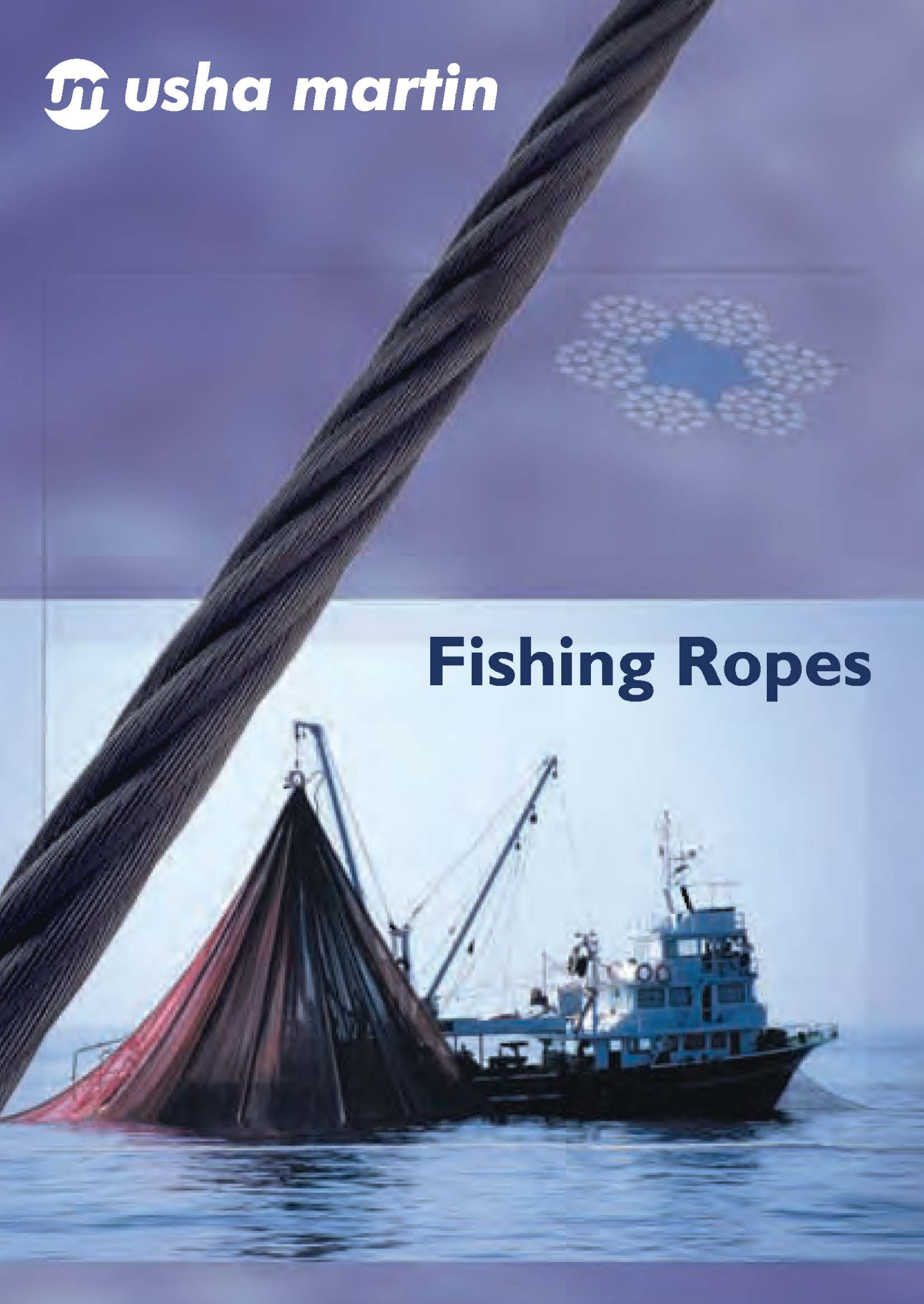


tm *usha martin*

Fishing Ropes



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 9001/9002 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 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.

