

STEEL WIRE ROPE



Product Selection

Wire Rope Selection

When replacing a wire rope, refer to the relevant Original Equipment Manufacturers recommendation and rope test certification.

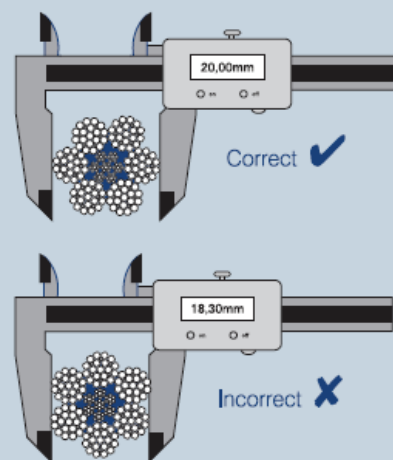
To ensure safe and efficient operation, replacement ropes should conform to the specified nominal rope diameter and be at least equal to the required strength originally specified. Additionally, the wire rope construction selected should provide similar or improved working properties for resistance to rotation, bend fatigue, crushing, abrasion and corrosion.

Where an original wire rope is to be supplied, or where the required working conditions have changed, KISWIRE should be consulted to obtain the best possible advice and recommendations.

Rope Diameter

Correct and consistent rope diameter is essential for optimum working performance. Ensure that the rope diameter is correctly measured and that the resulting diameter is appropriate for the working system.

Incorrect diameter can reduce performance and cause unsafe working conditions.



Strength

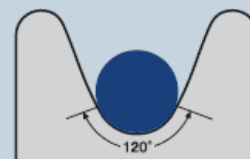
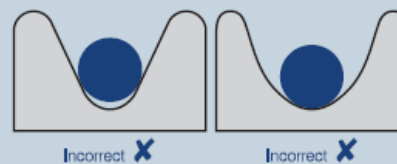
Rope strength should be specified as Minimum Breaking Strength or Minimum Breaking Force.

The breaking strength of the rope is determined by the wire tensile strength and steel cross sectional area.

The steel fill factor and rope construction can be varied to suit the operating conditions.

Strand compaction can be used for increased rope strength and service life.

Grooves for Pulleys, Sheaves and Drums



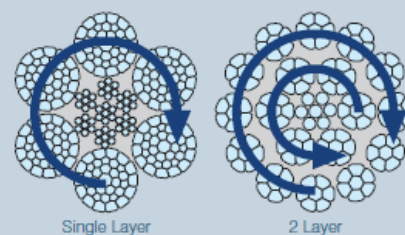
Rope Torsion

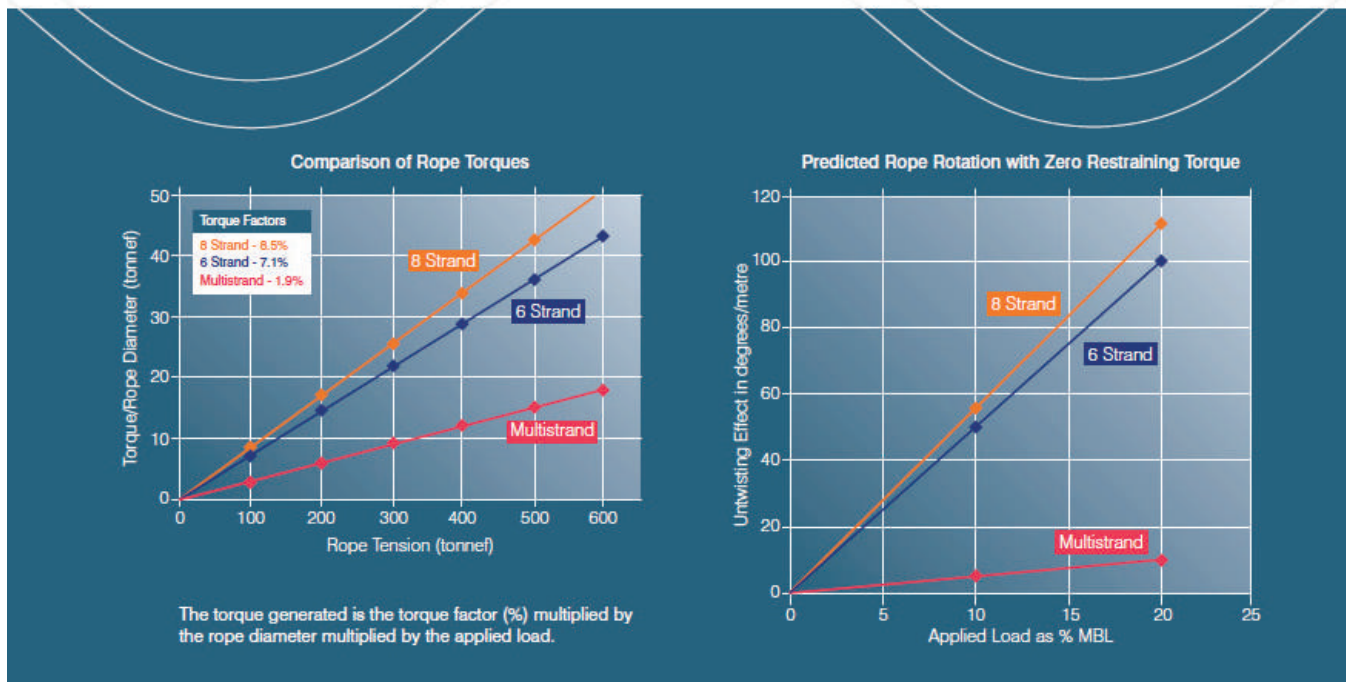
All wire ropes have inherent rotation characteristics that will produce a turning moment in the rope. With both rope ends fixed and unable to rotate, the turning moment will generate a TORQUE force at the fixed points. Whereas, if one end of the rope is free to rotate, the generated force will result in rope TURN and therefore load rotation.

Wire ropes can be designed to achieve the desired rotational properties required by the application.

Single Layer ropes such as the 6 and 8 strand have a much greater tendency to rotate under load, whereas Multistrand ropes, which depend upon the opposing torsional values of the various layers of strands, offer much greater torsional stability.

As the wire rope construction options are numerous, KISWIRE would be pleased to offer technical advice on rope selection.





Axial Stiffness (EA)

Axial Stiffness (EA) is determined by $E \times A \times 10^{-3}$, in MN, where:

- E - is the apparent modulus of the rope in kN/mm², shown below for 6x37 IWRC group constructions.
- A - is the cross sectional area of the circumscribed circle (mm²) based on the nominal rope diameter.

