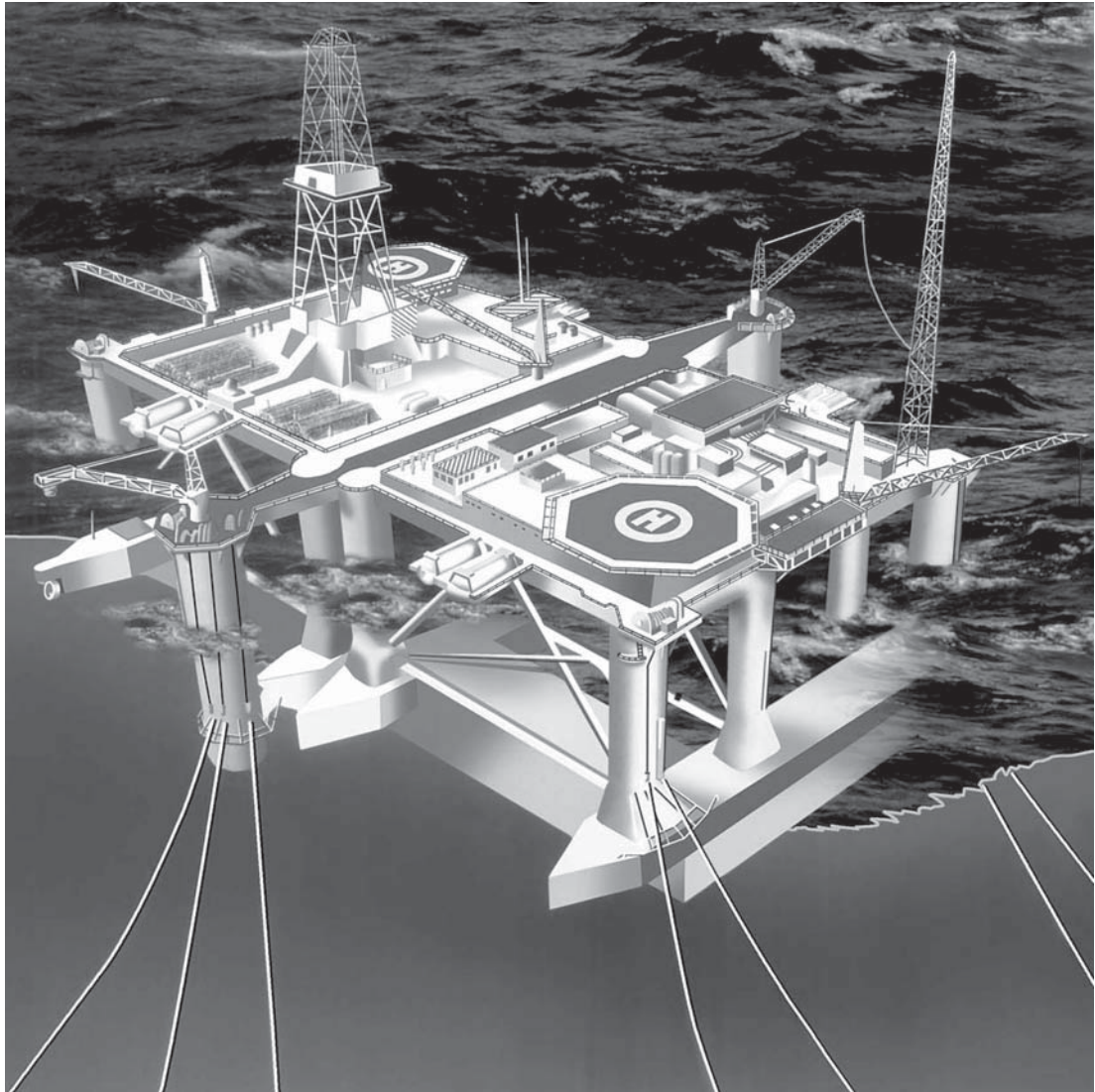


TITAN OIL FIELD ROPES



ushamartin.com

 **usha martin**



TITAN helps you to maintain your competitiveness through superior strength to weight ratio coupled with improved performance and working life.



TITAN

Strength to Rule The Seas

Usha Martin proudly presents TITAN -Oilfield ropes designed to endure ultimate tests of strength and security.

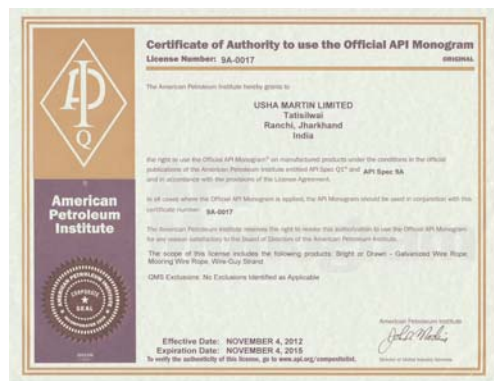
Manufactured by state-of-the-art technology, using selected raw materials, their performance give credence to their name -TITAN- the super power of the Universe and the epitome of strength and courage. Our TITAN oil ropes are designed to overpower the most turbulent waters.