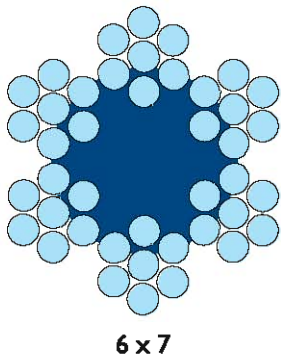
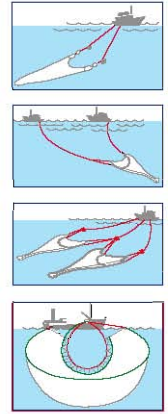
Testing Certifications



Usha Martin ropes are certified to conform to the stringent global specifications and quality norms of globally renowned inspection agencies Lloyd's Register of Shipping (LRS), American Bureau of Shipping (ABS), American Petroleum Institute (API), Det Norske Veritas (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

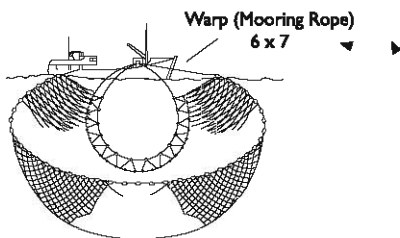


CONSTRUCTION : 6 x 7 (6/1)
Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

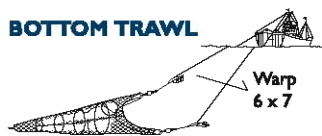
Diameter mm.	Tolerance %	Approx. Mass kg/100 mtrs.	Minimum breaking load on the rope corresponding to the tensile designation of the wires of					
			160kgf/mm ² or 1570 N/mm ²	180 kgf/mm ² or 1770 N/mm ²	200 kgf/mm ² or 1960 n/mm ²			
			10 ³ kgf. KN		10 ³ kgf. KN		10 ³ kgf. KN	
			4	5	6	7	8	9
*8	+4,-1	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
*14		70.0	10.4	102	11.8	115	13.0	127
15		80.5	12.0	117	13.5	132	14.9	146
*16		91.5	13.6	134	15.3	151	17.0	166
17		103	15.4	151	17.2	169	19.2	188
*18		116	17.2	169	19.4	191	21.5	211
*19		129	19.2	188	21.7	212	24.0	235
*20		143	21.3	209	24.0	235	26.5	260
21		158	23.5	230	26.4	259	29.3	287
*22		173	25.7	252	29.0	285	32.1	315
23		189	28.1	276	31.7	311	35.1	344
*24		206	30.6	300	34.5	339	38.2	375
25		223	33.2	326	37.5	367	41.5	407
*26		242	36.0	353	40.5	397	44.9	440
27		261	38.8	380	43.7	429	48.4	475
*28		280	41.7	409	47.0	461	52.0	510

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL



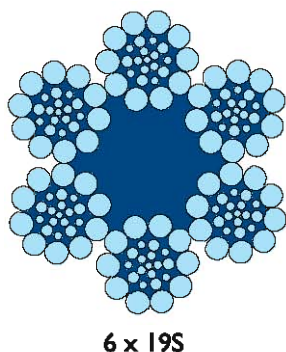
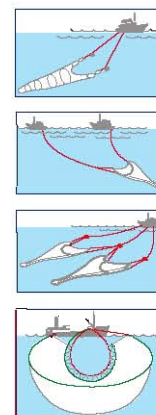
Note :

- 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



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

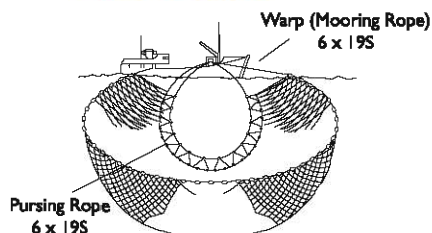


CONSTRUCTION : 6 x 19S (9-9-1) Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

