



# FISHING ROPES



Usha Martin Wire & Wire Rope Division is an integral part of the globally acclaimed Usha Martin Group, active in High Carbon, Alloy & Speciality Steel, Telecom Cables & Software, Oil Drilling Services and Worldwide distribution of its products.

The global success of Usha Martin Fishing Ropes is based on an uncompromising commitment to quality and product development which has been driven by a dynamic and technically demanding marketplace.

State of the art ISO 9001:2008 certified manufacturing facilities and tight process control from steelmaking to rod manufacture and through to finished wire rope ensures consistently high quality in the finished Fishing Rope and has helped to earn numerous export awards for years together.



### Usha Martin Fishing Ropes

The major deteriorating force for a fishing rope is the corrosion factor, predominant in marine environment. Larger outer wire diameter, superior quality of galvanization and application of premium quality lubricant checks corrosion considerably and extends rope life and are the major benchmarks of every Usha Martin Fishing Rope.

### Higher Outer Wire Diameter:



Higher Outer Wire Diameter during rope design reduces corrosion and ensures better rope life in application.

## Superior Quality Galvanization:



Special zinc coating applied before wire drawing ensures improved adherence of coating, closer tolerances, improved fatigue property and longer rope life.

# Application of Premium Quality Lubricant :



Lubricant specially developed for fishing purposes ensures proper adhesive, retention and pliable qualities. Even in extreme cold waters it provides excellent protection against internal and external wear and corrosion.

### Unique identification tag:



An unique identification tag in every fishing rope stands for the commitment towards quality in every genuine Usha Martin rope.

# Conformance to customer-specific Breaking Load requirement:



Usha Martin confirms the Minimum Breaking Load force of each and every finished fishing rope with an actual test to destruction.

The test certificate which is supplied with every Usha Martin fishing rope will indicate a minimum guaranteed breaking force and the actual breaking force at which the sample broke.

The Usha Martin Testing facility is approved by Lloyds Register of Shipping (LRS), the American Bureau of Shipping (ABS) and the Det Norske Veritas (DNV).



Unique Identification tag

# COMMITMENT TOWARDS QUALITY

Quality is an integral part of the rope manufacturing process in Usha Martin. Based on our internally sourced raw materials, state of the art infrastructure, continuous quality checks and maintaining a globally acceptable quality systems standard, Usha Martin delivers premium quality, world class Fishing Ropes as per customers' needs and requirements, each time, every time.



# ISO 9001:2008 Quality Systems Standard

The quality systems standard of Usha Martin is accredited to the ISO 9001 by BVQI, UK.



## Application of Computer Aided Design Technology

Computer Simulation technique is followed to determine the final rope construction and its mechanical properties in Fishing Rope design using latest CAD technology.

# State of the art Manufacturing Infrastructure

Not only the in-house testing facilities to control the mechanical properties, but the entire system is enhanced to give superior results.



# Pickling Facility

The PLC operated automated modern pickling facility ensures superior surface quality of the wire rods which aids during the final wire-drawing stage to achieve defect free wires which goes into rope making.



# Galvanization Facility

The propane fired PLC controlled Patenting-cum-Galvanizing line provides for high quality Galvanization which is the primary quality benchmark of any Fishing Rope.'



# Wire Drawing Facility

State of the art High speed Frigerio straight through wire drawing machine with dancer control helps to achieve high quality wire drawing with minimum human intervention.

### Rope Closing Facility

The 100 MT. rope closing machine is only part of the endeavour to give a superior world class product at a globally competitive price and enables Usha Martin to offer higher diameter ropes for customised requirements.



## World class Rope Testing Infrastructure

On line testing as well as the intermediate testing plays a pivotal role in order to produce a superior rope at the final stage.

### 900 MT. Breaking Load Testing Machine

In continuation with the same policy, Usha Martin has installed an entire range of facilities like the 900 MT. Breaking Load Testing machine.

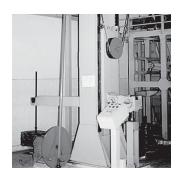


# Fatigue Testing Facilities

Usha Martin is one of the select few manufacturers having their own wire rope fatigue testing facilities.