They represent what Usha Martin stands for- Quality and Perfection to its finest measure. The

quality system of Usha Martin has been certified to ISO 9001 in addition to licensing by American Petroleum Institute.

Wire and wire ropes Division at Ranchi is the first and only one in India to receive the prestigious award for excellence in TPM from Japanese Institute of Productivity Management (JIPM)

With unmatched potential, Usha Martin is constantly setting new benchmarks in quality and reliability. TITAN is enscinded in this quest of Usha Martin towards perfection and excellence.



TITAN ANCHOR MOORING & PENNANT ROPES

Anchor lines

Deteriorating Forces

- Heavy Loads in six degrees of freedom
- Cyclic loads (Tension & Bending)
- Corrosion
- Torque

Properties required

- High Strength
- Structural Rigidity
- Resistant to abrasion & fatigue
- High elasticity to absorb shock load
- Protection for corrosion

Pennant Ropes :

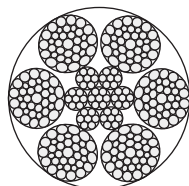
Deteriorating Forces

- Abrasion due to Drum/Sheave under heavy load
- Fatigue
- Corrosion

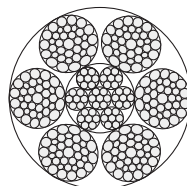
Properties required

Rope with optimum balance between

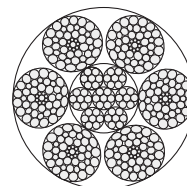
- Toughness (Ruggedness) and abrasion resistance
- Flexibility and fatigue resistance