Nominal Diameter mm	Approx. Mass		Minimum breaking load on the rope corresponding to the tensile designation of the wires of					
	Fibre Core (2) kg/100 m	Steel Core (3) kg/100 m	1570		1770		1960	
			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

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL

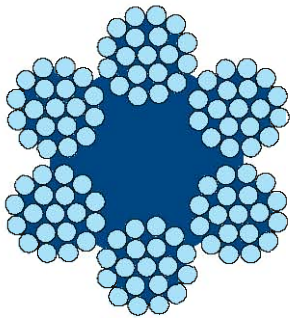
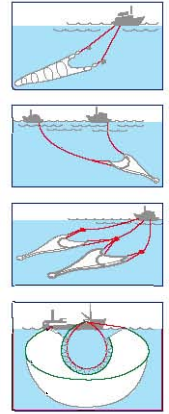


- Note :**
- To obtain the calculated aggregate breaking loads, multiply the figures given in col. 4, 5, 6, 7, 8 and 9 by 1.163
 - The masses of rope given in col. 2 are calculated values and are for guidance only
 - Diameters marked with 'asterisk' (*) are standard sizes. Rest are nonstandard
 - Ropes 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



6X19

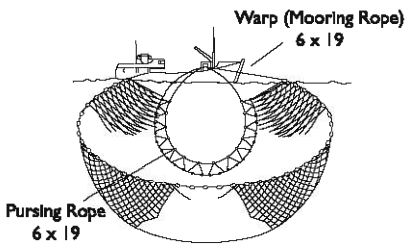
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required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



6 x 19 (FIBRE CORE)

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL



Note :

- 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

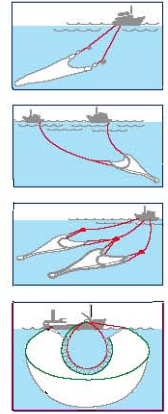
CONSTRUCTION : 6 x 19 (12/6/1)
Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

Diameter mm.	Tolerance %	Approx. Mass kg/100 mtrs.	Minimum breaking load on the rope corresponding to the tensile designation of the wires of					
			160kgf/mm ² or 1570 N/mm ²		180 kgf/mm ² or 1770 N/mm ²		200 kgf/mm ² or 1960 n/mm ²	
			10 ³ kgf.	KN	10 ³ kgf.	KN	10 ³ 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
*14		68.0	9.60	94.5	10.9	107	12.0	118
15		78.0	11.1	108	12.5	123	13.8	136
*16		88.0	12.6	123	14.2	139	15.7	154
17		100	14.2	139	16.1	157	17.7	174
*18		112	15.9	156	18.0	176	19.9	195
19		125	17.8	174	20.1	197	22.2	217
*20		138	19.8	193	22.2	218	24.6	241
21		152	21.7	213	24.5	240	27.1	266
*22		167	23.8	233	27.0	264	29.7	291
23		183	26.0	255	29.4	288	32.5	319
*24		199	28.3	273	32.0	314	35.4	247
25		216	30.7	301	34.7	340	38.4	376
*26		234	33.3	326	37.6	368	40.9	407
27		252	35.9	352	40.5	397	44.8	432
*28		271	38.6	378	43.6	427	48.2	472
29		291	41.4	406	46.7	458	51.7	506
30		311	44.3	434	50.0	490	55.3	542
31		332	47.3	464	53.4	523	59.0	579
*32		354	50.4	494	56.9	558	62.9	617



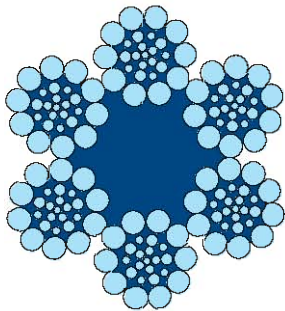
6X21F

- 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

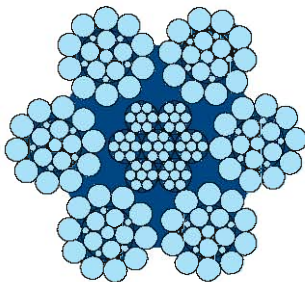


CONSTRUCTION : 6 x 21F (10-5-5F-1)

