

TCK.W[®]

AUTOMATIC REAL-TIME ONLINE WIRE ROPE INSPECTION SYSTEM

We perform better than any applicable standards

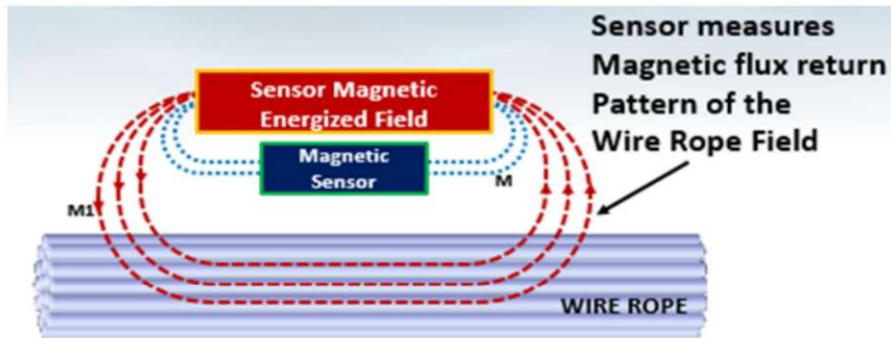


The heavy lift crane is used to hoist and transport huge expensive structures which have colossal weight and value, and the wire ropes play an extremely important role in the hoisting system. Once the wire ropes failure happens during operation, it will have a catastrophic implication that results in massive lost of lives and assets.

Our brand-new Automatic Real-time Online Wire Rope Inspection System is fixed on heavy lift crane and it can replace manual inspection, improving inspection efficiency, reduce down time, more importantly deliver accurate inspection result that ensures the safe operation of wire ropes of heavy lift while prolonging the service life of wire ropes.

The new innovative system on board your heavy lift cranes act as an added safety feature brings true safety capabilities to your customers who use or hire your heavy lifting machinery or equipment. This added automated real-time online wire rope inspection features would possibly make your heavy lift equipment more attractive to your customers who entrust such expensive lifting projects to your company. We aim to increase your competitiveness in securing heavy lifting projects that give you the best wire rope inspection solution.

Wire Rope Inspection Technology Co., Ltd.



Amplitude of signal not affected by Speed
Distance of sensor to magnetic field > 15mm.
Does not depend on magnetic flux leakage

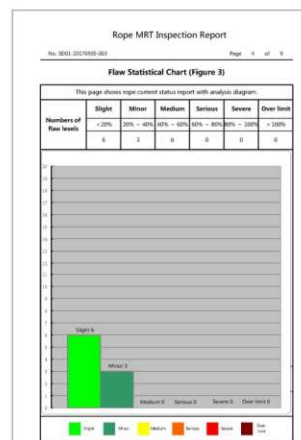
Our patented flaw sensing technology is an active and intrusive device that sends an energized controlled magnetic field into the already magnetized wire rope to penetrate and detect any misaligned field flux patterns which are caused by broken wires, corrosion, fatigue or abrasion. This unique technology is able to produce comprehensive quantitative plus qualitative defects result.



MRT Inspection Report

Location	Mount Faber, Singapore	Length	3768.8 m
Manufacturer	FATZER	Measured Length	3768.8 m
Purpose	Transport	Specifications	6388W5
Material	Carbon Steel	Diameter	34 mm
Core Material	Fiber	Breaking Strength	52
Coating	Galvanizing	WHD	325 mm
		WHD	350 mm
		WHD	2900 mm
Construction	FC-62+7+5+7+3+6 Center 2.3(3mm) Break 72(30mm) Middle 73.82(30mm) Outer 84(30mm)	Reference	2001.68
Rope Effective Nominal Core Sectional Area	1340 mm ²	Labelled	2001.68
Inspection Date	EN 12927-6 - EN 12927-7 EN 12927-8	Equipment Breakdown	Dec 16th, 2015
Reference		Approval of Splice	-

The Most Serious Flaw		The Most Serious Flaw		The Most Serious Flaw	
Flaw	Count	Flaw	Count	Flaw	Count
Minor	12478.0%	Minor	12478.0%	Minor	12478.0%
Major	2.4%	Major	2.4%	Major	2.4%