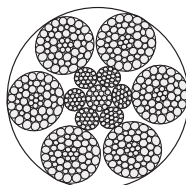
6 x 36 SW



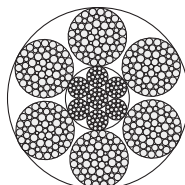
6 x 41 SW



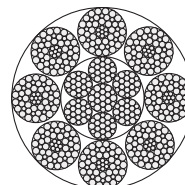
6 x 49 SWS



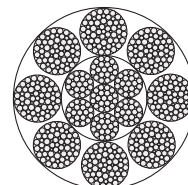
6 x 52 (46) SW



6x61 SW



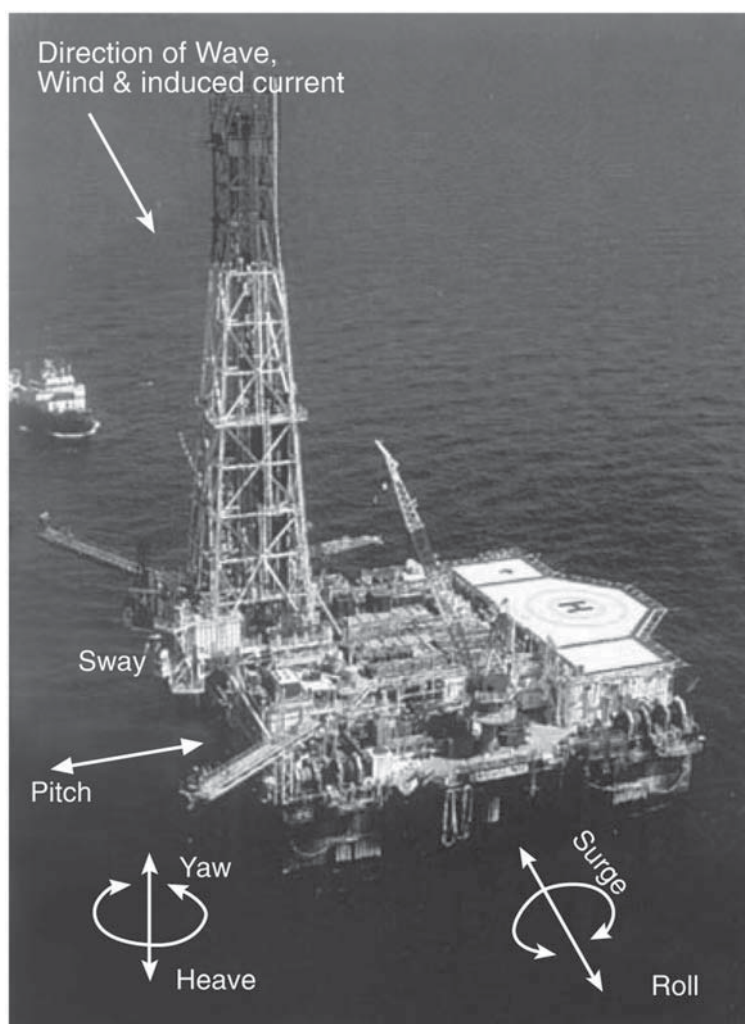
8x52 SW



8x61 SW

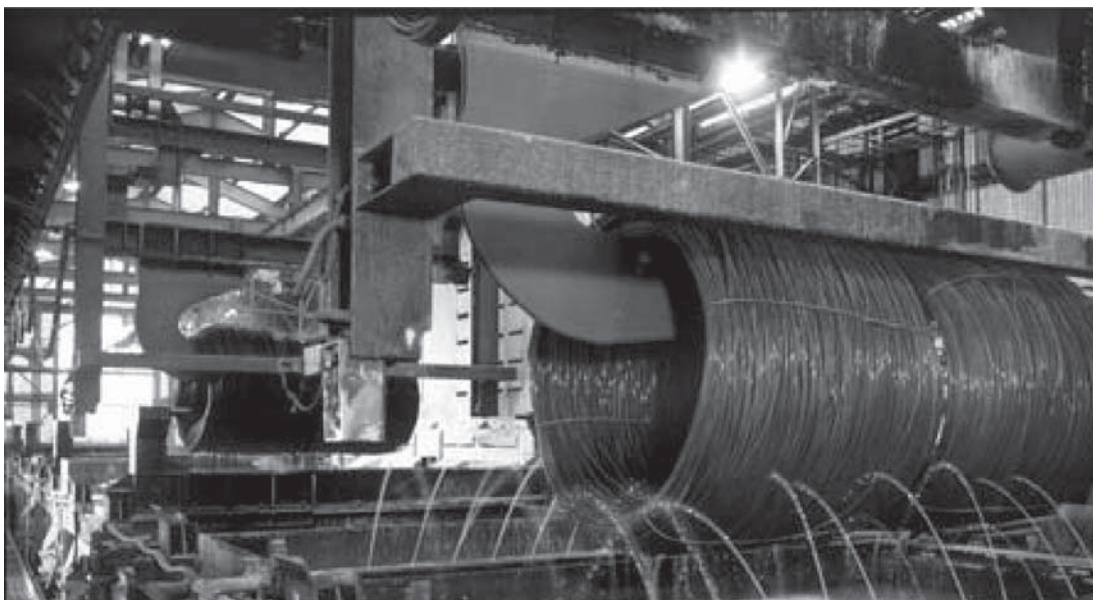


Construction		Nominal Rope Diameter	
Rope	Strand Line	In.	mm
6x365W	14-(7+7)-7-1	2 TO 3-1/4	52 TO 83
6X41SW	16-(8-8)-8-1	2 to 3-3/8	52 to 87
6x49SWS	16-(8+8)-8-8-1	2-3/8 to 3-1/4	60 to 83
6 x 52(46)SW	18-(9+9)-9/6-1	3-3/8 to 4-1/2	87 to 115
6x61SW	20-(10+10)-10-5F-5-1	4-3/4 to 5	121 to 127
8 x 52SW	18-(9+9)-9/6-1	4-3/4 to 5-1/4	121 to 134
8x61SW	20-910+10)-10-5F-5-1	5-1/4 to 6	134 to 154



Conventional Rope

Nominal Rope Diameter		Approx. Mass				Minimum Breaking Force			
		lb/ft		kg/m					
In.	mm	air	submerged	air	submerged	EIPS		EEIPS	
						MT	kN	MT	kN
2.0	52	7.39	6.24	11.0	9.28	179	1760	197	1930
2-1/8	54	8.33	7.06	12.4	10.5	201	1970	220	2160
2-1/4	58	9.34	7.86	13.9	11.7	224	2200	247	2420
2-3/8	60	10.4	8.80	15.5	13.1	245	2400	274	2690
2-1/2	64	11.6	9.81	17.3	14.6	274	2690	301	2950
2-5/8	67	12.8	10.8	19.1	16.1	299	2930	330	3240
2-3/4	71	14.0	11.8	20.8	17.5	333	3270	360	3530
2-7/8	74	15.3	12.9	22.8	19.2	361	3540	392	3840
3.0	77	16.6	14.0	24.7	20.8	389	3810	424	4160
3-1/8	80	18.0	15.2	26.8	22.6	417	4090	458	4490
3-1/4	83	19.5	16.5	29.0	24.5	447	4380	493	4830
3-3/8	87	21.0	17.7	31.3	26.4	487	4780	528	5180
3-1/2	90	22.7	19.2	33.8	28.5	519	5090	563	5520
3-5/8	92	23.8	20.1	35.4	29.9	547	5360	598	5860
3-3/4	96	26.0	21.9	38.7	32.6	585	5740	639	6270
4.0	103	29.6	24.9	44.0	37.1	665	6520	647	6340



