WIRE ROPE MANAGEMENT

INTEGRITY. QUALITY. RELIABILITY.

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Wire Rope Management

The Mordec Wire Rope Management (WRM) Program provides the Management Support to Ship Owners on the Wire Rope Integrity Management of their vessels. The program assist Ship Owners to supervise the maintenance and safety management of their wire ropes:

SAFETY COMPLIANCE MANAGEMENT

- Maintaining the service records and documentation of the Inspections and Assessments conducted on the wire ropes for the safe and effective operation
- Prepares reports for port terminal purposes and provides recommendations with our WRM-MPR reports vital to make a decision on whether the rope is fit for continued use or should be discarded for safety reasons

TECHNICAL OPERATIONS

MORDEC

INTRODUCTION

- Ascertaining the integrity of the wire rope taking into account the discard criteria in accordance to ISO 4309:2010 standards
- Providing maintenance packages including the wire rope lubricating system to keep the wire rope in its peak condition

STORAGE & SUPPLY

- Manages the Storage and Supply of the wires ropes for the fleet of vessels
- Established Mordec One Belt One Road (OBOR) members for the delivery of the wire ropes to major ports



MORDEC Safety Compliance Management

HEALTH, SAFETY & ENVIRONMENT

The main aim of **Safety Compliance Management** is to reduce a company's risk of litigation. This is achieved by making sure the company complies with relevant regulations and **by helping reduce the number of accidents occurring in the workplace.**

The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and The Provision and Use of Work Equipment Regulations 1998 (PUWER) has set out a number of requirements for vessel operators to ensure they are adequately managing health and safety.

The loading and unloading of cargoes involves the use of a wide range of lifting equipment and accessories. Accidents have occurred due to failure of lifting equipment, falling loads and workers being crushed by a moving load or lifting equipment.

In tackling the hazards and to reduce the risks from lifting equipment, vessel operators have to use suitable lifting equipment to securely lift cargo, use a competent person to plan the lift and **ensure that all lifting equipment and accessories should be properly inspected and examined.**

If a ship's lifting equipment and its accessories like wire ropes is to be used, vessel operators need to ensure that it is suitable and subject to a pre-use examination. They have to also check the ship's documentation of thorough examination. In today's vessel operations, the wire ropes are inspected and the findings manually documented by a competent crew or professional operators.

The current challenge for Safety Compliance is to manually process these findings, analyze the results against the many discard criteria and make a judgment on whether the wire ropes is fit for continued use or should be discarded for safety reasons. Upon discard, and based on the ISM requirement, the Vessel Operator will have the technical basis for the submission of the Material Procurement Requisition (MPR). The Vessel Operator will also have to go through the previous documentation to manually record the past results for submission to the port terminals. Such manual processing can be time consuming, prone to human errors and is subject to misinterpretations.



WRM - MPR

WIRE ROPE MANAGEMENT SYSTEM

MORDEC

Vessel Operators are looking for an integrated approach to these issues to keep their compliance costs low, avoid potential litigation and even to protect their corporate image.

At MEP, we understand the common challenges vessel operators face. Our Mordec WRM -MPR provides a comprehensive set of business intelligence and performance management functionality – reports, dashboards and data management. Designed and packaged to meet the unique needs of vessel operators.

This integrated software solutions enables you to streamline operations:

- Maintaining the service records and documentation of the Inspections and Assessments conducted on the wire ropes,
- Analyze and process the findings from each inspection to determine the integrity of the wire rope,
- Provide recommendations based on the discard criteria guidelines by ISO4309 and
- Prepares the reports for port terminals and MPR purposes.

Vessel Operators using **Mordec WRM-MPR** are able to identify the status of the wire ropes, establish whether it is safe for further use and plan & schedule for the replacement of the accessories.

MORDEC WIRE ROPE MANAGEMENT SYSTEM

	TECHNICAL OPERATIONS
1. 15	CRANE ROPE INSPECTION ASSESSMENT
PALES PROPERTY AND ADDRESS OF THE AD	CRANE ROPE OPERATION LOG
Pasific Pasific	CRANE ROPE MAINTENANCE LOG
Utrygenduka. Teny Terrestfulffacture VESSEL NAME :	WIRE ROPE CRITERIAS
COMPANY NAME :	
HOME PORT: JAKARTA IMO:	QHSE MANAGEMENT
VESSEL TYPE : BULK CARRIER BUILD : 2	2009 REPORTS MPR
GROSS TONAGE : 30660 SUMMER DWT : 5	54924 t
Length Overall x Breadth Extreme: 189.99m × 32.2	6m
	DUDGUAGING

WRM - MPR

WIRE ROPE MANAGEMENT SYSTEM

FUNCTIONALITY

Mordec WRM-MPR builds upon its core ERP and algorithms and introduces new functionality to solve the challenges faced by vessel operators in managing safe lifting. It enables automated processes that can replace manual data entry – saving both time and money, while increasing accuracy. This new functionality enables you to easily complete reports, analyze data and make calculated decisions.

OPERATION ACTIVITY MONITORING

Mordec WRM-MPR allows you to proactively identify, report and respond to critical situations and events. One of the most common reasons for missed discard criteria is human error whereby vessel operators may overlook the task of analyzing a discard criteria. **Mordec WRM-MPR** reduces the chance of missed discard criteria by eliminating the need for this burdensome manual processing of data—automatically taking action on analyzing all data, identifying and reporting all critical situations.

BUSINESS MANAGEMENT PROCESS

Business Process Management provides members of your organization with

- Complete visibility into critical information,
- Enabling more active and effective communication within departments.
- Provides users a web-based interface which they can use to access and share operation information from one centralized repository,
- Gives the departments the tools to manage and plan their own efforts and share their work and knowledge with others.

