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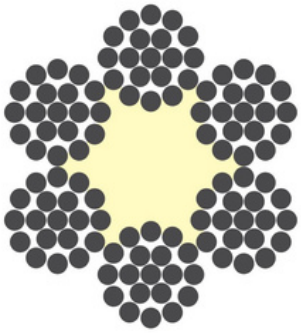
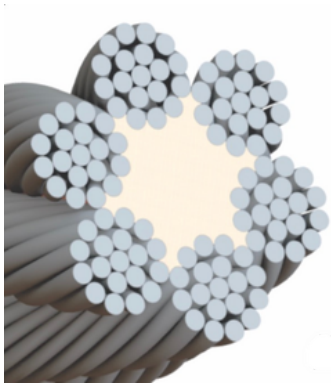
6x19M(12/6-1) - FC/IWRC

Applications

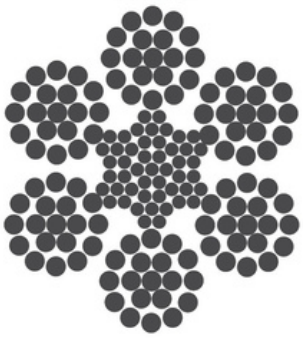
- General
- Fishing
- Slings

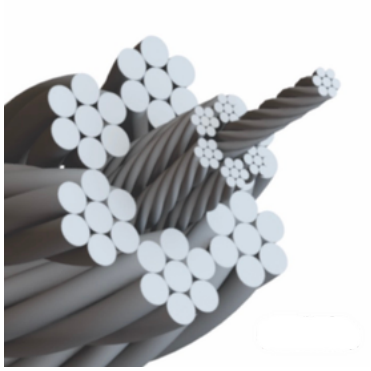
FC





IWRC





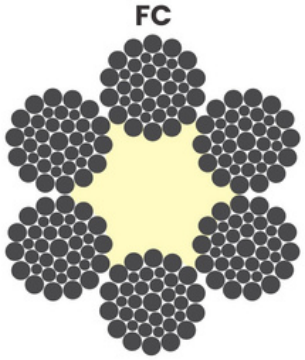
6X19M+FC		MBL(kN)	
Dia (mm)	Kg/100m	1770	1960
6	12.3	19.6	21.7
8	22.8	34.8	38.5
10	35.7	54.3	60.2
12	50.1	78.2	86.6
14	68.6	107	118
16	88.2	139	154
18	112	176	195
19	126	196	217
20	139	217	241
22	168	263	291
24	205	313	347
25	219	340	376
26	236	367	407
28	274	426	472
30	321	489	542
32	358	556	616
34	404	628	696
36	454	704	780
38	506	785	869
40	561	869	963

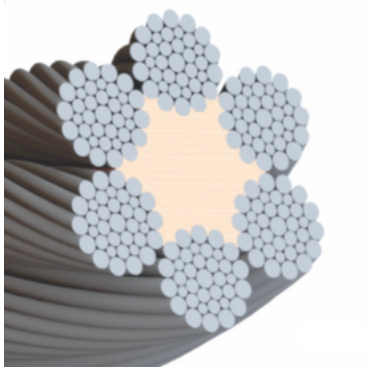
6X19M+IWRC		MBL(kN)	
Dia (mm)	Kg/100m	1770	1960
6	14.4	21	23
8	25.6	38	42
10	41.6	59	65
12	56.3	85	94
14	76.7	115	128
16	98.8	150	167
18	125	190	211
19	141	212	235
20	155	235	260
22	188	284	315
24	229	338	375
25	245	367	407
26	272	397	440
28	306	461	510
30	351	529	585
32	410	602	666
34	451	679	752
36	506	761	843
38	564	848	939
40	627	940	1041