Special Rope

Nominal Rope Diameter		Approx. Mass				Minimum Breaking Force					
		lb/ft		kg/m		TITAN		SUPER TITAN		TITAN MAX	
In.	mm	air	submerged	air	submerged	MT	kN	MT	kN	MT	kN
						6 Strand Rope					
2.0	52	7.53	6.35	11.2	9.45	208	2040	227	2222		
2-1/8	54	8.54	7.19	12.7	10.7	234	2295	254	2492		
2-1/4	58	9.54	8.06	14.2	12.0	259	2540	282	2761		
2-3/8	60	10.6	8.87	15.7	13.2	287	2814	312	3063		
2-1/2	64	11.8	9.95	17.5	14.8	316	3099	343	3365		
2-5/8	67	13.0	11.0	19.3	16.3	346	3393	376	3689		
2-3/4	71	14.2	12.0	21.2	17.9	378	3707	410	4025		
2-7/8	74	15.6	13.2	23.2	19.6	411	4030	447	4382		
3.0	77	17.0	14.3	25.3	21.3	446	4373	484	4751	504	4940
3-1/8	80	18.4	15.5	27.4	23.1	480	4707	522	5121	543	5320
3-1/4	83	19.9	16.8	29.6	25.0	517	5070	562	5512	584	5730
3-3/8	87	21.5	18.1	32.0	27.0	542	5315	602	5903	626	6138
3-1/2	90	23.1	19.5	34.4	29.0	578	5668	642	6294	680	6665
3-5/8	92	24.7	20.8	36.8	31.0	611	5991	679	6662	710	6967
3-3/4	96	26.5	22.4	39.5	33.3	645	6325	717	7029	740	7255
4.0	103	29.8	25.1	44.4	37.4	726	7119	806	7908		
4-1/8	105	31.9	26.9	47.4	40.0	745	7305	828	8119		
4-1/4	108	33.7	28.4	50.2	42.3	819	8031	910	8928		
4-1/2	115	37.8	31.9	56.2	47.4	903	8855	1004	9845		
4-3/4	121	42.1	35.5	62.6	52.8	995	9757	1105	10840		
5	127	46.6	39.3	69.4	58.5	1101	10796	1224	12000		
8 Strand Rope											
4-3/4	121	43.1	36.4	64.1	54.1	995	9757	1105	10840		
5	127	47.7	40.3	71.0	59.9	1101	10796	1224	12000		
5-1/4	134	52.6	44.4	78.3	66.0	1238	12140				
5-1/2	140	57.7	48.7	85.9	72.4	1357	13310				
5-3/4	146	63.1	53.2	93.9	79.2	1485	14560				
6	154	68.5	57.8	102	86.0	1615	15840				

Note: * The Wire Rope conforms to the applicable sections of API Specification 9A

** Rope weights are furnished above, considering lubrication during stranding only. In case of full lubrication, 1.5% to be added in rope weight.

TITAN COMPACTED MOORING & ANCHOR LINE & 8 STRAND ROPES

Anchor lines

Deteriorating Forces

- Heavy Loads in six degrees of freedom
- Cyclic loads (Tension & Bending)
- Corrosion
- Torque

Properties required

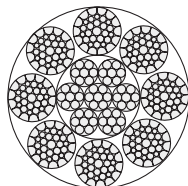
- High Strength
- Structural Rigidity
- Resistant to abrasion & fatigue
- High elasticity to absorb shock load
- Protection for corrosion

Deteriorating Forces

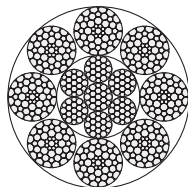
- Abrasion due to Drum/Sheave under heavy load
- Fatigue
- Corrosion

Properties required

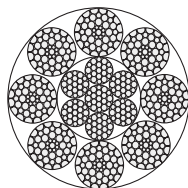
- Rope with optimum balance between
- Toughness (Ruggedness) and abrasion resistance
 - Flexibility and fatigue resistance



8x36SW



8x49SW



8 x 52SW

Construction Rope	Nominal Rope Diameter	
	In.	mm
8x36SW	2 to 2-3/4	52 to 68
8x49SW	2-7/8 to 3-7/8	71 to 96
8X52SW	4-5	103 to 127

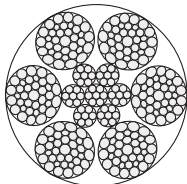
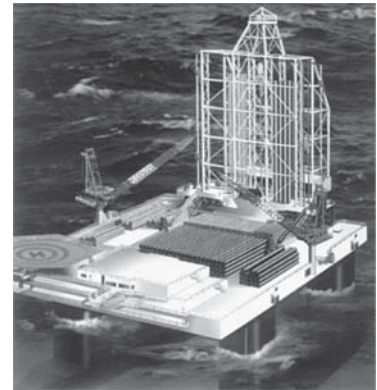