# **Testing Certifications**

Usha Martin ropes are certified to conform to the stringent global specifications and quality norms of globally renowned inspection agencies Lloyds Register of Shipping (LRS), American Bureau of Shipping (ABS), American Petroleum Institute (API), Det Norske Veritus (DNV), etc.







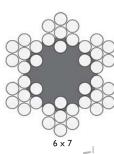


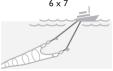




# 6x7

- Specifically produced for superior wear resistance
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Steel core for increased strength and prevention of crushing on the winch drum
- Sample from each production batch is tested in order to conform completely with customer specifications





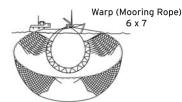






#### **TYPICAL APPLICATIONS:**

#### **SURFACE TRAWL**





- To obtain the calculated aggregate breaking loads, multiply the figures given in col. 4, to 9 by 1.112
- The masses of rope given in col. 3 are calculated values and for guidance only
- Sizes of rope marked with 'asterisk'(\*) are standard sizes. The rest are nonstandard
- To obtain the minimum breaking load for steel core ropes multiply the figures given in cols. 4 to 9 by 1.08
- To obtain the mass of steel core ropes multiply the figures in column 3 by 1.10
- Ropes of a different constructions and specification can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers requirements



CONSTRUCTION: 6 x 7 (6-1)
Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

	Tolerance % kg/100 mtrs.	Approx. Mass	Minimum breaking load on the rope corresponding to the tensile designation of the wires of						
Diameter mm.			160kgf/mm <sup>2</sup> or 1570 N/mm <sup>2</sup>		180 kgf/mm <sup>2</sup> or 1770 N/mm <sup>2</sup>		200 kgf/mm <sup>2</sup> or 1960 n/mm <sup>2</sup>		
				gf. KN	10 <sup>3</sup> kgf. KN		10 <sup>3</sup> kgf. KN		
1	2	3	4	5	6	7	8	9	
*8	+4,-1	23.0	3.40	33.5	3.84	37.5	4.25	42.0	
*9		29.0	4.31	42.0	4.86	47.5	5.38	53.0	
*10		35.5	5.32	52.0	6.00	59.0	6.64	65.4	
*11		43.0	6.44	63.0	7.26	71.0	8.04	79.0	
*12		51.5	7.66	75.0	8.64	84.5	9.57	94.0	
*13		60.5	8.99	88.0	10.1	99.5	11.2	110.0	
*14		70.0	10.4	102.0	11.8	115.0	13.0	127.0	
15		80.5	12.0	117.0	13.5	132.0	14.9	146.0	
*16		91.5	13.6	134.0	15.3	151.0	17.0	166.0	
17		103.0	15.4	151.0	17.2	169.0	19.2	188.0	
*18		116.0	17.2	169.0	19.4	191.0	21.5	211.0	
*19		129.0	19.2	188.0	21.7	212.0	24.0	235.0	
*20		143.0	21.3	209.0	24.0	235.0	26.5	260.0	
21		158.0	23.5	230.0	26.4	259.0	29.3	287.0	
*22		173.0	25.7	252.0	29.0	285.0	32.1	315.0	
23		189.0	28.1	276.0	31.7	311.0	35.1	344.0	
*24		206.0	30.6	300.0	34.5	339.0	38.2	375.0	
25		223.0	33.2	326.0	37.5	367.0	41.5	407.0	
*26		242.0	36.0	353.0	40.5	397.0	44.9	440.0	
27		261.0	38.8	380.0	43.7	429.0	48.4	475.0	
*28		280.0	41.7	409.0	47.0	461.0	52.0	510.0	





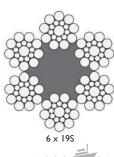






# 6x19S

- Specifically produced for ultimate wear & abrasion resistance
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original
   Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Steel core for increased strength and prevention of crushing on the winch drum
- Sample from each production batch is tested in order to conform completely with customer specifications