Construction	6x37 IWRC API classification	E kN/mm ²
6x36, 6x41 and 6x49		58.86
6xK36, 6xK41 and 6xK49		63.77

e.g. EA for 76.2mm dia. 6x36: $58.86 \times 4560 \times 10^{-3} = 268 \text{ MN}$

Flexural Stiffness (EI)

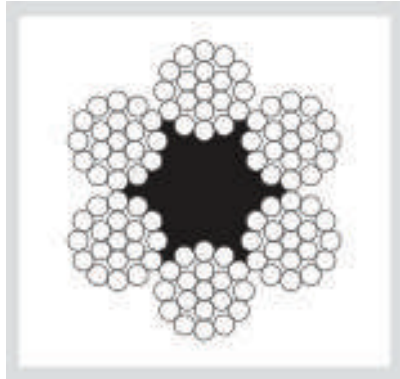
Flexural Stiffness (EI) is determined by $E \times I \times 10^{-6}$, in N.m², where:

- E - is the Stiffness Factor in N/mm², shown below for appropriate 6x37 IWRC group constructions.
- I - is the Second Moment of Area of the rope (d⁴), using Nominal Diameter d.

Construction	6x37 IWRC API classification	Stiffness Factor N/mm ²
6x36		15.6
6xK36		18.8
6x41		14.5
6xK41		17.6
6x49		12.6
6xK49		14.4

e.g. EI for 76.2mm dia. 6x36: $15.6 \times 76.2^4 \times 10^{-6} = 526 \text{ N.m}^2$

N.B. In both cases the Stiffness values apply to new rope with little or no applied load. On all technical queries and parameters, it is always best to verify your requirements with the KISWIRE QA Dept.



For Mining Aerial Tramway.

Stay. Etc

Construction:

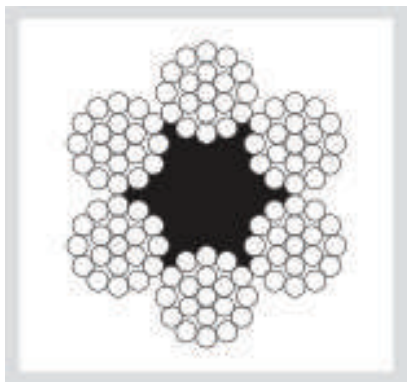
6 Strands

7 Wires per Strand

1 Fiber Core

6 x 7 + FC

Diameter of Rope(mm)	Minimum Breaking Load				Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		
	kN	Tonnef	kN	Tonnef	
6	21.4	2.18	23.3	2.38	0.134
6.3	23.6	2.41	25.7	2.62	0.147
8	38.0	3.88	41.5	4.23	0.237
9	48.2	4.91	52.5	5.35	0.300
9.5	53.4	5.45	58.3	5.95	0.334
10	59.4	6.06	64.8	6.61	0.371
11.2	74.5	7.60	81.3	8.29	0.465
12	85.6	8.73	93.4	9.52	0.534
12.5	92.9	9.47	101.0	10.30	0.579
14	116.7	11.90	127.5	13.00	0.727
16	152.0	15.50	165.7	16.90	0.950
18	192.2	19.60	209.9	21.40	1.200
19.1	216.7	22.10	236.3	24.10	1.350
20	237.3	24.20	258.9	26.40	1.480
22.4	298.1	30.40	325.6	33.20	1.860
24	342.3	34.90	373.6	38.10	2.140
25	371.7	37.90	405.0	41.30	2.320
26	402.1	41.00	438.4	44.70	2.510
28	465.8	47.50	508.0	51.80	2.940
30	534.5	54.50	583.5	59.50	3.340
31.5	589.4	60.10	643.3	65.60	3.680
32	609.0	62.10	663.9	67.70	3.800
33.5	666.9	68.00	727.7	74.20	4.160
34	687.4	70.10	749.2	76.40	4.290
35.5	749.2	76.40	816.9	83.30	4.670
36	769.8	78.50	840.4	85.70	4.810
37.5	835.5	85.20	912.0	93.00	5.210
38	858.1	87.50	936.5	95.50	5.360
40	951.2	97.00	1,039.5	106.00	5.930



For Crane, Hoist and
General Engineering Purposes

Construction:

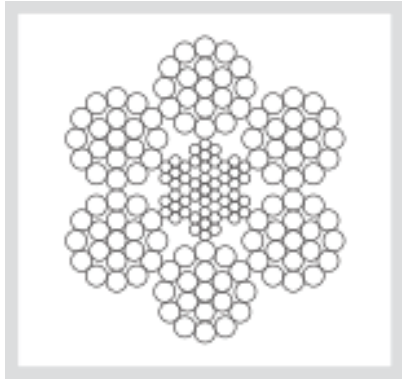
6 Stands

19 Wires per Strand

1 Fiber Core

6 x 19 + FC

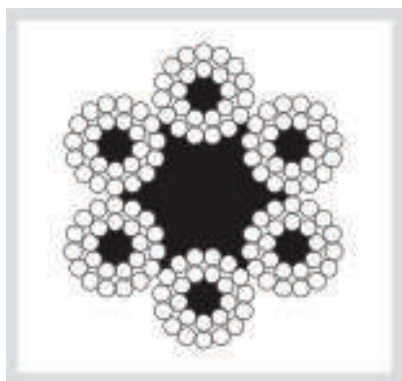
Diameter of Rope(mm)	Minimum Breaking Load						Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	34.5	3.52	36.8	3.75	40.8	4.16	0.233
9	43.7	4.46	46.5	4.74	51.7	5.27	0.295
9.5	48.6	4.96	51.8	5.28	57.6	5.87	0.328
10	53.9	5.50	57.5	5.86	63.7	6.50	0.364
11.2	67.7	6.90	72.1	7.35	79.9	8.15	0.457
12	77.6	7.91	82.8	8.44	91.7	9.35	0.524
12.5	84.2	8.59	89.7	9.15	99.5	10.20	0.569
14	105.9	10.80	112.8	11.50	125.5	12.80	0.713
16	138.3	14.10	147.1	15.00	163.8	16.70	0.932
18	174.6	17.80	186.3	19.00	205.9	21.00	1.180
19.1	196.1	20.00	209.9	21.40	232.4	23.70	1.330
20	215.7	22.00	229.5	23.40	255.0	26.00	1.460
22.4	270.7	27.60	288.3	29.40	319.7	32.60	1.830
24	310.9	31.70	330.5	33.70	367.7	37.50	2.100
25	337.3	34.40	358.9	36.60	399.1	40.70	2.280
26	364.8	37.20	388.3	39.60	431.5	44.00	2.460
28	422.7	43.10	450.1	45.90	499.2	50.90	2.850
30	485.4	49.50	516.8	52.70	573.7	58.50	3.280
31.5	535.4	54.60	569.8	58.10	632.5	64.50	3.610
33.5	605.1	61.70	644.3	65.70	714.9	72.90	4.080
35.5	679.6	69.30	723.7	73.80	803.2	81.90	4.590
36	699.2	71.30	744.3	75.90	826.7	84.30	4.720
37.5	758.1	77.30	808.1	82.40	896.3	91.40	5.120
38	778.6	79.40	829.6	84.60	919.9	93.80	5.260
40	863.0	88.00	918.9	93.70	1,019.9	104.00	5.820
42	951.2	97.00	1,010.1	103.00	1,118.0	114.00	6.420
42.5	973.8	99.30	1,039.5	106.00	1,147.4	117.00	6.570
44	1039.5	106.00	1,108.2	113.00	1,225.8	125.00	7.050
45	1088.5	111.00	1,167.0	119.00	1,284.7	131.00	7.370
46	1137.6	116.00	1,216.0	124.00	1,343.5	137.00	7.700
47.5	1216.0	124.00	1,294.5	132.00	1,441.6	147.00	8.210
50	1353.3	138.00	1,431.8	146.00	1,598.5	163.00	9.100
53	1515.1	154.50	1,608.3	164.00	1,794.6	183.00	10.220
56	1691.6	172.50	1,794.6	183.00	2,000.6	204.00	11.420
60	1941.7	198.00	2,059.4	210.00	2,301.6	234.70	13.100
63	2140.8	218.30	2,275.1	232.00	2,538.0	258.80	14.450



For Crane, Hoist and
General Engineering Purposes
Construction:
6 Stands
19 Wires per Strand
Independent Wire Rope Core

6 x 19 + IWRC

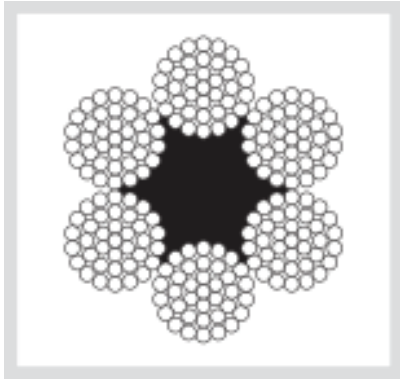
Diameter of Rope(mm)	Minimum Breaking Load						Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	38.5	3.93	41.8	4.26	45.8	4.67	0.258
9	48.5	4.95	53.9	5.50	58.3	5.94	0.328
9.5	53.9	5.50	58.8	6.00	63.5	6.48	0.364
10	59.8	6.10	65.2	6.65	70.4	7.18	0.404
11.2	75.0	7.65	81.9	8.35	88.5	9.02	0.508
12	86.2	8.79	93.9	9.58	101.5	10.40	0.580
12.5	93.5	9.53	102.0	10.40	110.1	11.20	0.630
14	117.7	12.00	129.4	13.20	139.8	14.30	0.793
16	153.0	15.60	166.7	17.00	180.5	18.40	1.040
18	194.2	19.80	210.8	21.50	227.5	23.20	1.310
19.1	218.7	22.30	238.3	24.30	256.9	26.20	1.410
20	239.3	24.40	260.9	26.60	281.5	28.70	1.620
22.4	300.1	30.60	327.5	33.40	354.0	36.10	2.030
24	345.2	35.20	375.6	38.30	405.0	41.30	2.330
25	373.6	38.10	407.0	41.50	439.3	44.80	2.530
26	405.0	41.30	441.3	45.00	475.6	48.50	2.730
28	469.7	47.90	510.9	52.10	552.1	56.30	3.160
30	539.4	55.00	588.4	60.00	635.5	64.80	3.650
31.5	593.3	60.50	647.2	66.00	700.2	71.40	4.000
32	612.9	62.50	666.9	68.00	722.8	73.70	4.150
33.5	671.8	68.50	733.5	74.80	792.4	80.80	4.530
35.5	755.1	77.00	823.8	84.00	889.5	90.70	5.100
37.5	840.4	85.70	916.9	93.50	990.5	101.00	5.680
38	863.0	88.00	938.5	95.70	1,010.1	103.00	5.830
40	956.1	97.50	1,039.5	106.00	1,122.9	114.50	6.450
42	1,053.2	107.40	1,147.4	117.00	1,241.5	126.60	7.110
42.5	1,081.7	110.30	1,176.8	120.00	1,270.9	129.60	7.280
44	1,163.1	118.60	1,265.1	129.00	1,367.0	139.40	7.790
45	1,216.0	124.00	1,323.9	135.00	1,429.8	145.80	8.150
46	1,274.9	130.00	1,382.7	141.00	1,490.6	152.00	8.520
47.5	1,349.4	137.60	1,471.0	150.00	1,588.7	162.00	9.120
50	1,495.5	152.50	1,629.9	166.20	1,760.3	179.50	10.100
53	1,679.9	171.00	1,831.9	186.80	1,978.0	201.70	11.350
56	1,876.0	191.30	2,044.7	208.50	2,208.5	225.20	12.670
60	2,147.7	219.00	2,343.8	239.00	2,530.1	258.00	14.500
63	2,373.2	242.00	2,588.0	263.90	2,789.0	284.40	16.030



For Marine and Engineering Purposes
 Construction:
 6 Stands
 24 Wires per Strand
 7 Fiber Core