	CRANE WIRE ROPE INSPECTION – ASSESSMENT SUMMARY RECORD as at 17-Oct-09												
HOISTING	WIRE RO	PE											
			Opera-		SEVER	RITY RATING	OF INDIVIDUAL	MODES OF D	DETERIORATIC	N %			
Inspec-	Rope	Inspec- tion Date	tion Hours	Wire	Breaks	2. Decrea	ase in Diame- ter	3. Coi	rrosion	4. Defor Dam	mation & nages	Com- bined	
tion Entry Number	Serial Number	(YY-MM- DD)	Before Inspec- tion	Findings	Severity Rating %	Find- ings	Severity Rating %	Find- ings	Severity Rating %	Find- ings	Severity Rating %	Severity Rating %	Comment
CR1-HW- 0001	HW- 1601	YY-MM- DD	HRS	0	0	32.8	0	None	0	None	0	0	Good, Safe to Contin- ue
CR1-HW- 0003	HW- 1601	YY-MM- DD	HRS	2	50	31.0	100	Nore	0	None	0	150	Discard, To Replace
LUFFING	WIRE ROP	E					0						
			Opera-		SEVER	RITY RATING	OF IND:VIL'LAL	MILES OF D	DETERIORATIO	DN %			
Inspec-	Rope	Inspec- tion Date	tion Hours	1. Wire	e Breaks	2. Decrea	asc in Diam ter	3. Co	rrosion	4. Defor Dan	mation & nages	Com- bined	
tion Entry Number	Serial Number	(YY-MM- DD)	Before Inspec- tion	Findings	Severity Rating %	ri .c	Severity Rating %	Find- ings	Severity Rating %	Find- ings	Severity Rating %	Severity Rating %	Comment
CR1-LW- 0001	LW- 1601	YY-MM- DD	HRS	1	17	24.0	0	None	0	None	0	17	Good, Safe to Contin- ue
CR1-LW- 0002	LW- 1601	YY-MM- DD	HRS	3	50	23.5	40	None	0	None	0	90	Very High, Inspect Frequently
CR1-LW- 0003	LW- 1601	YY-MM- DD	HRS	6	100	23.0	80	None	0	None	0	180	Discard, To Replace

WIRE ROPE INSPECTION AND MAINTENANCE REPORT

Wire Rope Inspection

INTEGRITY OF WIRE ROPE

MORDEC



Wire ropes are expendable components with limited life, requiring replacement when the results of inspection indicate that its condition has diminished to the point where further use would become a hazard to safety.

The life expectancy of a wire rope might be based on the number of cycles that it performs, or a period of time, or because of some particular tangible factor. During its operational service, regardless of the construction, ropes deteriorate due to reasons, e.g. fatigue, corrosion, abrasion, mechanical damage, and overheating.

Periodic inspections of wire rope conducted by the trained crew or professional operators, are necessary. The purpose of an inspection is to determine whether a wire rope retains sufficient capability to perform the work to be done before the next scheduled inspection.

The following policies can be considered for discarding wire ropes.

- **Discard on timely basis** (automatic discard), i.e. after a set period, e.g. 12 months, 700 operating hours. By using the "automatic discard" policy, one may be in risk to continue operating the rope, which is much deteriorated, and is dangerous. On the other hand a discarded rope may still be in good condition and could be extended in operation. Premature replacement makes unreasonable costs.
- Discard for reason, i.e. when technical condition of rope is bad, and continuing its operation is dangerous. Discard for reason means that the rope may be in service until discard criteria not reached. Discard criteria are referred in relevant standards and norms

Mode of Deterioration	Assessment Method
Number of Visible Broken Wires	By Counting
Decrease in Rope Diameter	By Measurement
Fracture of Strand	Visual
Corrosion	Visual
Deformation	Visual
Mechanical Damage	Visual
Heat Damage	Visual

Discard Criteria according to ISO4309



Guideline to Discard Criteria

INTEGRITY OF WIRE ROPE

By following well-established principles, such as those detailed in the International ISO 4309:2010 Standard, along with any additional specific instructions provided by the manufacturer of the crane or hoist and/or by the manufacturer of the rope, this point should never be exceeded.

BROKEN WIRE

Assessment Method: By Counting

Broken wires or fractures may occur when the rope is not suitable for application, reverse bends, sheaves & drums being too small, overload & shock loads and excessive rope vibration

The number of visible broken wires on the outside of a wire rope are an index of its general condition, and whether or not it must be considered for replacement. Frequent Inspection will help determine the elapsed time between breaks. A rope must be discarded if the permissible number of wire breaks is reached or exceeded.



Broken Wires

Non Rotation Resistant Ropes		Number of Visible Broken Wires acc. ISO4309					
	Number of	Sa	fety factor 3.15	5 ~ 4.0 (Sheav	e crane)	All Classes	
Load bearing		Ordinary Lay Lang Lay			g Lay	Ordinary Lay & Lang Lay	
	wires in the outer strands		over a	over a length of			
Construction		6 x d	30 x d	6 x d	30 x d	6 x d	30 x d
6x24, 8xFi(25)	141-160	6	13	3	6	12	26
6xWS(36), 8xWS(26)	201-220	9	18	4	9	18	36
6xWS(41)	241-260	10	21	5	10	20	42

Rotation Resistant Ropes		Number of Visible Broken Wires acc. ISO4309				
	Number of Load bearing wires in the outer	Sections of rope sheaves and/or sp layer o (wire breaks rando	working in steel ooling on a single drum omly distributed)	Sections of rope spooling on a multilayer drum		
Construction	strands	6 x d	30 x d	6 x d	30 x d	
4x39, 4x48	3 or 4 strands ≥ 100	2	4	4	8	
17x7, 18x7, 19x7	71-100	2	4	4	8	
34x7, 35x7	101-200	3	5	5	8	

Guideline to Discard Criteria

INTEGRITY OF WIRE ROPE

MORDEC[™]

REDUCTION IN DIAMETER

Assessment Method: By Measurement

Reduction in diameter can be caused by excessive abrasion of the outside wires, loss of core support, internal or external corrosion, inner wire failures, and/or inner wire abrasion.