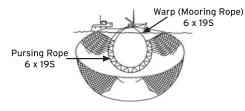






#### **TYPICAL APPLICATIONS:**

#### **SURFACE TRAWL**





- To obtain the calculated aggregate breaking loads, multiply the figures given in col. 4, 5, 6, 7, 8 and 9 by 1.163
- The masses of rope given in col. 2 are calculated values and are for guidance only
- Diameters marked with 'asterisk' (\*) are standard sizes. Rest are nonstandard
- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements



CONSTRUCTION: 6 x 19S (9-9-1)
Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

Nominal Diameter mm	Approx. Mass		Minimum breaking load on the rope corresponding to the tensile designation of the wires of						
		Steel Core (3) kg/100 m	15	1570		1770		1960	
	Fibre Core (2) kg/100 m		Fibre Core (4) kN	Steel Core (5) kN	Fibre Core (6) kN	Steel Core (7) kN	Fibre Core (8) kN	Steel Core (9) kN	
1	2	3	4	5	6	7	8	9	
*8	23.8	26.2	33	36	37.5	40	42	45	
*9	30.2	33.2	42	45	47.5	51	53	57	
*10	37.3	41.0	52	56	58.5	63	65	70	
*11	45	49.6	63	68	71	77	78	85	
*12	53.5	59.0	75	81	84.5	91	93	101	
*13	63.0	69.3	88	95	99	107	110	118	
*14	73.0	80.3	102	110	115	124	127	137	
*16	95.5	105	133	144	150	162	166	179	
*18	121	133	168	181	190	205	210	227	
19	134	148	187	202	211	228	234	253	
*20	149	164	208	225	234	253	259	280	
*22	180	198	251	271	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	381	420	532	575	600	648	664	717	







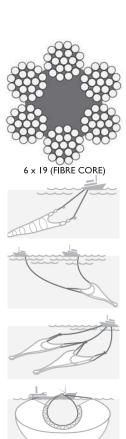




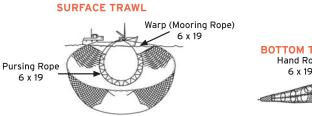


# 6x19

- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original
   Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Sample from each production batch is tested in order to conform completely with customer specifications



#### **TYPICAL APPLICATIONS:**





- To obtain the calculated aggregate breaking loads, multiply the figures given in col.
   4 to 9 by 1.163
- The masses of rope given in col. 3 are calculated values and for guidance only
- Sizes of rope marked with 'asterisk'(\*) are standard sizes. The rest are nonstandard
- To obtain the minimum breaking load for steel cored ropes multiply the figures given in cols. 4 to 9 by 1.08
- To obtain the mass of steel core ropes multiply the figures in column 3 by 1.10
- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements



CONSTRUCTION: 6 x 19 (12/6/1)
Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