6 x 24 + 7FC

Diameter of Rope(mm)	Minimum Breaking Load				Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		
	kN	Tonnef	kN	Tonnef	
8	31.5	3.21	34.3	3.50	0.212
9	39.8	4.06	43.4	4.43	0.269
9.5	44.4	4.53	48.4	4.94	0.290
10	49.2	5.02	53.6	5.47	0.332
11.2	61.7	6.29	67.3	6.86	0.416
12	70.8	7.22	77.2	7.87	0.478
12.5	76.9	7.84	83.8	8.55	0.519
14	96.4	9.83	105.0	10.7	0.651
16	125.5	12.8	137.3	14.0	0.850
18	158.9	16.2	173.6	17.7	1.080
19.1	180.4	18.4	197.1	20.1	1.210
20	197.1	20.1	214.8	21.9	1.330
22.4	247.1	25.2	269.7	27.5	1.670
24	283.4	28.9	308.9	31.5	1.910
25	306.9	31.3	334.4	34.1	2.080
26	332.4	33.9	362.8	37.0	2.240
28	385.4	39.3	419.7	42.8	2.600
30	442.3	45.1	482.5	49.2	2.990
31.5	488.4	49.8	532.5	54.3	3.290
33.5	552.1	56.3	602.1	61.4	3.730
35.5	619.8	63.2	675.7	68.9	4.180
37.5	691.4	70.5	754.1	76.9	4.670
38	710.0	72.4	773.7	78.9	4.790
40	786.5	80.2	857.1	87.4	5.310
42.5	888.5	90.6	968.9	98.8	6.000
44	952.2	97.1	1,029.7	105.0	6.430
45	1,000.3	102.0	1,157.2	118.0	6.720
47.5	1,108.2	113.0	1,206.2	123.0	7.490
50	1,225.8	125.0	1,333.7	136.0	8.300
53	1,382.7	141.0	1,510.2	154.0	9.330
56	1,539.6	157.0	1,676.9	171.0	10.400
58	1,657.3	169.0	1,804.4	184.0	11.200
60	1,765.2	180.0	1,922.1	196.0	12.000
63	1,951.5	199.0	2,128.0	217.0	13.200



For Crane, Hoist and
General Engineering Purposes

Construction:

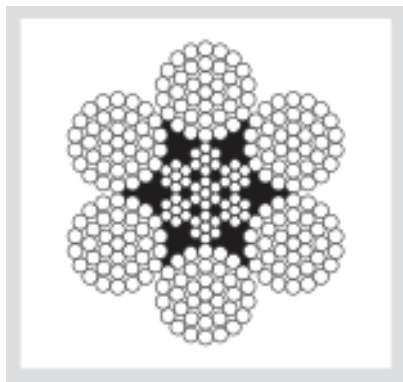
6 Stands

37 Wires per Strand

1 Fiber Core

6 x 37 + FC

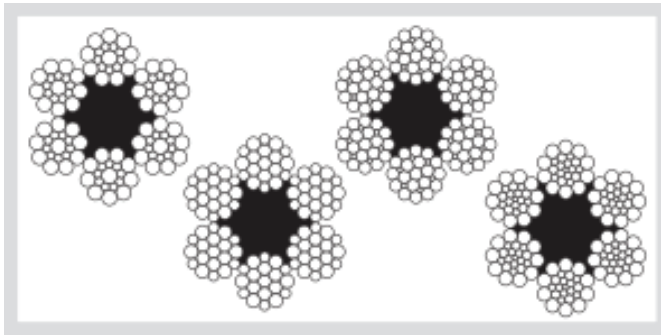
Diameter of Rope(mm)	Minimum Breaking Load						Approx. Weight per meter (kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	33.9	3.46	36.2	3.69	39.1	3.99	0.230
9	43.0	4.38	45.8	4.67	49.4	5.04	0.291
9.5	48.1	4.90	51.3	5.23	55.0	5.61	0.323
10	53.1	5.41	56.5	5.76	61.0	6.22	0.359
11.2	66.6	6.79	70.9	7.23	76.6	7.81	0.451
12	76.4	7.79	81.3	8.29	87.8	8.95	0.517
12.5	82.9	8.45	88.3	9.00	95.3	9.72	0.561
14	104.0	10.60	110.8	11.30	119.6	12.20	0.704
16	135.3	13.80	144.2	14.70	155.9	15.90	0.920
18	171.6	17.50	183.4	18.70	198.1	20.20	1.160
19.1	194.2	19.80	201.0	20.50	222.6	22.70	1.310
20	211.8	21.60	225.6	23.00	243.2	24.80	1.440
22.4	265.8	27.10	283.4	28.90	306.0	31.20	1.800
24	306.0	31.20	325.6	33.20	352.1	35.90	2.070
25	331.5	33.80	353.0	36.00	381.5	38.90	2.250
26	358.9	36.60	381.5	38.90	411.9	42.00	2.430
28	415.8	42.40	443.3	45.20	478.6	48.80	2.820
30	477.6	48.70	508.0	51.80	548.2	55.90	3.230
31.5	526.6	53.70	560.9	57.20	606.1	61.80	3.570
33.5	595.3	60.70	633.5	64.60	684.5	69.80	4.030
35.5	668.8	68.20	712.0	72.60	768.8	78.40	4.530
37.5	746.3	76.10	794.3	81.00	854.2	87.10	5.050
40	849.3	86.60	904.2	92.20	976.7	99.00	5.750
42.5	958.1	97.70	1,019.9	104.00	1,101.3	112.30	6.490
45	1,078.7	110.00	1,147.4	117.00	1,235.6	126.00	7.280
47.5	1,196.4	122.00	1,274.9	130.00	1,372.9	140.00	8.110
50	1,323.9	135.00	1,412.2	144.00	1,529.8	156.00	8.980
53	1,490.6	152.00	1,588.7	162.00	1,716.2	175.00	10.100
56	1,667.1	170.00	1,775.0	181.00	1,912.3	195.00	11.300
60	1,912.3	195.00	2,030.0	207.00	2,196.7	224.00	12.900
63	2,108.4	215.00	2,245.7	229.00	2,422.2	247.00	14.300
67	2,383.0	243.00	2,539.9	259.00	2,736.1	279.00	16.200
71	2,677.2	273.00	2,853.7	291.00	3,079.3	314.00	18.200
75	2,981.2	304.00	3,177.4	324.00	3,187.2	325.00	20.200



For Crane, Hoist and
 General Engineering Purposes
 Construction:
 6 Strands
 37 Wires per Strand
 Independent Wire Rope Core

