 346        |
| 24               | 219              | 241            | --  | --        | 305        | 330        | 344        | 372        | 381        | 412        |
| 26               | 257              | 283            | --  | --        | 358        | 387        | 404        | 436        | 447        | 483        |
| 28               | 298              | 328            | --  | --        | 416        | 449        | 469        | 506        | 519        | 560        |
| 32               | 389              | 428            | -   | -         | 543        | 586        | 612        | 661        | 678        | 732        |
| 36               | 493              | 542            | --  | --        | 687        | 742        | 775        | 837        | 858        | 926        |
| 40               | 608              | 669            | --  | --        | 848        | 916        | 956        | 1033       | 1059       | 1144       |
| 44               | 736              | 810            | --  | --        | 1026       | 1109       | 1157       | 1250       | 1281       | 1384       |
| 48               | 876              | 964            | --  | --        | 1222       | 1319       | 1377       | 1487       | 1525       | 1647       |
| 52               | 1028             | 1131           | --  | --        | 1434       | 1548       | 1616       | 1745       | 1790       | 1933       |





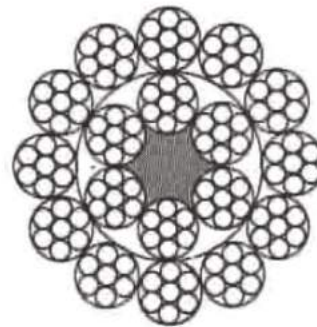
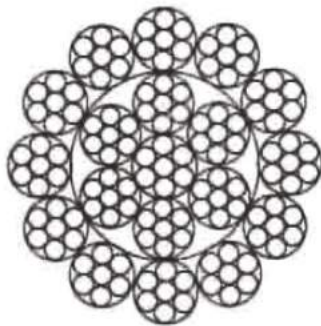
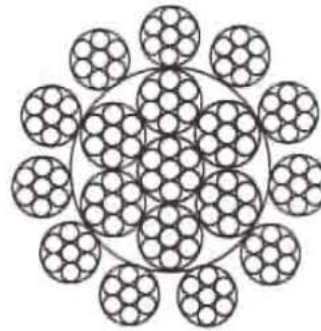
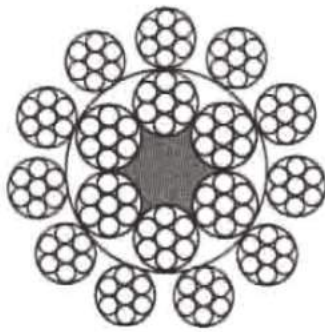
**TABLE VII- BREAKING LOAD AND MASS FOR 6X36 (14/7 + 7/17/1)  
SEALE - WARRINGTON CONSTRUCTION**

| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm <sup>2</sup> ) |            |            |            |            |            |
|------------------|------------------|----------------|---|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1570  |            |            | 1770       | 1960       |            |
|                  |                  |                | Fibre Core  | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN  | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>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**

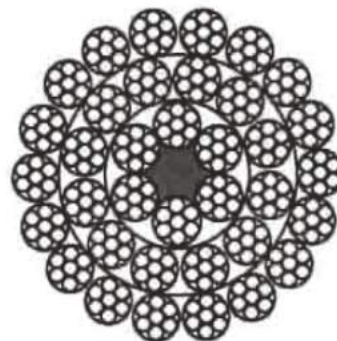
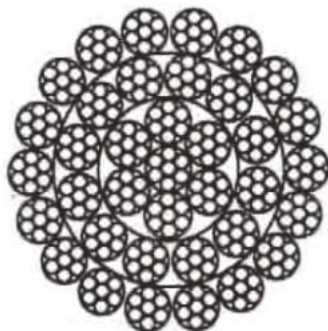
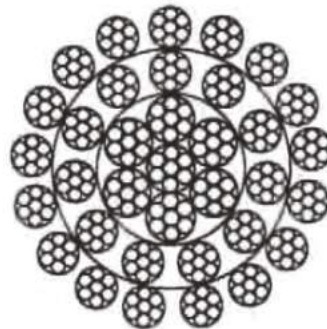
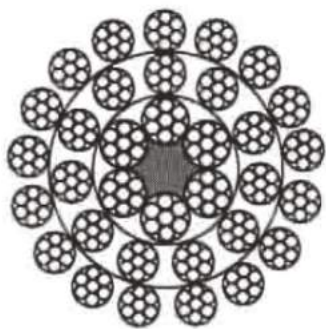
| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (N/mm <sup>2</sup> ) |           |            |            |            |            |            |            |
|------------------|------------------|----------------|---|-----------|------------|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     | 1230  | 1420      | 1570       |            | 1770       |            | 1960       |            |
|                  |                  |                |   |           | Fibre Core | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>kN  | (10)<br>kN | (11)<br>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               | 201              | 245            | --  | --        | 260        | 306        | 293        | 345        | 324        | --         |
| 26               | 236              | 287            | --  | --        | 305        | 359        | 343        | 405        | 380        | --         |
| 28               | 273              | 333            | --  | --        | 353        | 417        | 398        | 470        | 441        | --         |
| 32               | 357              | 435            | -   | -         | 461        | 544        | 520        | 614        | 570        | --         |
| 36               | 452              | 551            |   |           | 584        | 689        | 658        | 777        | 729        | --         |