According to ISO4309, wire rope diameter reduction resulting from deterioration of 5% of nominal diameter for Rotation-Resistant wire ropes, or by 10% for Fiber Core wire ropes and reduction of 7.5% or more for IWRC ropes, should be discarded.



Wear, Abrasion and Peening

	Uniform Decrease in Diameter	Severity	Rating	
Rope Size	(% of Nominal Diameter)	Description	%	
	Less than 6%		0	
	6% and over but less than 7%	Slight	20	
	7% and over but less than 8%	Medium	40	
Single Layer Rope	8% and over but less than 9%	High	60	
with the core	9% and over but less than 10%	Very High	80	
	10% and over	Discard	100	
	Less than 3.5%		0	
	3.5% and over but less than 4.5%	Slight	20	
Single Layer Rope	4.5% and over but less than 5.5%	Medium	40	
with Steel Core or Parallel Closed	5.5% and over but less than 6.5%	High	60	
Rope	6.5% and over but less than 7.5%	Very High	80	
	7.5% and over	Discard	100	
	Less than 1%		0	
	1% and over but less than 2%	Slight	20	
	2% and over but less than 3%	Medium	40	
Rotation Resistant	3% and over but less than 4%	High	60	
Nope	4% and over but less than 5%	Very High	80	
	5% and over	Discard	100	





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Guideline to Discard Criteria

INTEGRITY OF WIRE ROPE

CORROSION

Assessment Method: Visual

Corrosion will often occur internally before there is any visible external evidence on the rope surface. And it may occur even in very dry environment, especially on unprotected, non-galvanized wires. Usually, it signifies a lack of lubrication, improper storage or exposure to acids or alkalis.

According to ISO4309, the wire rope should be discarded when the surface of the wire is completely roughened or pitted, or if the wires are slack within the strands due to wastage

Type of Corrosion	Condition	Severity Rating
	Signs of surface Oxidation but can be wiped clean	Superficial – 0%
External Corrosion	Wire Surface rough to touch	High – 60%
	Wire Surface Heavily Pitted and slack wires	Discard – 100%
Internal Corrosion	Obvious Visible Signs of Internal Corrosion i.e. Corrosion Debris exuding from the valleys between the outer strands	Discard – 100%
Fretting Corrosion	Involves the removal of fine particles of steel from the wires due to dry wires and strands constantly rubbing together and then oxidizing and creating internal cor- rosion debris which manifests itself as a dry powder, similar to a red rouge and creating internal corrosion debris which manifests itself as a dry powder, similar to a red rouge	Evidence of such characteristics should be further investigated and if there is any doubt about its severity, the rope should be discarded (100%)





Guideline to Discard Criteria

INTEGRITY OF WIRE ROPE

DAMAGES / DEFORMATION

Assessment Method: Visual

There are many variations that causes Rope Deformation. The mechanical damage that a rope may be subject to may be caused by shock loading, worn sheave grooves, tight sheave or improper installation procedure.

None of these damages are repairable. However, the magnitude of the damages may vary from a slight cosmetic damage to total destruction of the wire rope. The following lists some of the common rope deformation.









PREVENTIVE MAINTENANCE

PROVIDES FAST AND EFFECTIVE CLEANING AND LUBRICATION OF WIRE ROPES BY FORCING QUALITY LUBRICANT UNDER HIGH PRESSURE TO THE CORE OF THE WIRE ROPE



WIRE ROPE LUBRICATING SYSTEM



PREVENTIVE MAINTENANCE

BENEFITS:

- Lightweight, allows one-man operation
- Non-messy operation and reduce lubricant wastage
- Effective ridding of existing rust, grits and sea water accumulated during voyage and operation
- Uniformed lubricating process and penetration of the lubrication to the core of the wire rope
- Proper lubrication ensure prolonging of wire rope operating life span
- Reduce friction on equipment thereby reducing wear and tear
- Provides a detailed "Pre-Lubrication Checklist" on your wire rope and sheaves condition in accordance with ISO 4309:2004 prior to actual lubrication.



PREVENTI VE MAINTENANCE

Velocity VLS-48 Wire Rope Lubricating System



Velocity VLS-48 Lubricating Collar

Lubricating Collar

With robust and rugged construction and corrosion protection coating, the lubricating collars are extremely strong, casted from aluminum alloy. The large inlet chamber allows the grease to penetrate into the wire rope at higher speeds

It has three anchor holes to enable it to secure and easy to use locking toggles to lock the two halves of the collar in place. The Collar allows lubrication of wire ropes from 8mm to 48mm.



* Visuals in this catalogue are for reference only. Actual outlook of product may differ.

PREVENTI VE MAINTENANCE

Velocity GC Wire Rope Groove Cleaner

In one application, the wire rope can have its surface and grooved pattern scraped clean of product build-up and grit. Custom made to fit into Wire Rope diameters from 08mm to 48mm and the contours of the rope, Right Hand or Left Hand Lay



Velocity Seals



The Seals are made from a polyurethane material with multiple grooves that allow lubricant to penetrate to the wire core. It is durable and wear resistant, while at the same time being flexible to achieve excellent sealing under pressure.