6 x 37 + IWRC

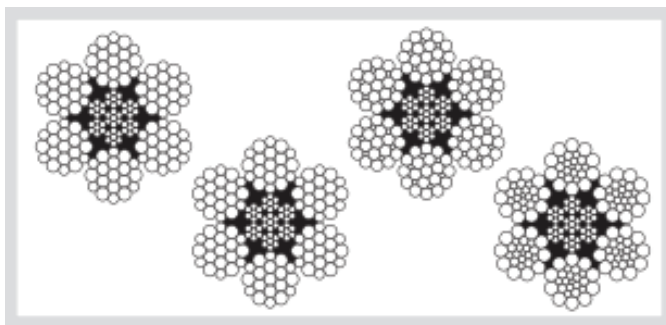
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	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	38.7	3.95	40.8	4.16	44.0	4.49	0.255
9	49.0	5.00	51.6	5.26	55.7	5.68	0.323
9.5	53.5	5.46	57.6	5.87	62.1	6.33	0.358
10	59.3	6.05	63.7	6.50	68.8	7.02	0.398
11.2	74.3	7.58	79.9	8.15	86.3	8.80	0.500
12	85.5	8.72	91.9	9.37	99.2	10.10	0.573
12.5	92.7	9.45	99.0	10.10	107.0	10.90	0.622
14	116.2	11.90	125.0	12.80	135.0	13.80	0.781
16	151.5	15.50	162.8	16.60	175.5	17.90	1.000
18	191.2	19.50	205.9	21.00	222.6	22.70	1.290
19.1	215.7	22.00	232.4	23.70	251.1	25.60	1.450
20	237.3	24.20	255.0	26.00	275.6	28.10	1.600
22.4	298.1	30.40	319.7	32.60	345.2	35.20	2.000
24	327.5	33.40	352.1	35.90	380.5	38.80	2.300
25	369.7	37.70	397.2	40.50	428.6	43.70	2.500
26	402.1	41.00	431.5	44.00	465.8	47.50	2.680
28	465.8	47.50	500.1	51.00	540.3	55.10	3.130
30	534.5	54.50	573.7	58.50	619.8	63.20	3.580
31.5	588.4	60.00	632.5	64.50	683.5	69.70	3.870
33.5	666.9	68.00	715.9	73.00	772.8	78.80	4.470
35.5	748.2	76.30	804.1	82.00	868.9	88.60	5.020
37.5	833.6	85.00	897.3	91.50	968.9	98.80	5.600
40	946.3	96.50	1,019.9	104.00	1,098.3	112.00	6.400
42.5	1,068.9	109.00	1,147.4	117.00	1,239.6	126.40	7.200
45	1,196.4	122.00	1,284.7	131.00	1,387.6	141.50	8.070
47.5	1,338.6	136.50	1,437.7	146.60	1,549.5	158.00	8.980
50	1,482.8	151.20	1,593.6	162.50	1,721.1	175.50	9.950
53	1,666.1	169.90	1,789.7	182.50	1,931.9	197.00	11.180
56	1,860.3	189.70	1,998.6	203.80	2,157.5	220.00	12.480
60	2,135.9	217.80	2,294.8	234.00	2,478.1	252.70	14.330
63	2,353.6	240.00	2,529.1	257.90	2,731.2	278.50	15.800
67	2,657.6	271.00	2,853.7	291.00	3,079.3	314.00	17.870
71	2,981.2	304.00	3,206.8	327.00	3,461.7	353.00	20.060
75	3,334.3	340.00	3,579.4	365.00	3,863.8	394.00	22.390



Construction:
 6 Stands
 19, 25, 26 Wires per Strand
 1 Fiber Core

**6 x S(19), W(19), FI(25),
 WS(26) + FC**

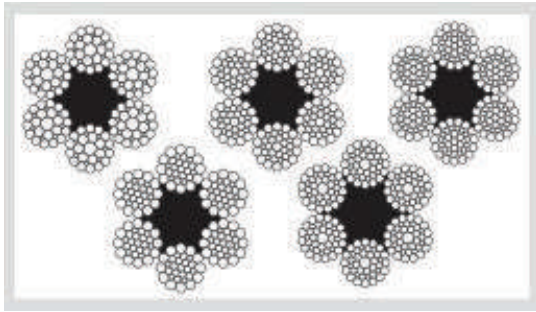
Diameter of Rope(mm)	Minimum Breaking Load								Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		SC(220kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	34.8	3.55	37.1	3.78	42.2	4.30	46.4	4.73	0.247
9	44.1	4.50	46.9	4.78	53.3	5.43	58.6	5.98	0.312
9.5	49.0	5.00	52.3	5.33	59.4	6.06	65.3	6.66	0.348
10	54.4	5.55	58.0	5.91	65.8	6.71	72.4	7.38	0.386
11.2	68.3	6.96	72.7	7.41	82.6	8.42	90.8	9.26	0.484
12	78.5	8.00	83.4	8.50	92.2	9.40	100.0	10.20	0.555
12.5	85.3	8.70	90.2	9.20	100.0	10.20	107.9	11.00	0.603
14	106.9	10.90	113.8	11.60	125.5	12.80	136.3	13.90	0.756
16	139.3	14.20	149.1	15.20	164.8	16.80	177.5	18.10	0.988
18	175.5	17.90	188.3	19.20	207.9	21.20	224.6	22.90	1.250
19.1	199.1	20.30	211.8	21.60	234.4	23.90	253.0	25.80	1.410
20	217.7	22.20	232.4	23.70	256.0	26.10	276.5	28.20	1.540
22.4	272.9	27.80	291.3	29.70	321.7	32.80	347.2	35.40	1.940
24	313.8	32.00	334.4	34.10	369.7	37.70	417.8	42.60	2.230
25	340.3	34.70	362.8	37.00	401.1	40.90	453.1	46.20	2.410
26	367.7	37.50	392.3	40.00	433.5	44.20	490.3	50.00	2.610
28	426.6	43.50	455.0	46.40	503.1	51.30	567.8	57.90	3.020
30	490.3	50.00	521.7	53.20	592.3	60.40	652.1	66.50	3.470
31.5	539.4	55.00	574.7	58.60	653.1	66.60	717.8	73.20	3.830
32	557.0	56.80	593.3	60.50	673.7	68.70	741.4	75.60	3.950
33.5	611.0	62.30	650.2	66.30	738.4	75.30	813.0	82.90	4.330
35.5	685.5	69.90	729.6	74.40	829.6	84.60	912.0	93.00	4.860
37.5	764.9	78.00	814.9	83.10	924.8	94.30	-	-	5.420
38	785.5	80.10	836.5	85.30	950.3	96.90	-	-	5.570
40	870.8	88.80	926.7	94.50	1,052.3	107.30	-	-	6.170
42.5	980.7	100.00	1,049.3	107.00	1,187.6	121.10	-	-	6.970
44	1,049.3	107.00	1,118.0	114.00	1,270.9	129.60	-	-	7.470
45	1,098.3	112.00	1,176.8	120.00	1,333.7	136.00	-	-	7.810
46	1,147.4	117.00	1,225.8	125.00	1,392.5	142.00	-	-	8.160
47.5	1,225.8	125.00	1,304.3	133.00	1,480.8	151.00	-	-	8.700
48	1,255.3	128.00	1,333.7	136.00	1,520.0	155.00	-	-	8.890
50	1,363.1	139.00	1,451.4	148.00	1,647.5	168.00	-	-	9.640
52	1,471.0	150.00	1,569.1	160.00	1,784.8	182.00	-	-	10.400
53	1,529.8	156.00	1,627.9	166.00	1,853.5	189.00	-	-	10.800
56	1,706.4	174.00	1,814.2	185.00	2,059.4	210.00	-	-	12.100
58	1,824.0	186.00	1,951.5	199.00	2,206.5	225.00	-	-	13.000
60	1,951.5	199.00	2,088.8	213.00	2,363.4	241.00	-	-	13.900