	Approx Mass		Minimum breaking load on the rope corresponding to the tensile designation of the wires of						
Diameter mm.	Tolerance %	kg/100 mtrs.	160kgf/mm <sup>2</sup> or 1570 N/mm <sup>2</sup>		180 kgf/mm <sup>2</sup> or 1770 N/mm <sup>2</sup>		200 kgf/mm <sup>2</sup> or 1960 n/mm <sup>2</sup>		
			10 <sup>3</sup> kgf.	KN	10 <sup>3</sup> kgf.	KN	10 <sup>3</sup> kgf.	KN	
1	2	3	4	5	6	7	8	9	
*3	+7, -1	3.10	0.44	4.3	0.50	4.9	0.55	5.40	
*4	+6, -1	5.50	0.79	7.7	0.90	8.7	0.98	9.60	
*5		8.60	1.23	12.0	1.39	13.6	1.50	15.0	
*6	+5, -1	12.4	1.77	17.4	2.00	19.6	2.20	21.5	
*7		17.0	2.40	23.5	2.72	27.0	3.00	29.5	
*8	+4,-1	22.0	3.15	31.0	3.56	35.0	3.90	30.5	
*9		28.0	4.00	39.0	4.50	44.0	5.00	48.8	
*10		35.0	4.90	48.0	5.56	54.5	6.10	60.2	
*11		42.0	5.90	58.4	6.72	66.0	7.43	72.8	
*12		50.0	7.10	69.5	8.00	78.5	8.80	86.7	
*13		58.0	8.30	81.5	9.39	92.0	10.4	102.0	
*14		68.0	9.60	94.5	10.9	107.0	12.0	118.0	
15		78.0	11.1	108	12.5	123.0	13.8	136.0	
*16		88.0	12.6	123	14.2	139.0	15.7	154.0	
17		100.0	14.2	139	16.1	157.0	17.7	174.0	
*18		112.0	15.9	156	18.0	176.0	19.9	195.0	
19		125.0	17.8	174	20.1	197.0	22.2	217.0	
*20		138.0	19.8	193	22.2	218.0	24.6	241.0	
21		152.0	21.7	213	24.5	240.0	27.1	266.0	
*22		167.0	23.8	233	27.0	264.0	29.7	291.0	
23		183.0	26.0	255	29.4	288.0	32.5	319.0	
*24		199.0	28.3	273	32.0	314.0	35.4	247.0	
25		216.0	30.7	301	34.7	340.0	38.4	376.0	
*26		234.0	33.3	326	37.6	368.0	40.9	407.0	
27		252.0	35.9	352	40.5	397.0	44.8	432.0	
*28		271.0	38.6	378	43.6	427.0	48.2	472.0	
29		291.0	41.4	406	46.7	458.0	51.7	506.0	
30		311.0	44.3	434	50.0	490.0	55.3	542.0	
31		332.0	47.3	464	53.4	523.0	59.0	579.0	
*32		354.0	50.4	494	56.9	558.0	62.9	617.0	





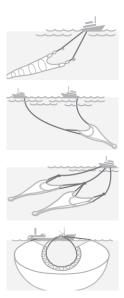


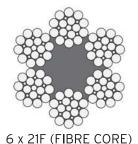


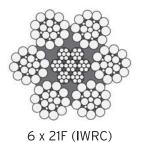


# 6x21F

- Specifically produced for superior wear resistance
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original
   Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Steel core for increased strength and prevention of crushing on the winch drum
- Sample from each production batch is tested in order to conform completely with customer specifications

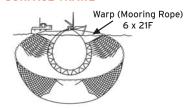






#### **TYPICAL APPLICATIONS:**

#### SURFACE TRAWL





- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements



# CONSTRUCTION: 6 x 21F (10-5-5F-1)

Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

	Approx. Mass		Minimum Breaking Load					
Diameter mm	Fibre	Steel	1570 N	I/mm <sup>2</sup>	1770 N/mm <sup>2</sup>			
	Core Kg/100 Mtr.	Core Kg/100 Mtr.	Fibre Core (kN)	Steel Core (kN)	Fibre Core (kN)	Steel Core (kN)		
1	2	3	4	5	6	7		
8.00	24.3	26.8	34	37	38	41		
9.00	30.8	33.9	43	46	48	52		
10.00	38.0	41.8	53	57	60	65		
11.00	46.0	50.6	64	69	72	78		
12.00	54.7	60.2	76	82	86	93		
13.00	64.3	70.7	90	97	101	109		
14.00	74.5	82.0	104	112	117	127		
16.00	97.3	107.0	136	147	153	165		
18.00	123.0	135.0	172	186	194	209		
19.00	137.0	151.0	191	207	216	233		
20.00	152.0	167.0	212	229	239	258		
22.00	184.0	202.0	257	277	289	312		
24.00	219.0	241.0	305	330	344	372		
26.00	257.0	283.0	358	387	404	436		
28.00	298.0	328.0	416	449	469	506		
32.00	389.0	428.0	543	586	612	661		





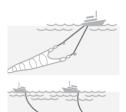




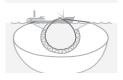


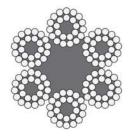
# 6x24 & 6x24S

- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original
   Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Steel core for increased strength and prevention of crushing on the winch drum
- Sample from each production batch is tested in order to conform completely with customers' specifications