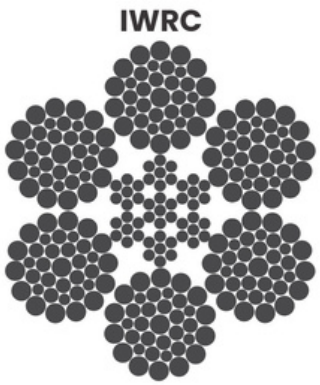
6x36WS(14-7+7-7-1) + FC/IWRC

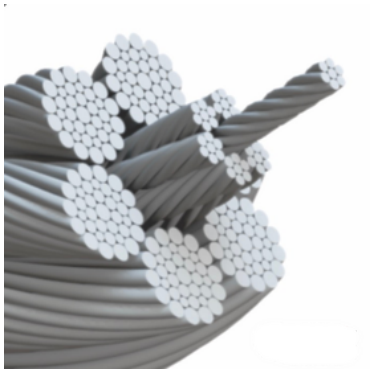
Applications

- General
- Crane
- Mining









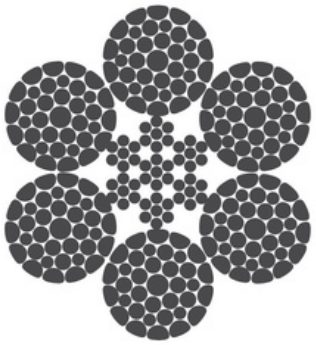
6x36WS+FC		MBL(kN)		
Dia	Kg/100m	1770	1960	2160
8	23.7	37	41	45
9	30.5	47	52	57
10	37.1	58	65	72
11	45.2	71	78	86
12	53.2	84	93	102
13	62.7	99	109	120
14	72.5	114	127	140
16	95.2	149	166	183
18	123	189	209	230
19	135	211	233	257
20	146	234	259	285
22	182	283	313	345
24	216	336	372	410
26	253	395	437	482
28	297	458	507	559
30	338	525	582	641
32	383	598	662	730
34	433	675	747	823
36	484	757	838	924
38	540	843	934	1029
40	603	934	1035	1141
44	728	1130	1252	1380
46	802	1235	1368	1508
48	868	1345	1490	1642
52	1017	1579	1748	1926
56	1181	1831	2028	2235
60	1357	2102	2328	2566

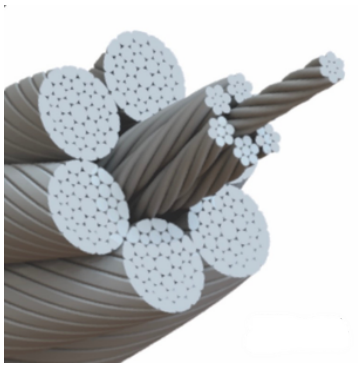
6x36WS+IWRC		MBL(kN)		
Dia (mm)	Kg/100m	1770	1960	2160
8	26.4	40	45	49
9	33.9	51	57	62
10	41.3	63	70	77
11	50.3	76	84	93
12	59.3	91	100	111
13	69.8	106	118	130
14	81	124	137	151
16	106	161	179	197
18	136	204	226	249
19	150	227	252	278
20	163	252	279	308
22	202	305	338	372
24	240	363	402	443
26	280	426	472	520
28	328	494	547	603
30	375	567	628	692
32	425	645	715	787
34	480	728	807	889
36	536	817	904	997
38	598	910	1008	1110
40	666	1008	1116	1230
44	807	1220	1351	1489
46	889	1333	1476	1627
48	962	1452	1608	1772
52	1127	1704	1887	2079
56	1308	1976	2188	2411
60	1496	2268	2512	2768
64	1701	2438	2700	2975
68	1922	2753	3048	3359
70	2026	2917	3230	3559
72	2141	3086	3417	3766
76	2403	3439	3807	4196

6x36WS(14-7+7-7-1) - K+IWRC

Applications

- Crane



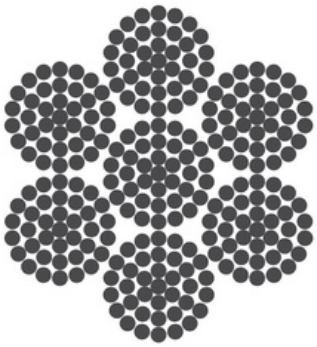


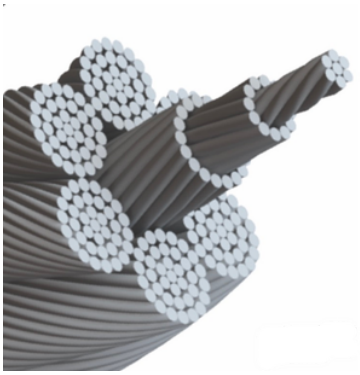
6x36WS+IWRC-Compacted		MBL(kN)	
Dia (mm)	Kg/100m	1770	1960
10	45	70	78
11	55	87	96
13	76	117	130
14	88	137	152
16	115	179	198
18	145	228	252
19	162	253	280
20	183	286	317
22	218	339	375
24	258	398	441
25.4	292	453	502
28	356	550	608
30	406	632	700
32	462	722	800
34	519	808	895
36	583	906	1003
38	651	1011	1120
40	719	1130	1250
42	791	1237	1370
46	949	1490	1650
48	1036	1625	1800
50	1118	1761	1930
52	1201	1877	2080