PREVENTIVE MAINTENANCE

Velocity LB-1.5 Wire Rope Lubricant

Velocity LB-1.5 is soap thickened wire rope lubricant containing extreme pressure and anti-wear additives. This is formulated in highly refined high viscosity base oil making it suitable for wire ropes. This lubricant provides extended long service life in heavy-duty operations.

Key Features

- Highly tacky and adhesive
- Contains high base oil viscosity
- Contains extreme pressure and anti-wear additives
- Water Resistant

No.	Specification	Velocity LB-1.5
1.	Stock Code	VLS-LB-1.5-1027
2.	Viscosity	NLGI Grade 1.5
3.	Color	Blue
4.	Texture	Smooth / Adhesive
5.	Water Content	Nil
6.	Pack Size	16kg



Velocity PP-500 Pneumatic Pump



Velocity PP-500 Pneumatic Pump is designed for unmatched performance in demanding condition. Pump dispenses grease at 50 times the air pressure inlet. All metal construction, fully CNC machined with hardened wear resistant moving parts. Supplied complete with drum cover, rubber line follower plate, High Pressure grease hose & professional grease control valve.

No.	Specification	Velocity PP-500
1.	Stock Code	VLS-PP500-032
2.	Working Pressure	2-10 BAR (30-150PSI)
3.	Max. Outlet Pressure	500 BAR (7500PSI)
4.	Air Inlet Connection	1/4" NPT
5.	Pump Outlet Connection	3/8″
6.	Air Consumption	13 CFM
7.	Grease Output	3.2 Kg per min in free flow
8.	Noise Level (DB)	85-90 dB

PREVENTIVE MAINTENANCE

THE IMPORTANCE OF LUBRICATION IN WIRE ROPES





All wire ropes require consistent maintenance and proper care in order to remain in good condition and functionally efficient.

- During operation the strands that make up a wire rope are under constant stress and strain
- The strands constantly rub against each other causing friction
- The friction cause the strands to wear
- The friction heat causes oxidation resulting in high internal core temperatures which in turn accelerates rusting and causes premature rope failure

Proper lubrication reduces the friction, thus resulting in the full and functional lifespan of the rope. Besides, the lubricant also provides total protection against corrosion.

PROBLEM WITH MANUAL LUBRICATION



Operationally Inefficient

The wire rope lubricating operations heavily rely on manual work which uses rags, brushes and gloves to spread the lubricant onto the wire rope.

This method is time consuming, costly and inefficient.

Insufficient penetration to prevent friction

With the manual lubrication method, the lubricant cannot penetrate through a compact wire rope and will allow friction to take place upon the use of the wire ropes. The abrasion will destroy the wire rope from the inside and will cause the rope to be potentially dangerous.

Ineffective to prevent rust

With the manual lubrication method, the lubricant forms a film on the surface whereby water vapor can penetrate, thus becoming trapped. Any temperature changes will cause condensation and rust begins to form.

This will shorten the life span of the wire rope.

Managing Storage & Supply

STORAGE & SUPPLY

As each vessel becomes a **Mordec WRM Member Vessel**, we are able to consolidate the wire rope specifications and requirements of the fleet of vessels.

With our Mordec WRM Program, the supply chain planning process will be streamlined and managed to:

Increased Efficiency

With the specifications of the wire ropes utilized by each of your vessels, the program will ensure the **product and delivery accuracy** and improve on the efficiency in the supply. Less resources will be wasted to investigate, trace and rectify such inaccuracies.

Minimized Delays

With the records of the specifications and requirements of the wire rope for your fleet of vessels, we are able to prepare in advance the shipments from manufacturers and store at the designated warehouse to **ensure availability** and **timely fulfillment of orders**.

Enhanced Collaboration

With the real-time information on the condition of the wire rope, the records of the inspections and assessments, the documented requisition and the inventory position, vessel operators are able to **make informed decisions** to manage your wire ropes on your vessels. Such **inter department interaction** becomes a necessity for the achievement of efficient solutions and effective coordination.

Reduced Costs

With the consolidation of the requirement for your fleet of vessels, there will be the economies of scale to improve negotiations to leverage volume or bulk discounts and other cost-cutting measures with the manufacturer. The **savings** of which **will be passed on to the vessel**.



STEEL WIRE ROPE

STORAGE & SUPPLY

MORDEC POWERACT 4

Construction:

4x36 + FC Preformed, Compacted

Properties:

- Extremely high breaking load
- Very strong rotation resistance
- High structural stability
- Excellent life time
- Strong against abrasion
- Very high breaking load
- Excellent resistance to deformation
- Extended life of which drum and sheave
- Suitable rope for Crane/Hoist/Deck

Technical Data:

Core: Fiber Core Finish: Drawn Galvanized Grade: 1960N/mm2, API 9A c/w NK cert

Nominal Dia.	Minimum Br (Metri	eaking Load	Approx. Weight
mm	1770 N/mm ²	1960 N/mm ²	Kg/m
16	20.6	22.5	1.20
18	26.1	28.5	1.52
19	29.1	31.7	1.69
20	32.2	35.2	1.88
22	39.0	42.5	2.27
24	46.4	50.6	2.70
26	54.5	59.4	3.17
28	63.2	68.9	3.68
30	72.5	79.1	4.22
32	82.5	90.0	4.81
34	93.1	101.6	5.43





STEEL WIRE ROPE

STORAGE & SUPPLY

MORDEC POWERFLEX 35

Construction:

35x7 + WA Multi-Strand Compacted

Properties:

- Non-rotating, outer strand are flattened to enable longer life span of each wire.
- This design allows optimal balance between high tensile strength, fatigue resistance and abrasion resistance with structural stability
- Very strong rotation resistance
- High structural stability
- Very high breaking load
- Strong against abrasion
- Excellent resistance to deformation
- Extended life of winch drum and sheave
- Suitable rope for high lifting Tower crane

Technical Data:

Finish: Drawn Galvanized Grade: 2160 N/mm2, API 9A c/w ABS cert

) 3)
35x7 + WA	

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
14	18.3	19.6	1.00
16	23.9	25.6	1.31
18	30.3	32.4	1.65
20	37.3	40.0	2.04
22	45.2	48.4	2.47
24	53.8	57.6	2.94
26	63.1	67.6	3.45
28	73.2	78.4	4.00
30	84.0	90.0	4.59
32	95.6	102.4	5.22
34	107.9	115.6	5.90
36	121.0	129.6	6.61
38	134.8	144.4	7.37

MORDEC STORAGE & SUPPLY

STEEL WIRE ROPE

MORDEC MWR-439

Construction:

4xSes(39) + FC Swaged Preformed 4xSes(48) + FC Swaged Preformed

Properties:

- 4 strands with 39 or 48 wires per strand configuration
- Compact Semi-Seale construction for specific performance
- Outer strand are flattened to increase breaking strength and longer life span
- Non-rotating characteristic and resistance to deformation
- Recommended for high altitude Crane/Hoist/Deck

Technical Data:

Core: Fiber Core Finish: Drawn Galvanized Grade: 1960N/mm2 API 9A c/w NK cert

Nominal Dia	Minimum Br	Approx. Weight	
	1770 N/mm ²	Ka/m	
111111	1770 N/IIIII	1960 N/IIIII	Kg/III
08	4.1	4.6	0.26
10	6.5	7.2	0.41
12	9.3	10.3	0.59
14	12.7	14.1	0.80
16	16.6	18.4	1.05
18	21.0	23.3	1.33
20	25.9	28.7	1.64
22	32.6	36.1	2.06
24	37.4	41.4	2.36
26	43.9	48.6	2.77
28	50.9	56.4	3.21
30	58.4	64.7	3.69
31.5	62.0	68.7	3.99
32	66.5	73.6	4.20
33.5	73.0	80.8	4.52
34	75.1	83.1	4.74
35.5	78.4	87.2	5.08
36	84.2	93.2	5.31
38	93.8	103.9	5.92



MORDEC

STEEL WIRE ROPE

MORDEC POWERTEC 35

Construction:

35x7 + Multi-Strand, Compacted and Plastic Impregnated

Properties:

- 35(16 outer + 19 inner) strands with 7 wires
- Non-Rotating.
- Plastic impregnated between strands reduces abrasion and fatigue, prevent dirt and humidity at normal condition minimize corrosion and bird-caging effect with greater flexibility
- Powertec life span is double that of general type crane rope.
- Designed mainly for Tower Crane

Technical Data:

Finish: Drawn Galvanized Grade: 2160 N/mm2, API 9A c/w ABS cert

Con	

35X7 + Multi-Strand

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
14	18.6	19.9	1.02
16	24.3	26.0	1.33
18	30.7	32.9	1.68
20	37.9	40.6	2.07
22	45.9	49.1	2.51
24	54.6	58.5	2.98
26	64.1	68.6	3.50
28	74.3	79.6	4.06
30	85.3	91.4	4.66
32	97.0	103.9	5.30
34	109.6	117.3	5.99
36	122.8	131.5	6.71
38	136.8	146.6	7.48

MORDEC

STEEL WIRE ROPE

MORDEC POWERTEC 37

Construction:

37x7 + Multi-Strand, Compacted and Plastic Impregnated

Properties:

- 37(18 outer + 19 inner) strands with 7 wires
- Non-Rotating.
- Plastic impregnated between strands reduces abrasion and fatigue, prevent dirt and humidity from normal condition prevent corrosion and bird-caging effect with better flexibility
- Lifespan of Powertec is about 2 times longer than general type of crane rope.
- Designed mainly for Tower Crane

Technical Data:

Finish: Drawn Galvanized Grade: 2160 N/mm2, API 9A c/w ABS cert

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
14	18.5	19.8	1.02
16	24.2	25.9	1.33
18	30.6	32.7	1.69
20	37.8	40.4	2.08
22	45.7	48.9	2.52
24	54.4	58.2	3.00
26	63.8	68.3	3.52
28	74.0	79.2	4.08
30	84.9	90.9	4.68
32	96.7	103.4	5.33
34	109.1	116.7	6.02
36	122.3	130.9	6.74
38	136.3	145.8	7.51



MORDEC

STEEL WIRE ROPE

MORDEC POWERFLEX 8

Construction: 8xWS(26) + IWRC Compacted

Properties:

- Non-rotating, outer strand are flattened to enable longer life span of each wire.
- This design allows optimal balance between high tensile strength, fatigue resistance and abrasion resistance with structural stability.
- High Structural Stability
- Very High Breaking Load
- Excellent Life Time
- Strong Against Abrasion
- Excellent Resistance to Deformation
- Extended Life of Winch Drum and Sheave
- Suitable rope for Special Crane

Technical Data:

Finish: Drawn Galvanized Grade: 2160 N/mm2, API 9A c/w ABS cert

8xWS(26) + IWRC

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
14	17.4	18.6	0.87
16	22.7	24.2	1.14
18	28.8	30.7	1.44
20	35.5	37.9	1.78
22	43.0	45.8	2.16
24	51.1	54.5	2.57
25	55.5	59.2	2.78
26	60.0	64.0	3.01
28	69.6	74.2	3.49
30	79.9	85.2	4.01
32	90.9	97.0	4.56
34	102.6	109.5	5.15
36	115.1	122.7	5.77
38	128.2	136.7	6.43

MORDEC[™]

STORAGE & SUPPLY

STEEL WIRE ROPE

MORDEC MWR-629

Construction: 6x29(Fi) + IWRC Preformed

Properties:

- Rotation resistance
- High structural stability
- High breaking load
- Excellent life time
- Recommended for Crane, Fishing, Mining, Mooring, Excavator, Anchor and General Engineering

Technical Data:

Finish: Drawn Galvanized Grade: 1960N/mm2, API 9A c/w NK cert

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1770 N/mm ²	1960 N/mm ²	Kg/m
14	13.6	14.9	0.86
16	17.7	19.5	1.12
18	22.4	24.7	1.42
20	27.7	30.4	1.76
22	33.5	36.8	2.12
24	39.8	43.8	2.53
25	43.2	47.6	2.74
26	46.7	51.5	2.97
28	54.2	59.7	3.44
30	62.2	68.5	3.95
32	70.8	77.9	4.49
34	79.9	88.0	5.07
36	89.6	98.6	5.69
38	99.8	109.9	6.34



MORDEC

STEEL WIRE ROPE

MORDEC POWERTEC 8

Construction:

8 x 26 + IWRC, Compacted and Plastic Impregnated

Properties:

- 8 strands with 26 wires
- Non-Rotating.
- Plastic impregnated between strands reduces abrasion and fatigue, prevent dirt and humidity from normal condition prevent corrosion and bird-caging effect with increased flexibility
- Designed mainly for Special Crane
- Lifespan of Powertec is about 2 times longer than general type of crane rope.

Technical Data:

Finish: Drawn Galvanized Grade: 2160 N/mm2, API 9A c/w NK cert

Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
14	17.6	18.8	0.90
16	23.0	24.6	1.17
18	29.1	31.1	1.48
20	35.9	38.4	1.82
22	43.5	46.4	2.21
24	51.8	55.2	2.63
25	56.2	59.9	2.85
26	60.7	64.8	3.09
28	70.4	75.2	3.58
30	80.9	86.3	4.11
32	92.0	98.2	4.68
34	103.9	110.9	5.28
36	116.4	124.3	5.92
38	129.7	138.5	6.59



8x26 + IWRC

MORDEC

STEEL WIRE ROPE

MORDEC MWR-636

Construction: 6 x 36 (WS) + IWRC Preformed

Properties:

- 6 strands with 36 wires per strand configuration
- Warrington Seale construction form specific performance
- Good balance of strength and flexibility

Designed for applications on;

- Holding and closing ropes for Lifeboat falls grab cranes
- Wire rope slings
- Crane ropes Luffing ropes
- Winch ropes Tow ropes
- Wire rope rigging applications Hoist rope

Technical Data:

Core: Independent Wire Rope Finish: Drawn Galvanized Grade: 2160N/mm2, API 9A c/w NK cert

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Nominal Dia.	Minimum Br (Metri	Approx. Weight	
mm	1960 N/mm ²	2160 N/mm ²	Kg/m
08	4.5	5.0	0.27
10	7.1	7.8	0.42
12	10.2	11.2	0.60
14	13.9	15.3	0.82
16	18.2	20.0	1.07
18	23.0	25.3	1.35
20	28.4	31.3	1.67
22	34.4	37.9	2.02
24	40.9	45.1	2.41
26	48.1	52.9	2.83
28	55.7	61.4	3.28
30	64.0	70.5	3.76
32	72.9	80.2	4.28
34	82.2	90.6	4.83
36	92.1	101.5	5.42
38	102.7	113.1	6.04
40	113.8	125.4	6.69
42	125.5	138.2	7.37

- Mooring ropes

MORDEC

RIGGING ACCESSORIES

MORDEC MWA-T3091

Accessory: MWA-T3091 Mordec Heavy Duty Din 3091 Type Solid Thimble

Features:

- More robust and suitable for heavy weight applications
- Prevents the load from coming into direct contact with the wires
- Readily available in a wide range of sizes to suit different diameters of wire rope

Technical Data:

Material: Cast Steel Standard: DIN 3091





Nominal Rope Dia.	а	b	с	d	е	Approx. Weight
mm	mm	mm	mm	mm	mm	Kg/Pc
08	9	40	66	14	-	0.18
10	11	50	82	18	-	0.32
12	13	60	98	21	-	0.52
14	16	70	114	25	-	0.80
16	18	80	130	28	16	0.90
18	20	90	145	31	18	1.21
20	22	100	161	35	20	1.61
22	24	110	177	38	22	2.11
24	26	120	193	41	24	2.71
26	29	130	209	44	26	3.55
28	31	140	224	47	28	4.20
32	35	160	256	53	32	6.30
36	40	180	288	59	36	8.84
40	44	200	320	65	40	11.00
44	48	220	352	70	44	15.00
48	53	240	384	76	48	20.00

MORDEC

RIGGING ACCESSORIES

MORDEC MWA-T464

Accessory: MWA-T464 Mordec Wire Rope Thimble BS464

Features:

- Appropriate for lighter applications
- Added into the eye/loop whilst being spliced offers more strength, sturdiness and crush resistance.
- Installed inside the loop to preserve the natural shape of the loop

Technical Data:

Material: Carbon Steel Standard: EN13411, BS464



Nominal Rope Dia.	А	В	С	D	E	F	G	к	Approx. Weight
mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg/Pc
08	23	38	13.5	56	38	9.5	5.0	4.0	0.06
10	27	47	16.0	66	40	12.0	6.0	5.0	0.08
12	30	52	17.5	75	50	12.5	6.0	5.5	0.10
14	33	58	20.5	82	52	15.5	7.0	6.5	0.18
16	43	74	22.5	98	68	17.5	8.5	6.5	0.25
18	46	80	29.0	110	73	20	11.0	8.0	0.34
20	53	92	29.0	126	88	22	10.5	7.0	0.52
22	57	102	32.0	134	90	24	12.0	8.0	0.62
24	67	110	36.0	148	98	28	15.0	9.0	0.76
26	73	120	36.0	165	114	28	15.0	9.0	1.25
28	76	130	39.0	180	125	32	16.0	10.0	1.51
32	98	151	42	205	145	35	17	10	2.04
36	107	175	46	225	155	38	18	12	3.18
40	117	196	52	260	170	42	23	12	4.88
44	131	218	60	290	205	52	25	17	4.95
48	133	228	66	305	317	60	29	29	6.22

MORDEC

RIGGING ACCESSORIES

MORDEC MWA-TJIS

Accessory: MWA-TJIS Mordec JIS Dead Eye Thimble

Features:

- Protect the cable from pinching and abrading on the inside of the loop
- When the eye needs more strength and sturdiness
- Offer good protection to the wires in the rope, protecting them from wear and kinks

Technical Data:

Material: Cast Steel Standard: JIS B 2802





Nominal Rope						
Dia.	A	В	С	D	E	F
mm	mm	mm	mm	mm	mm	mm
20	105	136	29	38	10	13
22.4	110	144	31	38	10	14
24/25	120	156	33	45	12	15
26	130	166	35	45	13	16
28	140	180	38	45	15	17
31.5	145	186	40	50	14	18
32/33.5	150	196	42	50	14	19
33.5	160	215	43	70	13	20
33.5/40	190	242	52	70	20	23

Dimension "D" is the inside diameters of steel bush

MORDEC

RIGGING ACCESSORIES

MORDEC MWA-SJIS-O

Accessory: MWA-SJIS Mordec JIS Open Spelter Socket

Features:

- Used to attach steel wire rope to a fixed point to which the socket is to be connected.
- This can be as an anchoring system for tubes or pipes, anchor wires of dredging material, anchor cables of oil platforms, towing cables or for fastening cables in construction purposes such as bridges, roof construction etc.
- Sockets are the strongest steel wire rope end fitting





Rope Dia.	WLL	A	В	С	D	E	F	G	н	I	J	к	Approx. Weight
mm	Ton	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg/Pc
16	2.6	20	37	88	193	32	58	26	40	32	81	25	1.04
18	3.3	23	40	95	210	35	65	29	43	36	89	28	1.49
20	4.1	25	44	103	227	37	73	32	47	41	101	31	2.13
22.4	5.1	30	49	111	245	40	80	35	52	46	110	34	2.84
24	5.9	32	52	119	262	44	88	38	56	50	120	37	3.77
25	6.9	33	56	127	281	48	96	41	60	60	134	40	4.83
28	8.0	36	61	135	298	51	103	44	65	65	143	43	5.92
30	9.2	38	64	143	316	54	110	47	68	70	152	46	7.50
31.5	10.5	40	68	151	335	56	118	50	72	45	162	49	9.21
33.5	11.5	42	71	159	353	59	125	54	75	75	169	52	11.30
35.5	13.0	44	76	168	373	62	132	57	80	80	178	55	13.10
37.5	14.5	47	80	177	292	66	138	60	84	85	190	58	15.40
40	16.5	49	84	186	413	70	146	63	88	85	198	61	18.00

Technical Data:

Material: Cast Steel Standard: JIS F 3432

MORDEC MEP One Belt , One Road (OBOR)

DISTRIBUTION NETWORK



Unlike China's Silk Road initiative, MEP's One Belt, One Road (OBOR) is a Storage and Supply Chain Management service.

The distribution of wire ropes is the process by which they are transported from a central warehouse to storage depots and rigging facilities. A well designed wire rope supply system ensures that the procurement, warehousing and transportation are seamlessly linked to form a network that can deliver the requested wire ropes to the port-of-call in good time, in the correct quantities and at the lowest possible cost.

In order to guarantee that the quality of the wire ropes distributed is preserved, the distribution system also has to ensure that good storage and distribution practices are maintained throughout the distribution chain.

A major element of MEP's competitive strength is a global sales and distribution strategy anchored by the strongest, best-in-class local distributors – our OBOR partners. We place significant value on the relationship we have with our OBOR Partners and we are committed to continuing to build a world-class, market-leading network with mutual objectives and goals.

To support our international vessel owners and operators, MEP has a network of established global OBOR partners. Our OBOR partners are strategically positioned around the globe, allowing for seamless delivery of your wire rope supplies.