Drawn Galvanized, Right Hand or Left Hand Ordinary Lay



6 x 21F (FIBRE CORE)

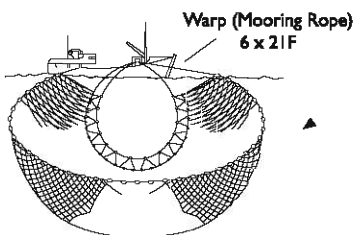


6 x 21F (IWRC)

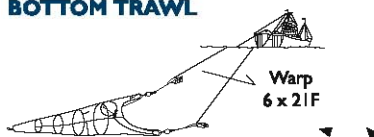
Diameter mm	Approx. Mass		Minimum Breaking Load			
	Fibre Core Kg/100 Mtr.	Steel Core Kg/100 Mtr.	1570 N/mm ²		1770 N/mm ²	
			Fibre Core (kN)	Steel Core (kN)	Fibre Core (kN)	Steel Core (kN)
1	2	3	4	5	6	7
8.00	24.3	26.8	34	37	38	41
9.00	30.8	33.9	43	46	48	52
10.00	38	41.8	53	57	60	65
11.00	46	50.6	64	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	104	112	117	127
16.00	97.3	107	136	147	153	165
18.00	123	135	172	186	194	209
19.00	137	151	191	207	216	233
20.00	152	167	212	229	239	258
22.00	184	202	257	277	289	312
24.00	219	241	305	330	344	372
26.00	257	283	358	387	404	436
28.00	298	328	416	449	469	506
32.00	389	428	543	586	612	661

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL



Note :

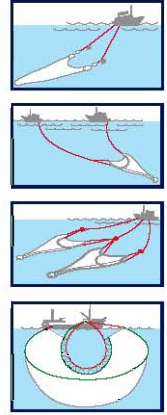
- Ropes of different constructions and specifications can be installed based on individual customer requirement and past experience
- Usha Martin can supply higher than usual galvanization requirements as per specific customers' requirements



6X24 & 6X24S

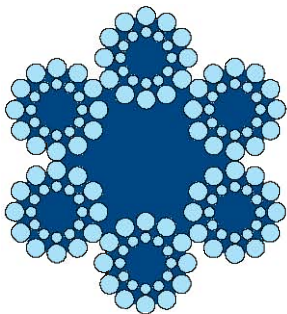
usha martin

FISHING ROPES

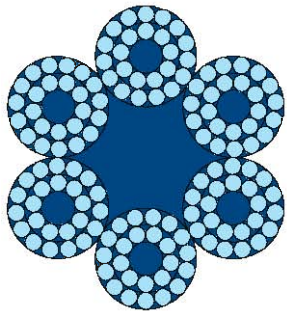


- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original Usha Martin product
- Customised coloured strand in case of customer requirements
- Polypropylene core for flexibility wherever required
- 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

**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**



6 x 24 (15/9-FC)

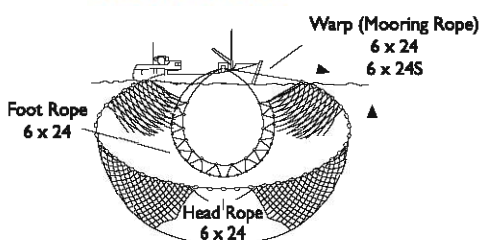


6 x 24S (12-12-FC)