Nominal Rope Diameter		Approx. Mass				Minimum Breaking Force	
		lb/ft		kg/m			
In.	mm	air	submerged	air	submerged	MT	kN
2.0		8.00	6.75	11.9	10.04	234	2295
	52	8.33	7.06	12.4	10.5	245	2402
2-1/8	54	9.01	7.59	13.4	11.3	265	2599
	56	9.68	8.13	14.4	12.1	285	2795
2-1/4	58	10.15	8.54	15.1	12.7	297	2912
2-3/8	60	11.2	9.41	16.6	14.0	327	3207
2-1/2	64	12.4	10.5	18.5	15.6	366	3589
2-5/8	67	13.8	11.6	20.5	17.3	404	3962
2-3/4		15.1	12.8	22.5	19.0	444	4354
	71	15.6	13.2	23.2	19.6	458	4491
2-7/8		16.5	13.9	24.5	20.7	484	4746
	74	16.9	14.3	25.2	21.3	497	4874
3.0	74	17.9	15.1	26.7	22.5	527	5168
	77	18.3	15.5	27.3	23.0	538	5276
3-1/8	80	19.5	16.5	29.0	24.5	572	5609
3-1/4	83	21.1	17.8	31.4	26.5	619	6070
3-3/8		22.7	19.2	33.8	28.5	667	6541
	87	23.4	19.8	34.8	29.4	687	6737
3-1/2	90	24.5	20.6	36.4	30.7	717	7031
3-5/8	92	25.6	21.6	38.1	32.1	721	7070
3-3/4	96	27.5	23.2	40.9	34.5	774	7590
3-7/8		29.3	24.7	43.6	36.8	806	7904
4		31.3	26.3	46.5	39.2	859	8423
	103	32.1	27.0	47.7	40.2	883	8659
4-1/8	105	33.2	28.0	49.4	41.7	914	8963
4-1/14	108	35.3	29.8	52.5	44.3	971	9522
4-1/2	115	39.5	33.3	58.8	49.6	1087	10659
4-3/4	121	44.1	37.2	65.6	55.3	1213	11895
5	127	48.8	41.1	72.6	61.2	1342	13160

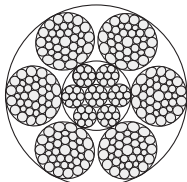
Note: The Wire Rope conforms to the applicable sections of API Specification 9A

TITAN COMPACTED MOORING & ANCHOR LINE & 6 STRAND ROPES

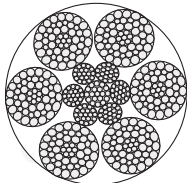
Construction	Nominal Rope Diameter	
Rope	In.	mm
6x36SW	2 to 2-1/4	52 to 58
6x41SW	2 to 2-1/4	52 to 58
6x49SW	2-3/8 to 3-1/4	60 to 83
6x52SW	3-3/8 to 4	87 to 103



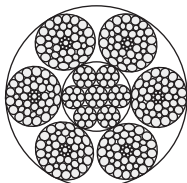
6 x 36SW



6 x 41SW



6 x 52SW



6 x 49SW

Nominal Rope Diameter		Approx. Mass				Minimum Breaking Force	
		lb/ft		kg/m			
In.	mm	air	submerged Wt	air	submerged Wt	MT	kN
2.0		7.80	6.57	11.6	9.78	234	2295
	52	8.20	6.92	12.2	10.3	245	2402
2-1/8	54	8.87	7.46	13.2	11.1	264	2589
	56	9.48	8.00	14.1	11.9	284	2785
2-1/4	58	9.95	8.40	14.8	12.5	296	2903
2-3/8	60	10.9	9.21	16.2	13.7	326	3197
2-1/2	64	12.2	10.3	18.2	15.3	365	3579
2-5/8	67	13.5	11.4	20.1	17.0	403	3952
2-3/4		14.8	12.5	22.0	18.6	443	4344
	71	15.3	12.8	22.7	19.1	457	4481
2-7/8		16.1	13.6	24.0	20.2	483	4736
	74	16.6	14.0	24.7	20.8	496	4864
3.0		17.6	14.9	26.2	22.1	526	5158
	77	17.9	15.1	26.7	22.5	537	5266
3-1/8	80	19.1	16.1	28.4	24.0	571	5599
3-1/4	83	20.7	17.5	30.8	26.0	618	6060
3-3/8		22.2	18.8	33.1	27.9	666	6531
	87	22.9	19.4	34.1	28.8	686	6727
3-1/2	90	23.9	20.2	35.6	30.0	716	7021
3-5/8	92	25.7	21.6	38.2	32.2	743	7286
3-3/4	96	27.6	23.3	41.0	34.6	797	7815
3-7/8		29.4	24.8	43.7	36.9	830	8139
4.0		31.3	26.4	46.6	39.3	885	8678
	103	32.1	27.1	47.8	40.3	909	8914

Note: The Wire Rope conforms to the applicable sections of API Specification 9A



TITAN DRILLING LINES

Deteriorating Forces

- Abrasion
- Drum/sheave wear fatigue
- Crushing forces from multi-layer winding on drum
- Shock load

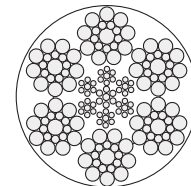
Properties required

- Flexibility
- Abrasion resistance
- Stable construction to absorb crushing forces

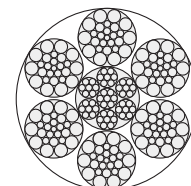
Construction	Nominal Rope Diameter	
	In.	mm
6x19S	1 to 1-1/2	25 to 38
6x26SW	1-1/4 to 2-1/4	32 to 58