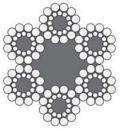








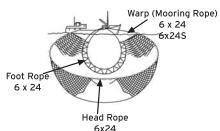
6 x 24 (15/9-FC)



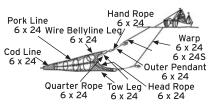
6 x 24S (12-12-FC)

### **TYPICAL APPLICATIONS:**

#### SURFACE TRAWL



#### **BOTTOM TRAWL**



- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements



# CONSTRUCTION : 6 x 24 (15/9-FC) - FIBRE CORE & 6 x 24S (12-12-FC) - FIBRE CORE

Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

	Approx. Mass	Minimum Breaking Load (kN)					
Diameter mm	Kg/100 Mtr.	1420 N/mm <sup>2</sup> Tensile	1570 N/mm <sup>2</sup> Tensile	1770 N/mm <sup>2</sup> Tensile			
1	2	3	4	5			
8.00	19.7	25.4	28.1	31.7			
9.00	24.9	32.2	35.6	40.1			
10.00	30.8	39.8	44	49.6			
11.00	37.3	48.1	53.2	60.0			
12.00	44.4	57.3	63.3	71.4			
13.00	52.1	67.2	74.3	83.8			
14.00	60.4	77.9	86.2	97.1			
16.00	78.8	102.0	113.0	126.9			
18.00	99.8	129.0	142.0	160.6			
19.00	111.0	144.0	159.0	178.9			
20.00	123.0	159.0	176.0	198.2			
22.00	149.0	192.0	213.0	239.9			
24.00	177.0	229.0	253.0	285.5			
26.00	208.0	269.0	297.0	335.0			
28.00	241.0	312.0	345.0	388.6			
32.00	315.0	407.0	450.0	507.5			

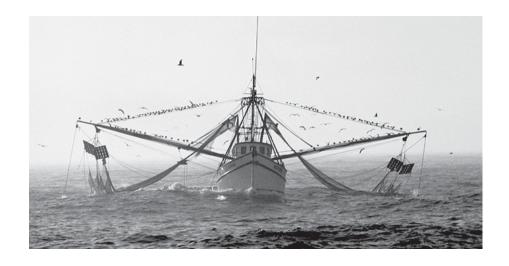








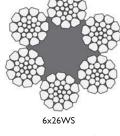




# 6x26WS

#### **COMPACTED**

- Specifically produced for ultimate wear resistance
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original
   Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- Steel core for increased strength
- Greater resistance to crushing at crossover points
- Greater resistance to interference at the drum.
- Sample from each production batch is tested in order to conform completely with customer specifications
- Increased abrasion resistance resulting from the unique compaction process
- High fatigue life due to compaction











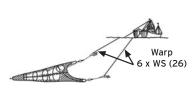
#### **TYPICAL APPLICATIONS:**

6 x WS (26)

#### **SURFACE TRAWL**

# Warp (Mooring Rope) 6 x WS (26) Pursing Rope

#### **BOTTOM TRAWL**



- Outer wires of compacted strand of 1570 N/mm2 and all other wires of 2160 N/mm2 tensile grade
- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements

# CONSTRUCTION: 6 x 26WS (10-5+5-5-1)

Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

	App Ma	rox. iss	Minimum Breaking Force				
Diameter	Poly		Pol	y Core	CWR (Steel Core)		
mm	Core Kg/Mtr.	CWR Kg/Mtr.	1570/216	0 N/mm <sup>2</sup>	1570/2160 N/mm <sup>2</sup>		
			kN	Tonnes	kN	Tonnes	
1	2	3	4	5	6	7	
14.0	0.82	0.92	128.0	13.0	141.0	14.4	
16.0	1.06	1.19	167.0	17.0	184.0	18.8	
18.0	1.36	1.52	212.0	21.6	234.0	23.9	
20.0	1.67	1.86	261.0	26.6	290.0	29.6	
22.0	2.03	2.26	316.0	32.2	352.0	35.9	
24.0	2.41	2.68	376.0	38.3	416.0	42.4	
26.0	2.83	3.16	442.0	45.0	495.0	50.5	
28.0	3.31	3.67	512.0	52.1	563.0	57.4	
30.0	3.80	4.23	588.0	59.9	657.0	67.0	