7x37(18/12/6-1) + WSC

Applications

- General
- Slings



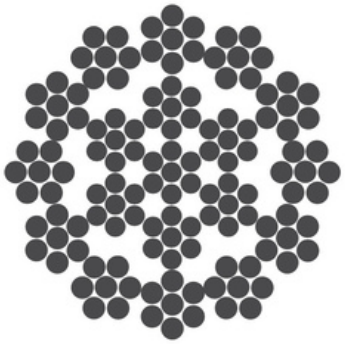


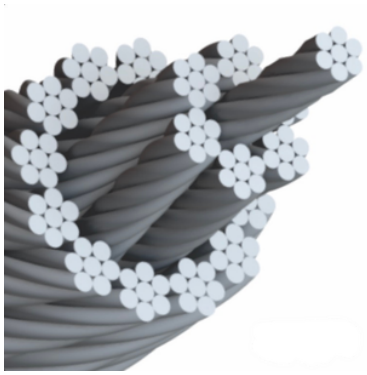
7X37M-WSC		MBL(kN)	
Dia	Kg/100m	1770	1960
6	14	22	24.4
7	19	30	33.2
8	24	39.2	43.4
9	31	49.6	54.9
10	38	61.2	67.8
11	46	74.1	82.1
12	55	88.2	97.7

18x7(6-1) + WSC

Applications

- Crane



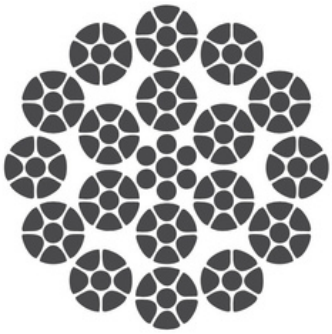


18X7+WSC		MBL(kN)		
Dia	Kg/100m	1770	1960	2160
8	27	37.2	41.1	45
9	34	47	52.1	57
10	42	58.1	64.3	71
11	50	70.2	77.8	86
12	59	83.6	92.6	102
13	70	98.1	109	120
14	81	114	126	139
16	107	149	165	182
18	134	188	208	229
19	151	210	232	256
20	165	232	257	283
22	201	281	311	343
24	239	334	370	408
26	281	392	435	479
28	325	455	504	555
32	429	594	658	725
36	541	752	833	918
38	604	838	928	1023
40	670	929	1029	1134

K-19x7(6-1) + WSC

Applications

- Crane



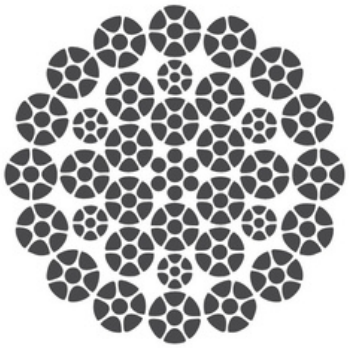


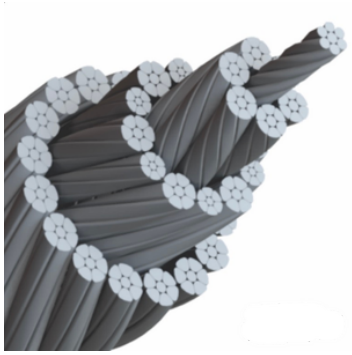
19x7(6-1)-K-WSC		MBL(kN)		
Dia (mm)	Kg/100m	1770	1960	2160
13	85	123	136	150
14	98	142	157	173
15	113	163	181	199
16	128	186	206	227
17	145	210	232	256
18	162	235	260	287
20	201	290	321	354
22	243	351	388	428
24	289	418	463	510
25	313	453	502	553
26	339	490	543	598
28	393	569	630	694
30	451	652	722	796
32	513	742	822	906