Construction:
 6 Stands
 19, 25, 26 Wires per Strand
 Independent Wire Rope Core

**6 x S(19), W(19), FI(25),
 WS(26) + IWRC**

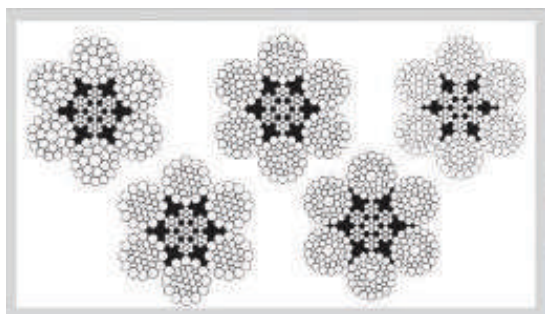
Diameter of Rope(mm)	Minimum Breaking Load								Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		SC(220kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8.0	40.8	4.16	44.1	4.50	47.1	4.80	51.8	5.28	0.275
9.0	51.7	5.27	56.0	5.71	59.6	6.08	65.5	6.68	0.348
9.5	57.5	5.86	62.3	6.35	66.4	6.77	73.1	7.45	0.388
10.0	63.7	6.50	69.0	7.04	73.5	7.50	80.9	8.25	0.430
11.2	83.5	8.51	86.6	8.83	92.3	9.41	101.5	10.40	0.539
12.0	94.4	9.63	99.4	10.10	103.0	10.50	115.7	11.80	0.619
12.5	97.1	9.90	107.9	11.00	116.7	11.90	126.5	12.90	0.672
14.0	121.6	12.40	135.3	13.80	146.1	14.90	157.9	16.10	0.843
16.0	158.9	16.20	176.5	18.00	190.2	19.40	205.9	21.00	1.100
18.0	201.0	20.50	224.6	22.90	241.2	24.60	260.9	26.60	1.390
19.1	226.5	23.10	253.0	25.80	271.6	27.70	294.2	30.00	1.570
20.0	249.1	25.40	276.5	28.20	298.1	30.40	322.6	32.90	1.720
22.4	311.9	31.80	346.2	35.30	373.6	38.10	405.0	41.30	2.160
24.0	357.9	36.50	397.2	40.50	429.5	43.80	-	-	2.480
25.0	389.3	39.70	431.5	44.00	465.8	47.50	-	-	2.690
26.0	420.7	42.90	466.8	47.60	504.1	51.40	-	-	2.910
28.0	487.4	49.70	541.3	55.20	576.6	58.80	-	-	3.370
30.0	560.0	57.10	621.7	63.40	661.0	67.40	-	-	3.870
31.5	616.8	62.90	684.5	69.80	729.6	74.40	-	-	4.270
32.0	636.5	64.90	706.1	72.00	753.2	76.80	-	-	4.400
33.5	698.2	71.20	775.7	79.10	824.7	84.10	-	-	4.830
35.5	718.8	73.30	869.8	88.70	927.7	94.60	-	-	5.420
37.5	873.8	89.10	970.9	99.00	1,033.6	105.40	-	-	6.050
38.0	920.8	93.90	997.3	101.70	1,059.1	108.00	-	-	6.210
40.0	990.5	101.00	1,108.2	113.00	1,176.8	120.00	-	-	6.880
42.5	1,118.0	114.00	1,265.1	129.00	1,333.7	136.00	-	-	7.770
44.0	1,235.6	126.00	1,333.7	136.00	1,431.8	146.00	-	-	8.320
45.0	1,255.3	128.00	1,402.4	143.00	1,490.6	152.00	-	-	8.710
46.0	1,343.5	137.00	1,451.4	148.00	1,549.5	158.00	-	-	9.100
47.5	1,402.4	143.00	1,569.1	160.00	1,657.3	169.00	-	-	9.700
48.0	1,471.0	150.00	1,588.7	162.00	1,696.6	173.00	-	-	9.910
50.0	1,549.5	158.00	1,735.8	177.00	1,843.7	188.00	-	-	10.800
52.0	1,726.0	176.00	1,873.1	191.00	1,990.7	203.00	-	-	11.650
53.0	1,745.6	178.00	1,941.7	198.00	2,069.2	211.00	-	-	12.100
56.0	2,079.0	212.00	2,167.3	221.00	-	-	-	-	13.510