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

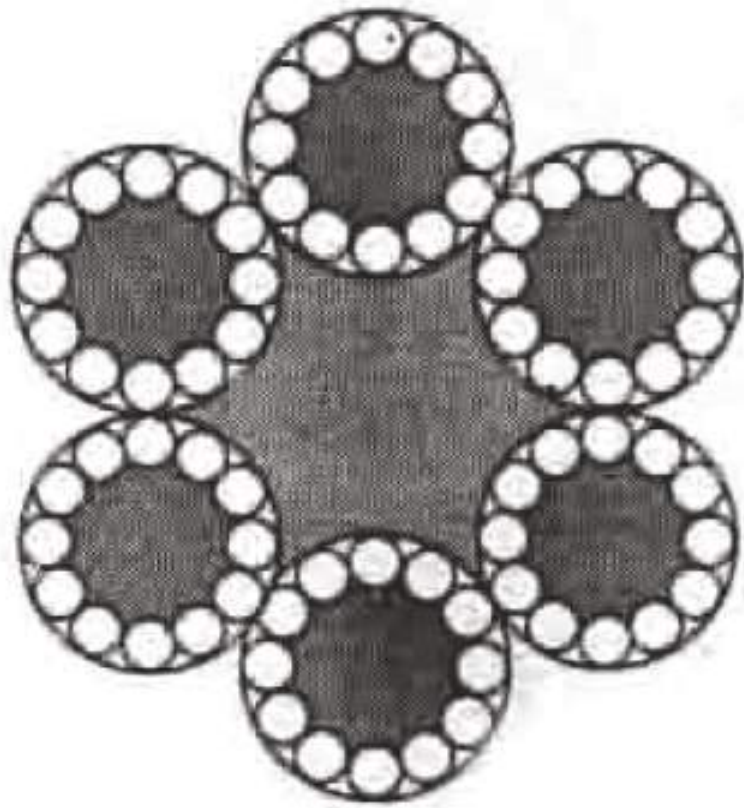
| Nominal Diameter | Approximate Mass |                | Minimum Breaking Load Corresponding Tensile Designation of Wires (Nimm <sup>2</sup> ) |            |            |            |            |            |
|------------------|------------------|----------------|---|------------|------------|------------|------------|------------|
|                  | Fibre Core       | steel Core     |   | 1570       |            | 1770       | 1960       |            |
|                  |                  |                | Fibre Core  | Steel Core | Fibre Core | Steel Core | Fibre Core | Steel Core |
| (1)<br>mm        | (2)<br>Kg/100m   | (3)<br>Kg/100m | (4)<br>kN   | (5)<br>kN  | (6)<br>kN  | (7)<br>kN  | (8)<br>kN  | (9)<br>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        | --         | --         |