K - 35x7(6-1) + WSC

Applications

- Crane



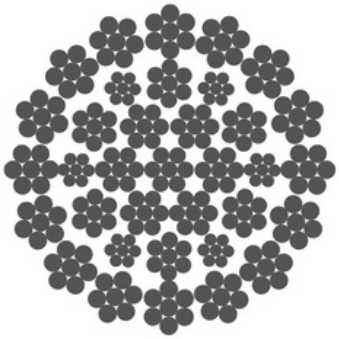


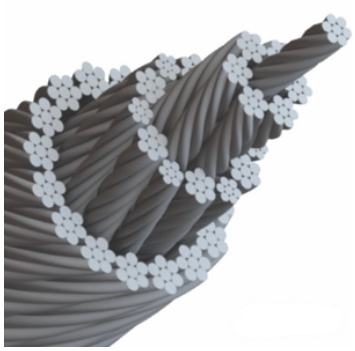
35x7-K+WSC Compacted		MBL(kN)		
Dia (mm)	Kg/100m	1770	1960	2160
14	101	157	174	192
16	133	207	229	252
18	164	263	291	321
19	184	294	326	359
20	207	327	362	399
22	244	397	439	484
24	288	469	519	572
26	340	542	600	661
28	409	646	715	788
30	448	705	780	860
32	512	792	877	967
35	615	893	990	1090
38	723	1053	1166	1286
40	803	1177	1304	1437
42	886	1301	1441	1588
46	1063	1594	1765	1906
48	1158	1680	1860	2050

35x7(6-1) + WSC

Applications

- Crane
- Oil & Gas





35x7+WSC		MBL(kN)		
Dia (mm)	Kg/100m	1770	1960	2160
10	43	63	70.6	76
12	62	90.7	102	109
13	73	106	119	128
14	84	124	138	148
16	110	161	181	194
18	140	204	229	245
19	155	227	255	273
20	174	252	282	302
22	208	305	342	366
24	248	363	406	435
26	292	426	477	511
28	339	494	553	593
30	387	567	635	680
32	441	645	723	774
35	531	772	864	926
36	561	817	914	980
38	625	910	1020	1092
40	693	1008	1130	1210
42	764	1112	1245	1334
44	838	1220	1366	1464
48	997	1452	1626	1742

STORAGE & PRE-INSTALLATION PROCEDURE

Crane ropes, like any machine or spares, deteriorate during storage as well as in service. Therefore, the assurance of safety and economy in use of the equipment, dictates the requirement for a procedure of proper storage, handling and installation of crane ropes.

STORAGE

- Store rope in a clean, dry, well ventilated, dust free undercover location.
- Cover the rope with water proof material and/or canopy, if not stored inside.
- Storage should be free from steam, chemical fumes or any other corrosive agent.
- Avoid direct contact of rope with floor.
- Place reels, preferably over a frame or cradle and allow flow of air under the reel.
- Avoid rope exposure to elevated temperatures.
- Avoid handling damages to wire ropes.
- Ensure that tag/marking is intact and follow 'first in, first out' principle.
- Inspect rope periodically and apply suitable rope dressing compatible with manufactured lubricant, whenever necessary.
- Rotate reel periodically, say after every 3 months, particularly in warm environment.

BEFORE INSTALLATION

- Before re-equipping the appliance, all grooves in drums and pulleys should be checked to ensure that they will correctly accept the replacement rope.
- Sheave groove diameter should be larger than the nominal rope diameter by about 5% to 10% and ideally at least 2.5% greater than the actual diameter of the new rope.
- The diameter of the new rope shall be measured with the rope under no tension and the value recorded. Maintain fleet angle at minimum during installation
- Prior to rope cutting, always follow proper procedure of rope seizing.
- Never pull the rope from stationery coil or reel
- Avoid contact with ground while unwinding the rope
- Keep the reel on a suitable stand with braking arrangement
- Avoid formation of kink/ bends in the rope during handling
- Follow 'top to top' or 'bottom to bottom' practice for rope transfer from reel to drum / winch.

RUNNING IN PROCEDURE

- Run the newly installed wire rope in and out six times over its maximum working length with a load approx. 25% of safe working load at reduce speed.
- Repeat this procedure with load at 50% of safe working load.
- Continue the same procedure with load at 100% of safe working load.