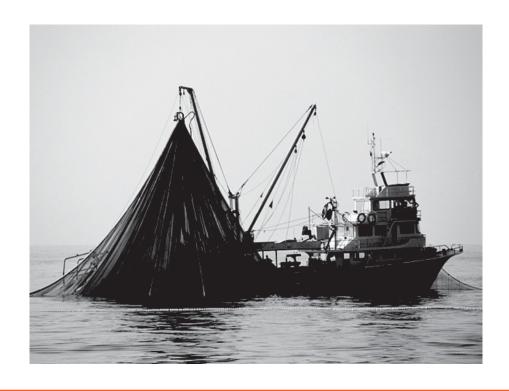












#### Maintenance

Sheaves and grooved rollers should be checked periodically for wear in the grooves which may cause pinching and abrasion of the ropes. If the groove bears the imprint of the rope it should be machine-cleaned or replaced with a sheave of harder material.

Sheave and roller bearing should be checked for free operation to avoid unnecessary wear.

Excessive wear in sheave bearings can cause rope fatigue from the vibration.

Excessively heavy sheaves should be replaced as they tend to rotate from centrifugal force after the rope stops. This causes wear on the rope.

### In-use Lubrication

During the manufacturing process, the fishing ropes receive adequate lubrication required for initial storage and for early phases of working-life. Such lubrication needs to be supplemented at regular intervals.

Proper and correct lubrication is important to the service life of the rope. The lubricant serves both as protection against corrosion and as a factor to reduce the friction between wires and strands in the rope.

Lubricants should be free from acid and without any adverse influence either on the wires or on the core. The lubricant must have a consistency that enables it to penetrate into the rope.

The rope must be thoroughly cleaned before the lubricant is applied.

For maximum penetration the lubricant should be applied to the rope where it "opens up" as it travels around a sheave or winds on a drum.

If a planned programme of regular lubrication is not carried out, the rope will deteriorate rapidly as follows:

- Corrosion and pitting will occur causing a loss of steel area resulting in a loss in strength of the rope.
- The wires will become embrittled from excessive corrosion and will break easily during bending.



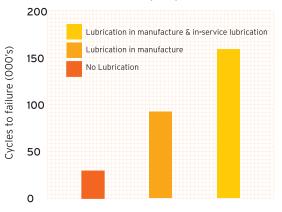
- Since each wire in the rope moves relative to the others during operation, they are subject to frictional wear. Lack of lubrication will increase the wear rate causing a marked reduction in strength from loss of steel area.
- Pits also cause internal necking of the wires which results in loss of fatigue resistance.

### Liability

Usha Martin shall not be liable for consequential damages associated with the use of Usha Martin 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.

Effect of manufacturing lubricant and in-service lubrication on bending fatigue resistance



The wire ropes shown in this catalogue are "standard products". Usha Martin has the capability to design and manufacture according to individual customer requirements.

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 as the end product. Any damage resulting from incorrect handling, cutting, splicing, fitting or reeving will not be the responsibility of the rope manufacturer.

### Safety Information

- Wire rope will fail if worn out, shock loaded, overloaded, misused, damaged, improperly maintained or abused.
- Always inspect wire rope for wear, damage or abuse before use.
- Never use a wire rope which is worn out, damaged, corroded or abused.
- Never overload or shock load a wire rope.
- Use the correct design factor for the application.
- Inform yourself: Read and understand the machinery manufacturers handbook and guidance from the wire rope manufacturer
- Refer to applicable directives, regulations, standards and codes concerning inspection, examination and rope removal criteria.

All statements, technical information and recommendations contained herein are believed to be reliable, but no guarantee is given as to their accuracy and/or completeness. The user must determine the suitability of the product for his own particular purpose, either alone or in combination with other products and shall assume all risk and liability in connection therewith.

Whilst every attempt has been made to ensure accuracy in the content of the tables, the information contained in this catalogue does not form any part of a contract.

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