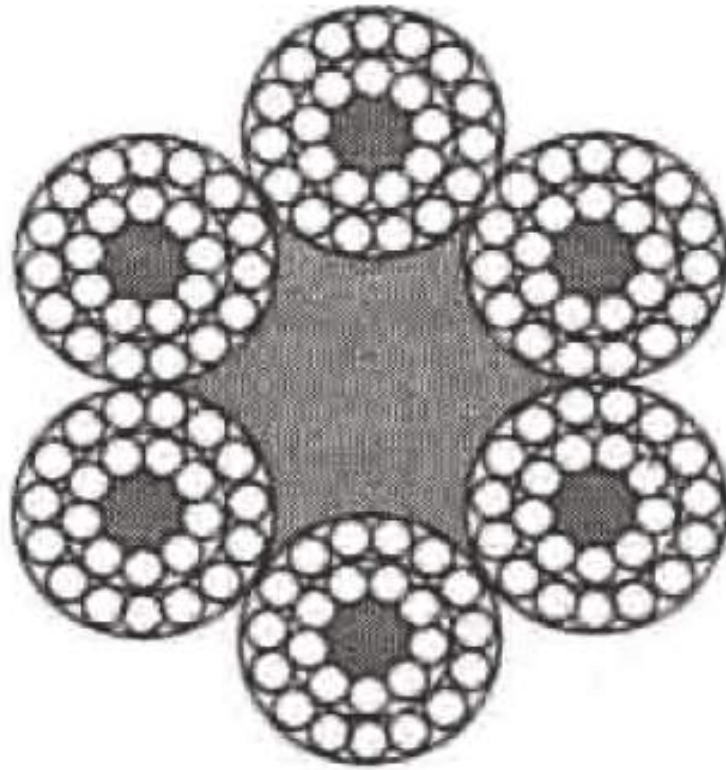
**TABLE X - 34 X 7 (16/1) AND 36X7 (6/1) WITH  
FIBRE CORE NON-ROTATING ROPES**

| Nominal<br>Diameter | Approximate<br>Mass |                | Minimum Breaking Load Corresponding Tensile<br>Designation of Wires (N/mm <sup>2</sup> ) |               |               |               |               |               |
|---------------------|---------------------|----------------|--|---------------|---------------|---------------|---------------|---------------|
|                     | Fibre Core          | steel Core     | 1570   |               | 1770          |               | 1960          |               |
|                     |                     |                | Fibre<br>Core  | Steel<br>Core | Fibre<br>Core | Steel<br>Core | Fibre<br>Core | Steel<br>Core |
| (1)<br>mm           | (2)<br>Kg/100m      | (3)<br>Kg/100m | (4)<br>kN  | (5)<br>kN     | (6)<br>kN     | (7)<br>kN     | (8)<br>kN     | (9)<br>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**

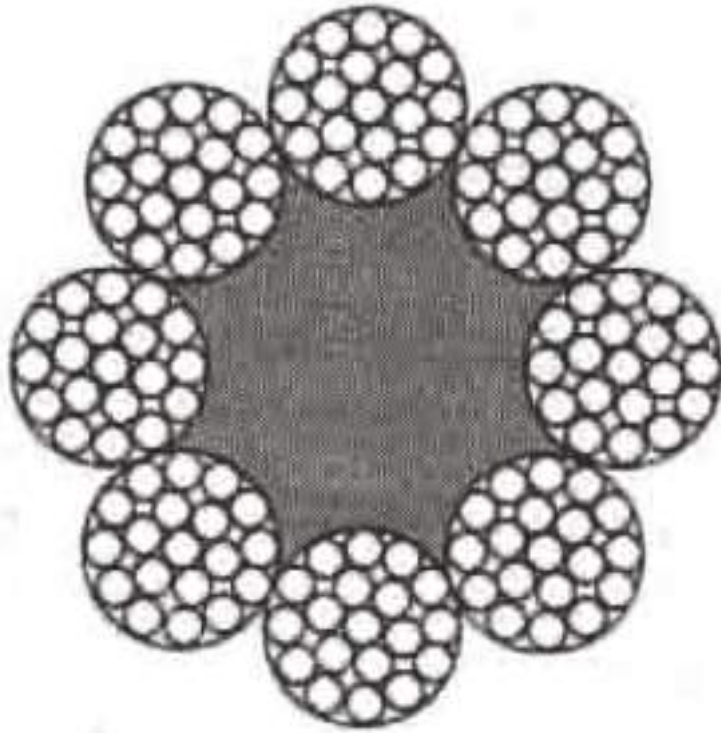
| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of 1420 (N/mm <sup>2</sup> ) |
|---|---------------------|--|
| (1)   | (2)                 | (3)  |
| mm  | kg/100m             | kN   |
| 8   | 16.0        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