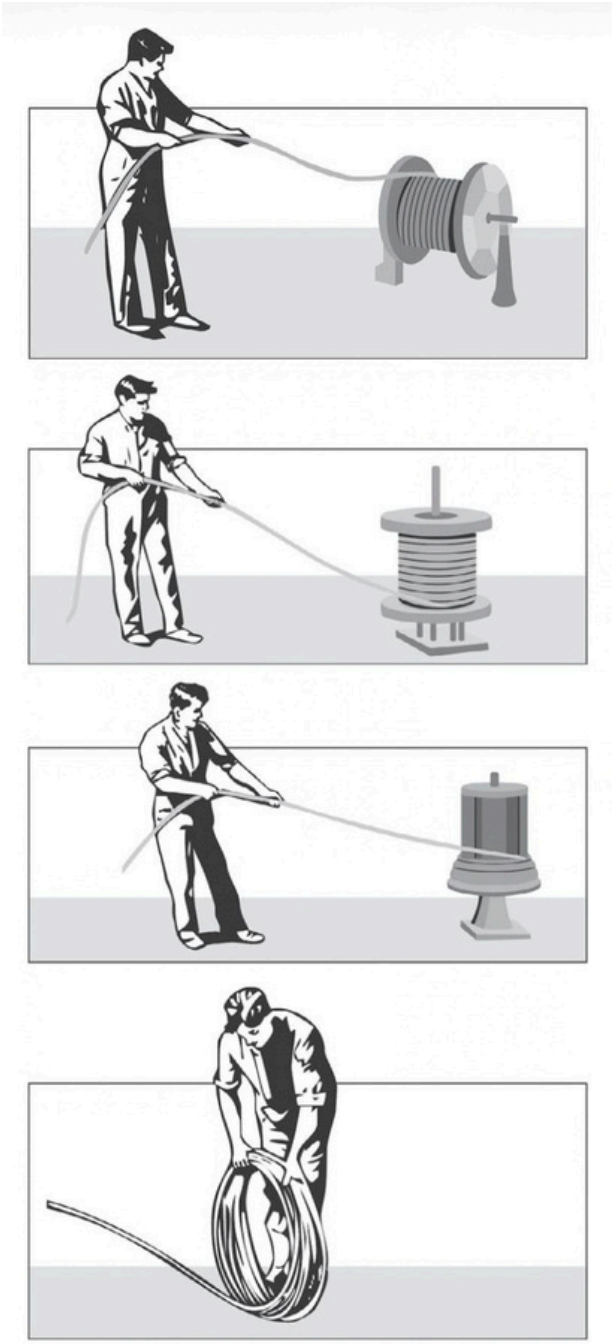
SEIZING PROCEDURE

The purpose of seizing a rotation resistant wire rope is to prevent relative movement of individual strands of inner core as well as outer layer and thereby preserving its designed integrity and rotational balance. Therefore, before cutting any rotation resistant wire rope, tightly double seize with soft steel wire of suitable size, on either side of the intended cut. The length of each seizing should be at least equal to 2 x d(rope dia) and each of the seizing should be spaced approximately 6 x d.

- Use of adhesive tape in lieu of seizing is strictly discouraged.
- Fusing of cut ends is strongly recommended.

HANDLING & INSTALLATION

6/8 STRANDED ROPE



- Never pull out rope from stationary coil.
- Place rope reel on ground and roll out straight.
- If heavy, place coil on turntable and pull the end away from coil.
- Prevent contamination with dust, grit, moisture, chemicals and other harmful material.
- Put a shaft of adequate strength through reel bore and place in a suitable stand.
- Allow reel to rotate freely and be braked to avoid overrun.
- Provide back tension for multilayer spooling and ensure to wind tightly, particularly the bottom layer.
- Maintain constant tension while reeving and avoid layer cross-over.
- Avoid formation of loops or kinks.
- Avoid reverse bending during reeving. Wind/Unwind ‘top to top’ or ‘bottom to bottom’.
- Take special care while releasing the outboard end of rope from supplied reel or coil.
- Maintain fleet angle at minimum during installation.
- Check that the grooves of all sheaves are as recommended and sheaves are free to rotate.
- Check the diameter and pitch of drum grooves, and ensure that these are as recommended.
- ‘Run’ the new rope by running the equipment slowly, with a low load for a number of cycles.
- Inspect that the rope spools correctly on the drum and no slackness or cross-over occurs.

Note:

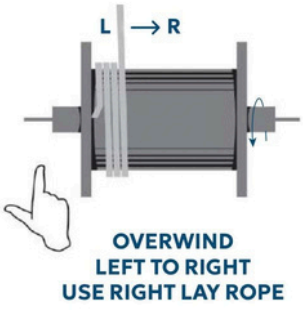
The user should always refer relevant standard/regulations like EN-12385, ISO 4309 for wire rope care, maintenance & installation.