Construction:
 6 Stands
 29, 31, 36, 41, 37 Wires per Strand
 1 Fiber Core

**6 x FI(29), WS(31), (36),
 (41) SES(37) + FC**

Diameter of Rope(mm)	Minimum Breaking Load								Approx. Weight per meter (kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		C(220kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	39.7	4.05	42.8	4.36	42.2	4.30	46.4	4.73	0.253
9	50.2	5.12	54.1	5.52	53.3	5.43	58.6	5.98	0.321
9.5	56.0	5.71	60.3	6.15	59.4	6.06	65.3	6.66	0.358
10	62.1	6.33	66.8	6.81	65.8	6.71	72.4	7.38	0.396
11.2	77.9	7.94	83.8	8.55	82.6	8.42	90.8	9.26	0.496
12	78.5	8.00	83.4	8.50	92.2	9.40	100.0	10.20	0.570
12.5	85.3	8.70	90.2	9.20	100.0	10.20	107.9	11.00	0.618
14	106.9	10.90	113.8	11.60	125.5	12.80	136.3	13.90	0.776
16	139.3	14.20	149.1	15.20	164.8	16.80	177.5	18.10	1.010
18	175.5	17.90	188.3	19.20	207.9	21.20	224.6	22.90	1.280
19.1	199.1	20.30	211.8	21.60	234.4	23.90	253.0	25.80	1.440
20	217.7	22.20	232.4	23.70	256.0	26.10	276.5	28.20	1.580
22.4	272.6	27.80	291.3	29.70	321.7	32.80	347.2	35.40	1.960
24	313.8	32.00	334.4	34.10	369.7	37.70	417.8	42.60	2.280
25	340.3	34.70	362.8	37.00	411.9	42.00	453.1	46.20	2.470
26	367.7	37.50	392.3	40.00	445.2	45.40	490.3	50.00	2.680
28	426.6	43.50	455.0	46.40	516.8	52.70	567.8	57.90	3.100
30	500.1	51.00	531.5	54.20	592.3	60.40	652.1	66.50	3.560
31.5	551.1	56.20	586.4	59.80	653.1	66.60	717.8	73.20	3.930
32	568.8	58.00	605.1	61.70	673.7	68.70	741.4	75.60	4.050
33.5	623.7	63.60	662.9	67.60	738.4	75.30	813.0	82.90	4.440
35.5	700.2	71.40	745.3	76.00	829.6	84.60	-	-	4.990
37.5	781.6	79.70	831.6	84.80	924.8	94.30	-	-	5.570
38	802.2	81.80	853.2	87.00	950.3	96.90	-	-	5.720
40	889.5	90.70	945.4	96.40	1,052.3	107.30	-	-	6.330
42	985.6	100.50	1,029.7	105.00	1,187.6	121.10	-	-	7.080
42.5	1,000.3	102.00	1,068.9	109.00	1,196.4	122.00	-	-	7.150
44	1,078.7	110.00	1,147.4	117.00	1,270.9	129.60	-	-	7.660
46	1,176.8	120.00	1,255.3	128.00	1,392.5	142.00	-	-	8.380
47.5	1,255.3	128.00	1,333.7	136.00	1,480.8	151.00	-	-	8.930
48	1,284.7	131.00	1,363.1	139.00	1,520.0	155.00	-	-	9.120
50	1,392.5	142.00	1,480.8	151.00	1,647.5	168.00	-	-	9.900
52	1,500.4	153.00	1,598.5	163.00	1,784.8	182.00	-	-	10.700
53	1,559.3	159.00	1,657.3	169.00	1,853.5	189.00	-	-	11.100
56	1,873.1	191.00	1,853.5	189.00	2,363.4	241.00	-	-	12.400
58	1,873.1	191.00	1,990.7	203.00	-	-	-	-	13.300
60	2,000.6	204.00	2,128.0	217.00	-	-	-	-	14.200

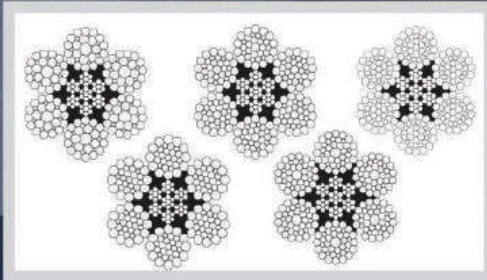


Construction:
 6 Stands
 29, 31, 36, 41, 37 Wires per Strand
 Independent Wire Rope Core

6 x FI(29), WS(31), (36), (41) SES(37) + IWRC

Diameter of Rope(mm)	Minimum Breaking Load								Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		C(220kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	39.7	4.05	42.8	4.36	48.2	4.91	53.0	5.40	0.282
9	50.2	5.12	54.1	5.52	60.9	6.21	67.0	6.83	0.367
9.5	56.0	5.71	60.3	6.15	67.9	6.92	74.6	7.61	0.398
10	62.1	6.33	66.8	6.81	75.2	7.67	82.7	8.43	0.441
11.2	77.9	7.94	83.8	8.55	94.3	9.62	103.8	10.58	0.553
12	89.3	9.11	97.1	9.90	108.9	11.10	117.7	12.00	0.635
12.5	99.0	10.10	105.9	10.80	117.7	12.00	127.5	13.00	0.689
14	124.5	12.70	133.4	13.60	147.1	15.00	158.9	16.20	0.864
16	162.8	16.60	172.6	17.60	192.2	19.60	207.9	21.20	1.130
18	205.9	21.00	218.7	22.30	243.2	24.80	263.8	26.90	1.430
19.1	232.4	23.70	247.1	25.20	273.6	27.90	296.2	30.20	1.610
20	250.1	25.50	270.7	27.60	300.1	30.60	325.6	33.20	1.760
22.4	313.8	32.00	340.3	34.70	376.6	38.40	408.0	41.60	2.210
24	359.9	36.70	390.3	39.80	432.5	44.10	468.8	47.80	2.540
25	391.3	39.90	422.7	43.10	469.7	47.90	509.9	52.00	2.760
26	422.7	43.10	458.0	46.70	508.0	51.80	551.1	56.20	2.980
28	490.3	50.00	531.5	54.20	589.4	60.10	639.4	65.20	3.460
30	562.9	57.40	603.0	62.10	676.7	69.00	744.3	75.90	3.970
31.5	620.8	63.30	671.8	68.50	746.3	76.10	820.8	83.70	4.370
32	640.4	65.30	693.3	70.70	747.3	76.20	847.3	86.40	4.510
33.5	702.2	71.60	760.0	77.50	844.4	86.10	928.7	94.70	4.950
34	722.8	73.70	782.6	79.80	845.3	86.20	931.6	95.00	5.100
35.5	789.5	80.40	860.0	87.70	948.3	96.70	1,042.4	106.30	5.560
36	810.0	82.60	884.6	90.20	951.2	97.00	-	-	5.710
37.5	879.7	89.70	959.1	97.80	1,058.1	107.90	-	-	6.200
38	903.2	92.10	980.7	100.00	1,081.7	110.30	-	-	6.370
40	1,000.3	102.00	1,088.5	111.00	1,198.4	122.20	-	-	7.050
42	1,098.3	112.00	1,206.2	123.00	1,284.7	131.00	-	-	7.780
42.5	1,127.8	115.00	1,235.6	126.00	1,362.1	138.90	-	-	7.960
44	1,206.2	123.00	1,323.9	135.00	1,458.2	148.70	-	-	8.530
45	1,265.1	129.00	1,382.7	141.00	1,529.8	156.00	-	-	8.930
46	1,323.9	135.00	1,441.6	147.00	1,598.5	163.00	-	-	9.330
47.5	1,412.2	144.00	1,539.6	157.00	1,696.6	173.00	-	-	9.950
48	1,441.6	147.00	1,589.1	160.00	1,735.8	177.00	-	-	10.200
50	1,559.3	159.00	1,676.9	171.00	1,882.9	192.00	-	-	11.000
52	1,686.7	172.00	1,784.8	182.00	2,030.0	207.00	-	-	11.900
53	1,755.4	179.00	1,922.1	196.00	2,118.2	216.00	-	-	12.400
54	1,824.0	186.00	1,990.7	203.00	2,157.5	220.00	-	-	12.900
56	1,961.3	200.00	2,137.8	218.00	2,363.4	241.00	-	-	13.800
58	2,108.4	215.00	2,294.8	234.00	-	-	-	-	14.800
60	2,255.5	230.00	2,451.7	250.00	-	-	-	-	15.900
62	2,402.6	245.00	2,618.4	267.00	-	-	-	-	16.900
64	2,559.5	261.00	2,804.7	286.00	-	-	-	-	18.100
66	2,726.2	278.00	2,971.4	303.00	-	-	-	-	19.200
68	2,893.0	295.00	3,157.7	322.00	-	-	-	-	20.400
70	3,089.1	315.00	3,344.1	341.00	-	-	-	-	21.600
72	3,246.0	331.00	-	-	-	-	-	-	22.900
74	3,422.5	349.00	-	-	-	-	-	-	24.100
75	3,520.6	359.00	-	-	-	-	-	-	24.800