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

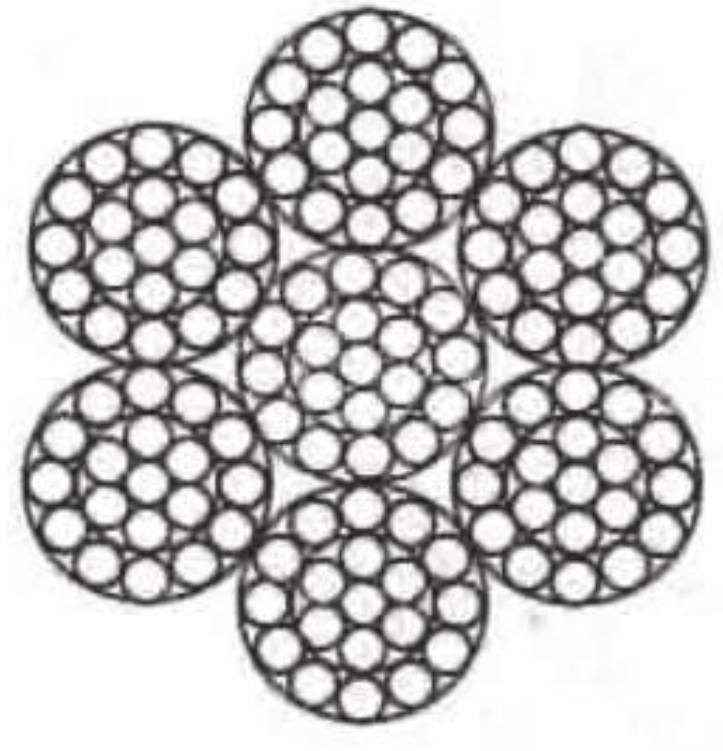
| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of 1420 (N/mm <sup>2</sup> ) |
|---|---------------------|--|
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN  |
| 8   | 20.4                | 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  |





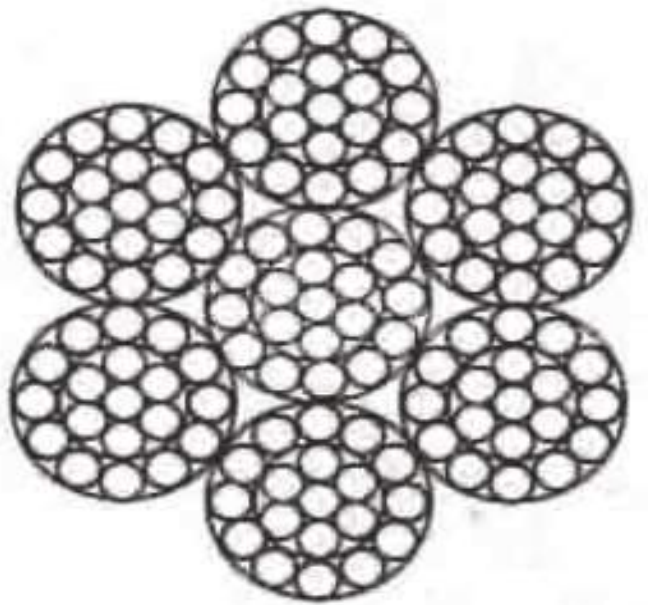
**TABLE XIII- BREAKING LOAD AND MASS FOR  
8 X 19 (12/6 + 6F/1) FILLER CONSTRUCTION  
WITH FIBRE CORE**

| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of 1420 (N/mm <sup>2</sup> ) |           |           |
|---|---------------------|--|-----------|-----------|
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN  | (4)<br>kN | (5)<br>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**

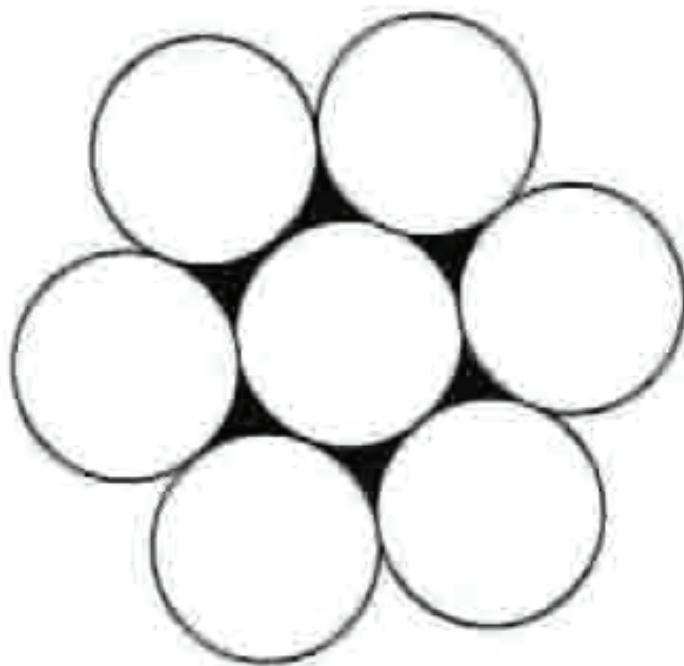
| Nominal Diameter<br>+ percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of (N/mm <sup>2</sup> ) |           |
|---|---------------------|---|-----------|
|   |                     | 1420  | 1570      |
| (1)<br>mm                                   | (2)<br>kg/100m      | (3)<br>kN   | (4)<br>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**