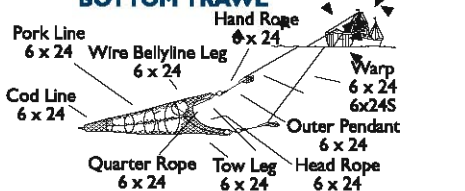
Diameter mm	Approx. Mass	Minimum Breaking Load (kN)		
	Kg/100 Mtr.	1420 N/mm ² Tensile	1570 N/mm ² Tensile	1770 N/mm ² Tensile
1	2	3	4	5
8.00	19.7	25.4	28.1	31.7
9.00	24.9	32.2	35.6	40.1
10.00	30.8	39.8	44	49.6
11.00	37.3	48.1	53.2	60
12.00	44.4	57.3	63.3	71.4
13.00	52.1	67.2	74.3	83.8
14.00	60.4	77.9	86.2	97.1
16.00	78.8	102	113	126.9
18.00	99.8	129	142	160.6
19.00	111	144	159	178.9
20.00	123	159	176	198.2
22.00	149	192	213	239.9
24.00	177	229	253	285.5
26.00	208	269	297	335
28.00	241	312	345	388.6
32.00	315	407	450	507.5

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL



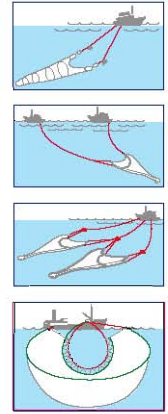
Note :

- 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

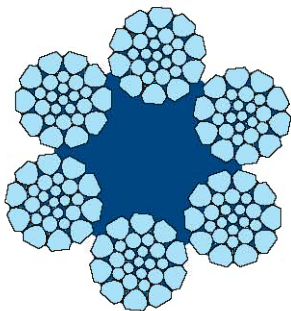


6X26WS

COMPACTED



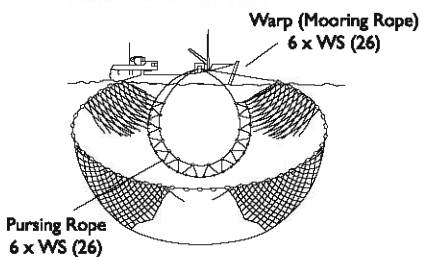
- Specifically produced for ultimate wear resistance
- Superior quality galvanization for extra life
- Petroleum based lubricant for superior corrosion resistance
- Unique Identification Tag symbolises usage of original Usha Martin product
- Customised coloured strand in case of customer requirements
- 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



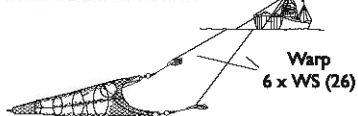
6 x 26 WS

TYPICAL APPLICATIONS :

SURFACE TRAWL



BOTTOM TRAWL



CONSTRUCTION : 6 x 26WS (10-5+5-5-1) Drawn Galvanized, Right Hand or Left Hand Ordinary Lay

Diameter mm	Approx. Mass		Minimum Breaking Force			
	Poly Core Kg/Mtr.	CWR Kg/Mtr.	Poly Core		CWR (Steel Core)	
			1570/2160 N/mm ²		1570/2160 N/mm ²	
			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



Note :

- 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





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.

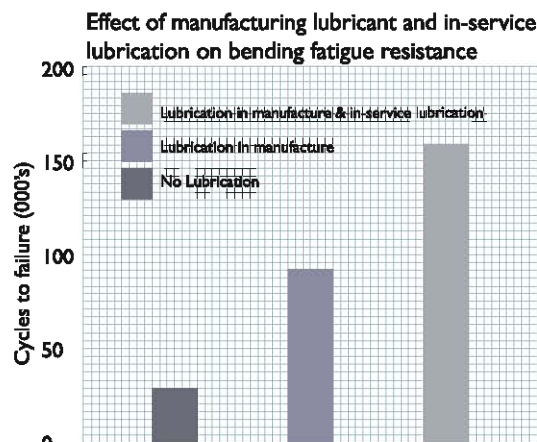
LIABILITY

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.

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.



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



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.

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