HANDLING & INSTALLATION

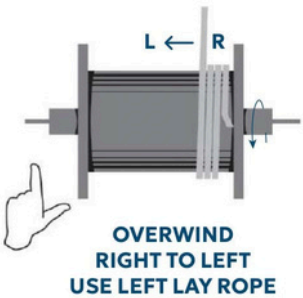
HANDLING OF MULTI-STRAND ROTATION RESISTANT ROPES:

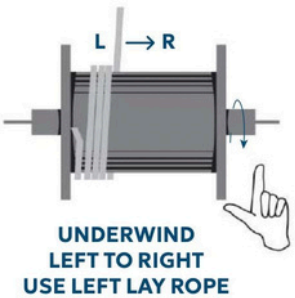
Since rotation resistance wire ropes have special layering and arrangements of strands that are very sensitive, therefore they require careful handling and installation in order to avoid deterioration, hoisting problems and premature removal of wire ropes. The recommendations are given below to be followed in addition to the general mentioned method.

- The rope should be paid off in the correct manner to ensure that the turn is neither put in nor taken out.
- A small rope of short length, say up to 100 mtr, may be unrolled along the ground but should always be kept under control. Never pull a rope from a stationary coil.
- Ropes in larger sizes or longer lengths should always be procured on reels, and transferring these to coils should be avoided.
- A long length of rope on a reel has a high moment of inertia. Proper braking arrangements must be made to prevent overrun, which may lead to loop formation. A simple braking mechanism consists of a wooden plank acting against the reel flange.
- If, for any reason a loop does form, ensure that this does not tighten to cause a kink, which may lead to distortion of the rope, requiring its immediate discard.
- The rope should be smoothly paid out in a straight line from the reel, mounted on a stand and supported by a shaft. If the space available does not permit the same, the reel and stand must be placed to limit the fleet angle of installation to 1° 30, i.e., for 1 mtr width between flanges to 40 mtr of horizontal distance. If space allows for a longer run, then it can be used with advantage.
- Care should be taken to avoid the reel being placed in such a position that will set up a reverse bend during reeving, i.e., for an under-winding drum, the rope should be taken off the bottom of the reel.
- Multi-strand ropes are generally supplied with fixed ends, unless otherwise specified. If, for any reason, it is necessary to cut a rope at the site, at least three tight servings of soft seizing wire should be applied on either side before cutting.









DISCARD CRITERIA

Crane ropes must be removed from service if the examination reveals that the rope deterioration has exceeded limits of certain criteria. A general retirement plan states that one of the factors listed below, severe enough, can cause rope discard. However, rope deterioration and decision to discard, almost always, is the result of cumulative effect of combination of these factors.

Broken Wires | Diameter Reduction | Corrosion | Deformation

NUMBER & CHARACTERISTICS OF BROKEN WIRES

Crane rope must be considered for discard if number of visible broken wires equals or exceeds the allowable limit. For 6 and 8 strand wire ropes, occurrence of wire breakages, to a large extent is on the outer surface, whereas for rotation-resistant wire ropes, majority of wire breakages are expected to occur internally and require specialized examination techniques to reveal.



VALLEY WIRE BREAKAGE



CROWN WIRE BREAKAGE

- Wire breaks in the strand valley, generally, indicate internal rope deterioration and require closer inspection of the rope equal to 6 x d.
- Broken wires at, or adjacent to the termination, require the termination to be remade by shortening the rope, otherwise the rope should be discarded.
- Concentrated close group of broken wires in a rope length of 6 x d or in any one strand, requires discard of the rope even if the number given above are not reached.
- Complete fracture of one strand or collapse of core requires immediate discard of the wire rope.

RECOMMENDED DO'S & DON'TS

DO'S

- Lubricate ropes with good quality acid free and moisture free lubricant
- Regularly inspect the sheaves, rollers or pulleys - the life of a rope largely depends on their conditions
- Inspect ropes and fittings/terminations periodically

DON'TS

- Do not allow ropes in store to deteriorate
- Do not mishandle ropes when uncoiling or unreeling & allow kinks to form
- Do not use langs lay with swivel for 6/8 standard rope
- Do not use a rope with too large groove diameter on drums and pulleys
- Do not cut a rope without seizing
- Do not load the rope beyond its safe working load. Reduction of safety factor may jeopardise not only rope, but also equipment, job and men