Wire Rope



Construction :
 6Strands
 29, 31, 36, 41, 37 Wires per Strand
 Independent Wire Rope Core

6 × 7FI(29), WS(31), (36), (41), SES(37)+IWRC

Diameter of Ropa(mm)	Minimum Breaking Load								Approx. Weight per meter(kg/m)
	A & BG(165kg/mm ²)		B & CG(180kg/mm ²)		C(200kg/mm ²)		C(220kg/mm ²)		
	kN	Tonnef	kN	Tonnef	kN	Tonnef	kN	Tonnef	
8	39.7	4.05	42.8	4.36	48.2	4.91	53.0	5.40	0.282
9	50.2	5.12	54.1	5.52	60.9	6.21	67.0	6.83	0.367
9.5	56.0	5.71	60.3	6.15	67.9	6.92	74.6	7.61	0.398
10	62.1	6.33	66.8	6.81	75.2	7.67	82.7	8.43	0.441
11.2	77.9	7.94	83.8	8.55	94.3	9.62	103.8	10.58	0.553
12	89.3	9.11	97.1	9.90	108.9	11.10	117.7	12.00	0.635
12.5	99.0	10.10	105.9	10.80	117.7	12.00	127.5	13.00	0.689
14	124.5	12.70	133.4	13.60	147.1	15.00	158.9	16.20	0.864
16	162.8	16.60	172.6	17.60	192.2	19.60	207.9	21.20	1.130
18	205.9	21.00	218.7	22.30	243.2	24.80	263.8	26.90	1.430
19.1	232.4	23.70	247.1	25.20	273.6	27.90	296.2	30.20	1.610
20	250.1	25.50	270.7	27.60	300.1	30.60	325.6	33.20	1.760
22.4	313.8	32.00	340.3	34.70	376.6	38.40	408.0	41.60	2.210
24	359.9	36.70	390.3	39.80	432.5	44.10	468.8	47.80	2.540
25	391.3	39.90	422.7	43.10	469.7	47.90	509.9	52.00	2.760
26	422.7	43.10	458.0	46.70	508.0	51.80	551.1	56.20	2.980
28	490.3	50.00	531.5	54.20	589.4	60.10	639.4	65.20	3.460
30	562.9	57.40	609.0	62.10	676.7	69.00	744.3	75.90	3.970
31.5	620.8	63.30	671.8	68.50	746.3	76.10	820.8	83.70	4.370
32	640.4	65.30	693.3	70.70	747.3	76.20	847.3	86.40	4.510
33.5	702.2	71.60	760.0	77.50	844.4	86.10	928.7	94.70	4.950
34	722.8	73.70	782.6	79.80	845.3	86.20	931.6	95.00	5.100
35.5	788.5	80.40	860.0	87.70	948.3	96.70	1,042.4	106.30	5.560
36	810.0	82.60	884.6	90.20	951.2	97.00	-	-	5.710
37.5	879.7	89.70	959.1	97.80	1,058.1	107.90	-	-	6.200
38	903.2	92.10	980.7	100.00	1,081.7	110.30	-	-	6.370
40	1,000.3	102.00	1,088.5	111.00	1,198.4	122.20	-	-	7.050
42	1,098.3	112.00	1,206.2	123.00	1,284.7	131.00	-	-	7.780
42.5	1,127.8	115.00	1,235.6	126.00	1,362.1	138.90	-	-	7.960
44	1,206.2	123.00	1,323.9	135.00	1,458.2	148.70	-	-	8.530
45	1,265.1	129.00	1,382.7	141.00	1,529.8	156.00	-	-	8.930
46	1,323.9	135.00	1,441.6	147.00	1,598.5	163.00	-	-	9.330
47.5	1,412.2	144.00	1,539.6	157.00	1,696.6	173.00	-	-	9.950
48	1,441.6	147.00	1,569.1	160.00	1,735.8	177.00	-	-	10.200
50	1,559.3	159.00	1,676.9	171.00	1,882.9	192.00	-	-	11.000
52	1,686.7	172.00	1,784.8	182.00	2,030.0	207.00	-	-	11.900
53	1,755.4	179.00	1,922.1	196.00	2,118.2	216.00	-	-	12.400
54	1,824.0	186.00	1,990.7	203.00	2,157.5	220.00	-	-	12.900
56	1,961.3	200.00	2,137.8	218.00	2,363.4	241.00	-	-	13.800
58	2,108.4	215.00	2,294.8	234.00	-	-	-	-	14.800
60	2,255.5	230.00	2,451.7	250.00	-	-	-	-	15.900
62	2,402.6	245.00	2,618.4	267.00	-	-	-	-	16.900
64	2,559.5	261.00	2,804.7	286.00	-	-	-	-	18.100
66	2,726.2	278.00	2,971.4	303.00	-	-	-	-	19.200
68	2,893.0	295.00	3,157.7	322.00	-	-	-	-	20.400
70	3,089.1	315.00	3,344.1	341.00	-	-	-	-	21.600
72	3,246.0	331.00	-	-	-	-	-	-	22.900
74	3,422.5	349.00	-	-	-	-	-	-	24.100
75	3,520.6	359.00	-	-	-	-	-	-	24.800