Drillflex

Nominal Rope Diameter		Approx. Mass		Minimum Breaking Force			
In.	mm	lb/ft	kg/m	EIPS		EEIPS	
				MT	kN	MT	kN
1	26	1.85	2.75	46.9	460	51.6	506
1-1/8	29	2.34	3.48	58.9	578	64.9	636
1-1/4	32	2.89	4.30	72.5	711	79.7	782
1-3/8	35	3.49	5.19	87.1	854	96.2	943
1-1/2	38	4.16	6.19	103	1010	113	1110
1-5/8	42	4.88	7.26	119	1170	133	1300
1-3/4	45	5.66	8.42	139	1360	153	1500
1-7/8	48	6.49	9.66	158	1550	174	1710
2.0	52	7.39	11.0	179	1760	197	1930
2-1/8	54	8.34	12.4	201	1970	220	2160
2-1/4	58	9.35	13.9	224	2200	247	2420

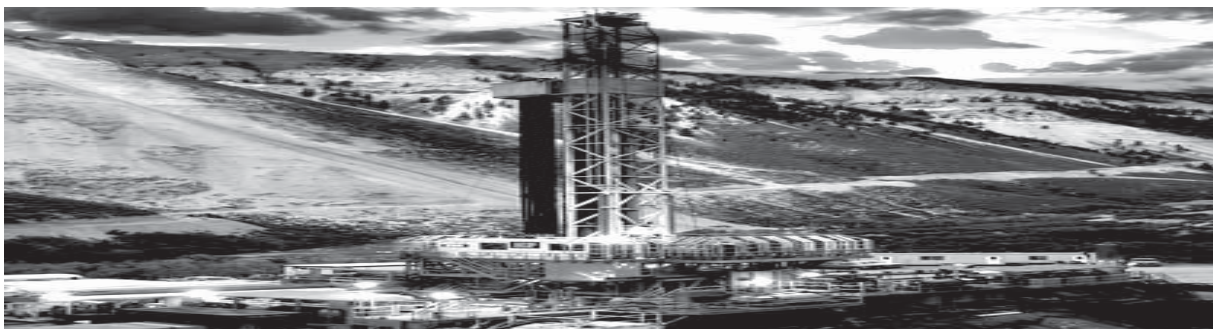


6 x 19 S

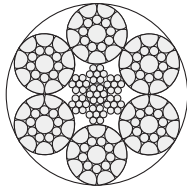


6x26SW

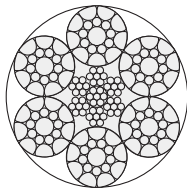
Note: The Wire Rope conforms to the applicable sections of API Specification 9A