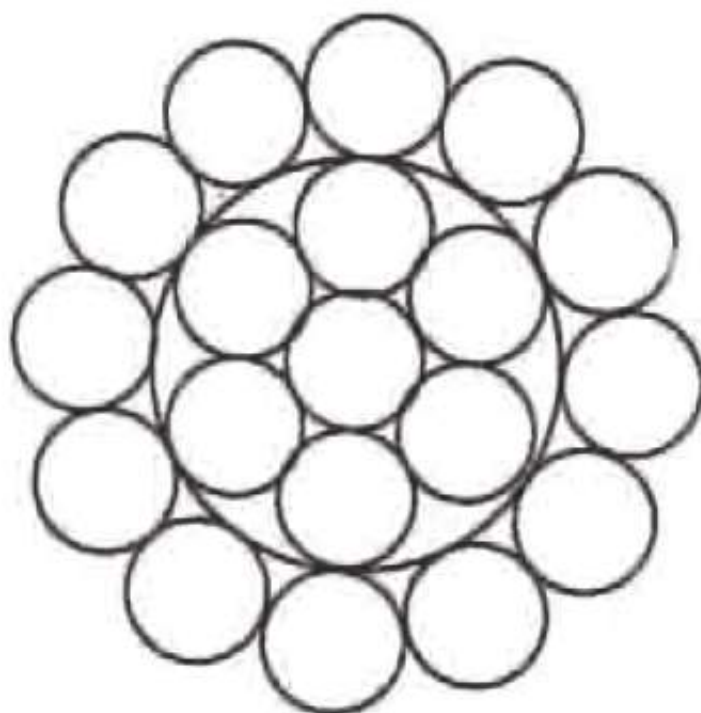
| Nominal Diameter<br>+ 4 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding to Tensile<br>Designation of Wire |           |
|---|---------------------|--|-----------|
|   |                     | 1420   | 1570      |
| (1)<br>mm                                     | (2)<br>kg/100 mm    | (3)<br>kN  | (4)<br>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      |





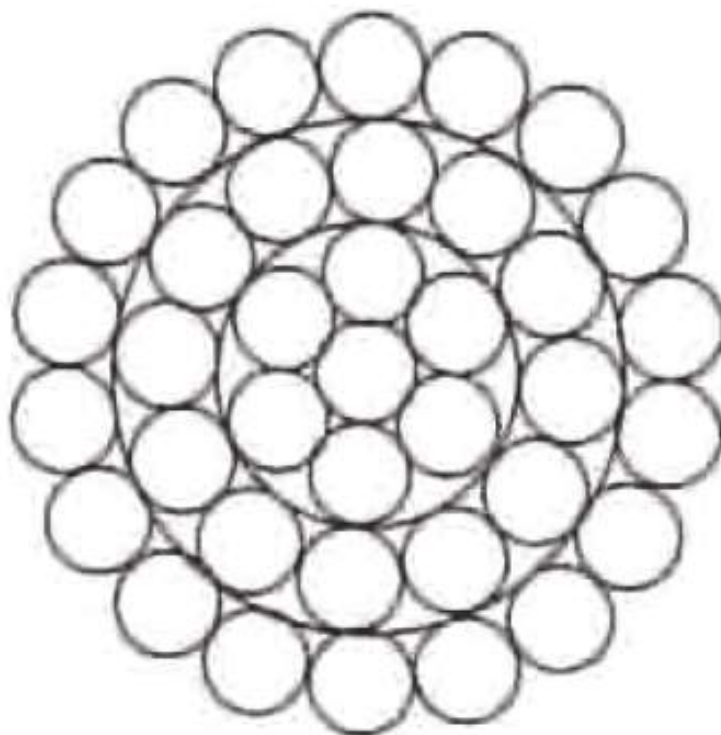
**TABLE XVI - BREAKING LOAD AND MASS  
OF SPIRAL STRAND 7(6/1)WIRES**

| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of (N/mm <sup>2</sup> ) |           |
|---|---------------------|---|-----------|
|   |                     | 1420  | 1570      |
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN   | (4)<br>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       |