Crane Wire Rope Inspection-

WRM - MPR SUMMARY REPORT

Assessment & Maintenance

		CRAN	NE WIRI	E ROPE IN	ISPECTIC	ON CHE	CKLIST -	- RUM	NNING	g recc	، RD (ISO	4309:20	10)		
Purpose				Date	YY/MN	//YY	USER					Report	:# MW	RM-SUMR-17001	
		Name						IMO							
Vessel Info	. [Flag							el Type						
vesserinio		Docking Port	Jaka	rta				Other	r Docking	g					
		Docking Date	YY/I	MM/YY				Detail	IIS		No. 4				
Crane Info	⊢	Serial No.	MO	PDEC				Crane	e city		NO. 1				
		Type	WO	NDEC.	Ho	isting Wire	Rone	Capac	CILY						
	F	Description	cription Dia 32mm dia (4x39) 5E5+FC NR GSWR SH X 227.6M, RHRL Dia 24mm dia (6x29) FI+IWRC GSWR X 186.7M, RH							86.7M, RHRL MBL					
	L			MBL 71.1T						47.2	т				
Wire Rope	Info	Termination		One end wi	ith JIS F3432	2 Open Spe	lter Socke	t (32MI	м),	One	end with JIS	F3432 Ope	n Spelter Soo	ket (24MM), other	
	F	Part No.		HW320R43	end seizing with eye plate										
		Operation HR L	imit		HR	S						HRS			
		Operation HR t	o Date		HR	S						HRS			
			CRAN	E WIRE ROP	E INSPECT	ION – ASS	SESSMEN	t sum	1MARY	RECORD	as at 17-Oc	ct-09			
HOISTING	6 WIRE R	OPE													
	Mino	Increas	Opera-		SEVE	RITY RATING	OF INDIVID	UAL MO	DDES OF D	DETERIORA	TION %		Com		
Inspec-	Rope	tion Date	Hours	Wire	Breaks	2. Decre	ase in Diame ter	e-	3. Cor	rrosion	4. Defor	mation &	bined		
tion Entry	Serial	(YY-MM- DD)	Before		Severity		Severity	y		Severity		Severity	Severity Bating %	Comment	
Number	Number		tion	Findings	Rating %	Find- ings	Rating 9	%	Find- ings	Rating %	Find- ings	Rating %	Nating 70		
CR1-HW-	HW-	YY-MM-	HRS	0	0	32.8	0		None	0	None	0	0	Good, Safe to Contin-	
0001 CR1-HW-	1601 HW-	UU YY-MM-	прс	0	0	22.0	60		None	0	Norse	0	60	ue High, Inspect	
0002 CR1-HW-	1601 HW-	DD YY-MM-	Ciri S	-		52.0	00		None		None		00	Frequently	
0003	1601 HW-	DD	HRS	2	50	31.0	100		None	0	Norte	0	150	High Inspect	
0004	1602	DD	HRS	0	0	32.0	60		None	0	None	0	60	Frequently	
0005	1602	DD	HRS	0	0	32.0	60		None	0	Kinked	100	160	Discard, To Replace	
CR1-HW- 0006	HW- 1701	YY-MM- DD	HRS	0	0	32.5	20	V	None	0	None	0	20	Slight, Safe to Contin- ue	
CR1-HW- 0007	HW- 1701	YY-MM- DD	HRS	0	0	32.0	60		None	0	None	0	60	High, Inspect Frequently	
CR1-HW- 0008	HW- 1701	YY-MM- DD	HRS	1	25	32.0	60		Inter- nal	100	None	0	185	Discard, To Replace	
CR1-HW- 0009	HW- 1702	YY-MM- DD	HRS	10	50	32.5	20		None	0	None	0	70	High, Inspect Frequently	
CR1-HW- 0010	HW- 1702	YY-MM- DD	HRS	<u>P</u>	100	32.0	60		None	0	None	0	160	Discard, To Replace	
LUFFING	WIRE RC	PE	C	$\partial \mathcal{V}$											
	Wire	re Inspec- be tion Date ial (YY-MM-	- Opera- tion te Hours I- Before	SEVERITY RATIN			TING OF INDIVIDUAL MODES OF DETERI Decrease in Diame- 3. Corrosion			rrosion	4. Defor	mation &	Com-		
Inspec- tion Entry	Rope Serial				a i	ter					Damages		bined Severity	Comment	
Number	Number	DD)	Inspec- tion	Findings	Rating %	Find-	Rating 9	¥ %	Find-	Rating	Find-	Rating	Rating %		
CR1-LW-	LW-	YY-MM-	HRS	1	17	24.0	0		None	0	None	0	17	Good, Safe to Contin-	
CR1-LW-	LW-	YY-MM-	HRS	3	50	23.5	40		None	0	None	0	90	Very High, Inspect	
CR1-LW-	LW-	YY-MM-	HRS	6	100	23.0	80		None	0	None	0	180	Discard, To Replace	
CR1-LW-	LW-	YY-MM-	HRS	0	0	23.5	40		None	0	None	0	40	Medium, Safe to	
CR1-LW-	1602 LW-	YY-MM-	HRS	1	17	23.5	40		None	0	Basket, Bird-	100	157	Discard, To Replace	
CR1-LW-	1602 LW-	טט YY-MM-	LIDC	2	22	22.6	20		None	0	cage	0	53	Medium, Safe to	
0006 CR1-LW-	1701 LW-	DD YY-MM-	TIKS	2	55	23.8	20		Nore	0	None	0	55	Continue Very High, Inspect	
0007 CR1-LW-	1701 LW-	DD YY-MM-	HRS	3	50	23.5	40		None	0	None	U	90	Frequently	
0008	1701	DD	HRS	3	50	22.8	100		None	0	None	0	150	Discard, To Replace	
0009	LW- 1702	DD	HRS	1	17	24.0	0		None	0	None	0	17	ue	
0010	LW- 1702	۲۲-MM- DD	HRS	1	17	24.0	0		nter- nal	100	None	0	117	Discard, To Replace	
RECOMM	IENDATIO	DN:													
USER/DATE											F	Report Gener	ated by:	ORDEC WRM@2017	

MORDEC	ΝΟΤΕՏ	

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APPROVAL CERTIFICATE NO. SNG 0160 ISO 9001:2008