Drillform



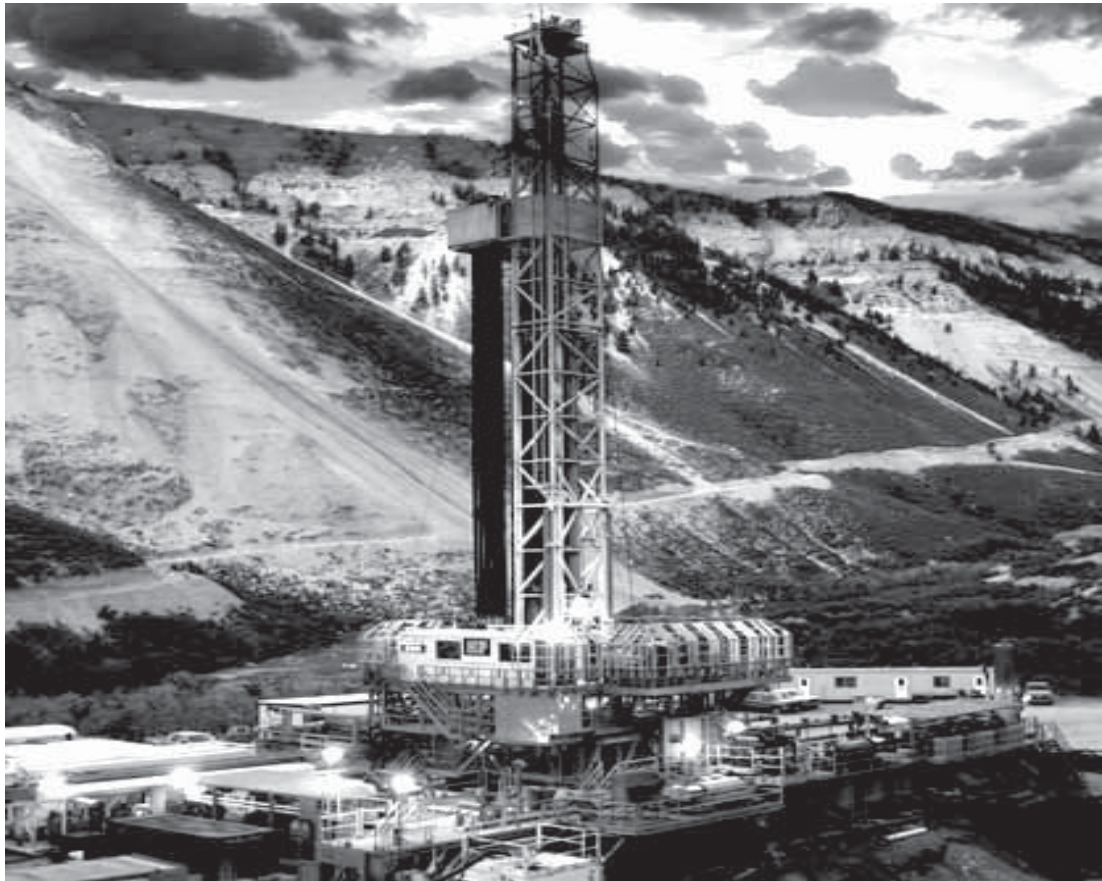
Drillform 6



Drillform 6P

Nominal Rope Diameter		Approx. Mass		Minimum Breaking Force			
In.	mm	lb/ft	kg/m	1770		1960	
				MT	kN	MT	kN
1	26	2.00	2.97	47.0	461	53.9	529
1-1/8	29	2.53	3.76	59.6	584	68.3	670
1-1/4	32	3.12	4.64	73.5	721	84.3	827
1-3/8	35	3.77	5.61	88.9	872	102	1000
1-1/2	38	4.37	6.50	104	1023	120	1176
1-5/8	42	5.13	7.63	122	1023	120	1176
1-3/4	45	5.95	8.85	142	1393	163	1600
1-7/8	48	6.83	10.2	163	1599	187	1838
2.0	52	7.77	11.6	185	1819	213	2090
2-1/8	54	8.76	13.0	206	2022	237	2328
2-1/4	58	9.83	14.6	231	2270	266	2613

Note: The Wire Rope conforms to the applicable sections of API Specification 9A



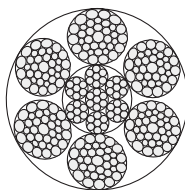
TITAN RISER TENSIONER ROPES

- Deteriorating Forces
- Continuous bending loads
 - Fatigue (Bending & Tension)
 - Sheave and Drum wear
 - Crushing/internal wire pressure
- Properties required
- High degree of flexibility
 - Fatigue resistance
 - Resistant to drum and sheave wear or abrasion resistance
 - Superior quality core

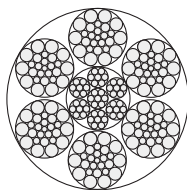
Construction Rope	Nominal Rope Diameter	
	In.	mm
6x26SW	1 to 1-3/4	25 to 45
6x36SW	1-3/4 to 2	45 to 52

Nominal Rope Diameter		Approx. Mass		Minimum Breaking Force	
In.	mm	lb/ft	kg/m	EIPS	
				MT	kN
1	26	1.85	2.75	46.9	460
1-1/8	29	2.34	3.48	58.9	578
1-1/4	32	2.89	4.30	72.5	711
1-3/8	35	3.49	5.19	87.1	854
1-1/2	38	4.16	6.19	103	1010
1-5/8	42	4.88	7.26	119	1170
1-3/4	45	5.66	8.42	139	1360
1-7/8	48	6.49	9.66	158	1550
2.0	52	7.39	11.0	179	1760

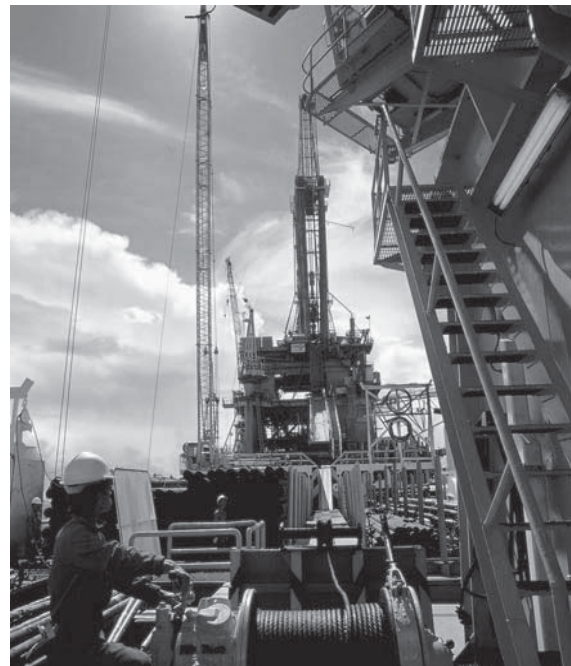
Note: The Wire Rope conforms to the applicable sections of API Specification 9A



6 x 36 SW



6 x 26 SW



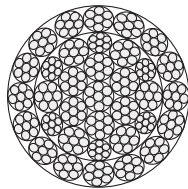
ROTATION RESISTANT ROPES FOR CRANES

Deteriorating Forces

- Crushing forces
- Abrupt loads (Shock loads)
- Corrosion
- Fatigue (Tension, Bending & Torsional)

Properties required

- Improved resistance to crushing
- Highly flexible
- Protection for corrosion
- Low rotation construction