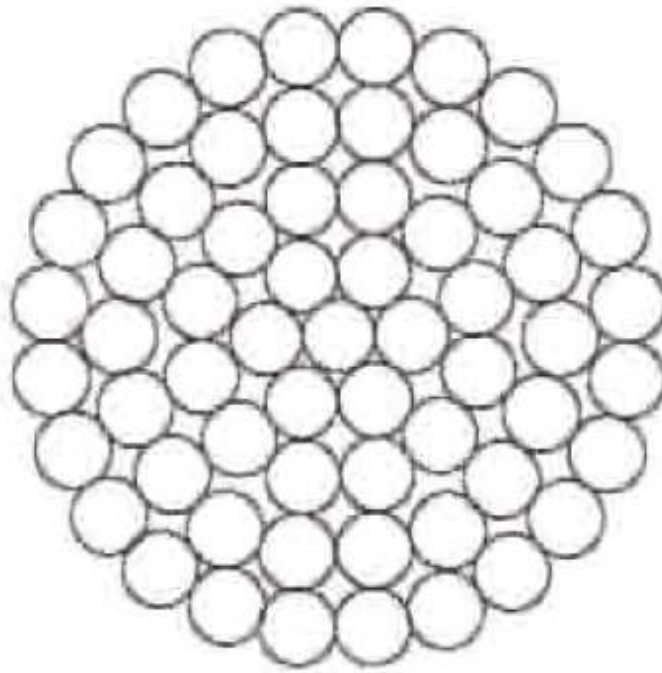
**TABLE XVII - BREAKING LOAD AND MASS  
OF SPIRAL STRAND 19 (12/6/1) WIRES**

| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum Breaking<br>Load Corresponding Tensile<br>Designation of Wire of (N/mm <sup>2</sup> ) |           |
|---|---------------------|---|-----------|
|   |                     | 1420  | 1570      |
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN   | (4)<br>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**

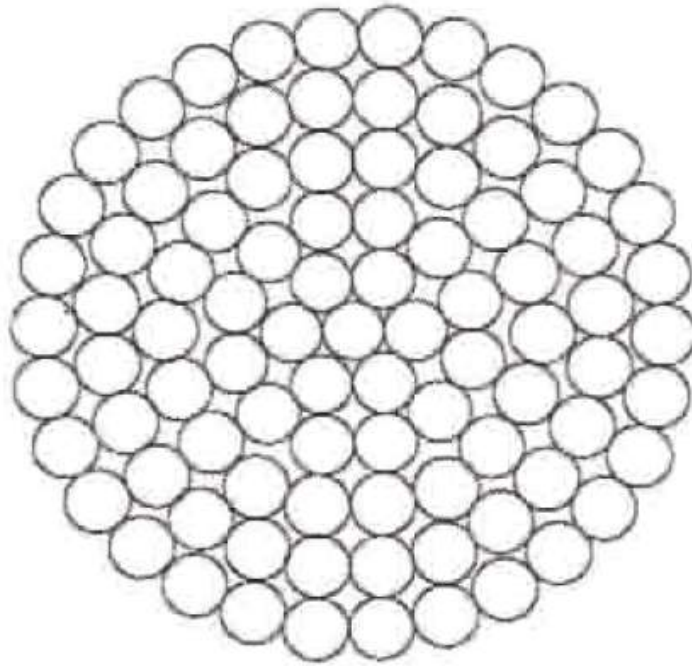
| Nominal Diameter<br>+ 6 percent<br>-1 percent | Approximate<br>Mass | Minimum .Breaking<br>Load Corresponding Tensile<br>Designation of Wire of (N/mm <sup>2</sup> ) |           |
|---|---------------------|--|-----------|
|   |                     | 1420   | 1570      |
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN  | (4)<br>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<br>+ 4 percent<br>-1 percent | Approximate<br>Mass | Minimum .Breaking<br>Load Corresponding Tensile<br>Designation of Wire of 1570 |
|---|---------------------|--|
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>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<br>+ 4 percent<br>-1 percent | Approximate<br>Mass | Minimum .Breaking<br>Load Corresponding Tensile<br>Designation of Wire of 1570 |
|---|---------------------|--|
| (1)<br>mm                                     | (2)<br>kg/100m      | (3)<br>kN  |
| 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   |
| 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   |