35 x 7

Nominal Rope Diameter	Approx. Mass		Minimum Breaking Force						
	In.	lb/ft	kg/m	1770		1960		2160	
				MT	kN	MT	kN	MT	kN
8	0.194	0.288	4.16	40.8	4.16	45.2	4.94	48.4	
9	0.245	0.365	5.26	51.6	5.83	57.2	6.24	61.2	
10	0.301	0.448	6.50	63.7	7.20	70.6	7.71	75.6	
11	0.366	0.545	7.86	77.1	8.71	85.4	9.33	91.5	
12	0.433	0.645	9.36	91.8	10.4	102	11.1	109	
13	0.511	0.761	11.0	108	12.1	119	13.1	128	
14	0.591	0.880	12.7	125	14.1	138	15.1	148	
16	0.773	1.15	16.6	163	18.5	181	19.8	194	
18	0.980	1.46	21.0	206	23.4	229	25.0	245	
19	1.09	1.62	23.5	230	26.0	255	27.8	273	
20	1.20	1.79	26.0	255	28.8	282	30.8	302	
22	1.46	2.17	31.4	308	34.9	342	37.3	366	
24	1.73	2.58	37.4	367	41.4	406	44.4	435	
26	2.04	3.03	44.0	431	48.6	477	52.1	511	
28	2.36	3.51	51.0	500	56.4	553	60.5	593	
32	3.08	4.59	66.5	652	73.7	723	78.9	774	
35	3.69	5.49	79.6	781	88.1	864	94.4	926	
36	3.90	5.81	84.2	826	93.2	914	99.9	980	
38	4.35	6.47	93.8	920	104	1020	111	1090	
40	4.84	7.20	104	1020	115	1130	123	1210	

Note: The Wire Rope conforms to the applicable sections of API Specification 9A
 (*) For other size and strength values please refer Crane rope Catalogue



Safety Information

- Wire Rope will fail if worn out, overloaded, misused, damaged, improperly maintained or abused
- Wire rope failure may cause serious injury or death and expensive damage
- Never overload a wire rope
- Never exceed the work load limit/safe working load
- Use correct design factor for the application
- Never use a damaged or corroded rope
- Inform yourself: Read and understand manufacturers' literature and 'Wire Rope Users Manual' and for sling application 'Wire Rope and Wire Rope Sling Safety Bulletin'
- Refer to Application Codes, Standard and Regulations. Follow the relevant inspection requirements and removal criteria

For additional information or the bulletins please ask your supplier

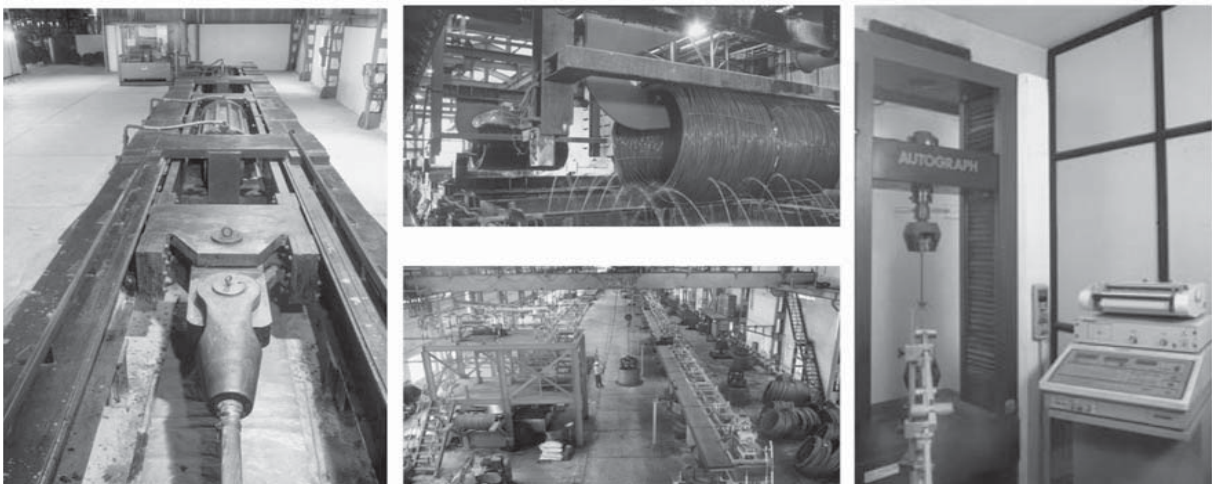
Liability

Usha Martin shall not be liable for consequential damages associated with the use of Usha Martin written representation on the new, unused products and components furnished and sold by Usha Martin products prove to be defective in workmanship and materials, Usha Martin will replace or repair these products.

Warranties, either expressed or implied, are limited to the Usha Martin written representation on the new, unused products and components furnished and sold by Usha Martin.

The user of Usha Martin products has the responsibility for conformance to jurisdictional codes, rules or suitability of components or design for the application even if Usha Martin engineers work together in giving suggestion.

When a rope is cut, fitted with end connection by splicing or other ways, the fabricator has to obey the rules and standards for the fabrication process as well the end product. Any damage resulting from incorrect handling, cutting, splicing, fitting or reeving, will not be the responsibility of the manufacturer.



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