Rope MRT Inspection Report

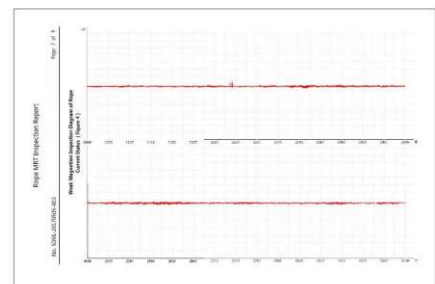
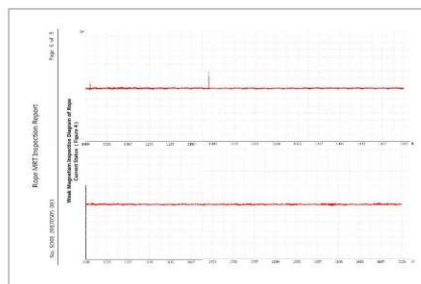
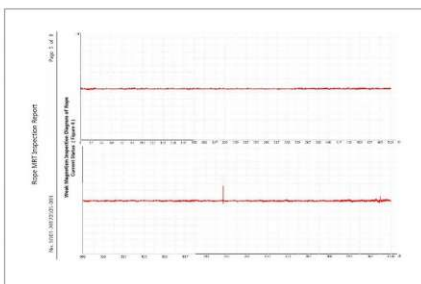
Flaw List (Figure 2)

No.	Order	Position (m)	USMA (%)	Level
1	1	161.1-161.2	2.4%	Minor
2	1	161.1-161.2	2.4%	Minor
3	1	161.1-161.2	2.4%	Minor
4	1	161.1-161.2	2.4%	Minor
5	1	161.1-161.2	2.4%	Minor
6	1	161.1-161.2	2.4%	Minor
7	1	161.1-161.2	2.4%	Minor
8	1	161.1-161.2	2.4%	Minor
9	1	161.1-161.2	2.4%	Minor
10	1	161.1-161.2	2.4%	Minor

MRT Inspection Report

Flaw Statistical Chart

Comprehensive Flaw List



Wire Rope Current Status Weak Magnetic Perspective



Advantages:

1. Wire rope's whole service cycle under safety control
2. Synchronized inspection during high-speed operation
3. Integration of magnetization and defect sensor
4. Realtime online monitoring
5. Internet+ expert inspection with remote diagnosis
6. Automatic full inspection report daily, monthly, quarterly upon demand

Technical Parameters:

1. Statistical error for numbers of broken wires in the length of 6D and 30D: <math><1</math>
2. LF/ LMA allowed tolerance(P): <math><\pm 1\%</math>
3. Measuring error for wire rope diameter reduction : $\pm 1\%$
4. Flaw positioning accuracy: $\geq 99\%$
5. Rope speed for inspection: 0-4 m/s
Rope speed for monitoring: 0-15 m/s
6. Wire rope diameter range: $\phi 26 - 76\text{mm}$
7. Sensor working sensitivity: 1.5 V/mT
8. MRT maximum sampling frequency response: 2048 times/m
9. System working voltage: Ac220v $\pm 10\%$ @50Hz
10. System rated power: 300W
11. Wire rope oscillating range: <math>< 10\text{ mm}</math>
12. Required space for device installation: $<\phi 175\text{mm} \times 1200\text{mm}</math>$
13. Sensor working temperature: $-20^{\circ}\text{C} \sim 55^{\circ}\text{C}$, Humidity: $\leq 95\% \text{RH}$
14. Ingress protection: IP67



Inspection Accuracy:

- Severe Flaw Value: loss of rope effective metallic cross-sectional area in the range of 80-100% for discard upper limit, Real-time Detection rate: 100%
- Serious Flaw Value: loss of rope effective metallic cross-sectional area in the range of 60-80% for discard upper limit, Real-time Detection rate: 100%
- Medium Flaw Value: loss of rope Effective metallic cross-sectional area in the range of 40-60% for discard upper limit, Real time Detection rate: 99%
- Slight Flaw Value: loss of rope effective metallic cross-sectional area in the range of 20-40% for discard upper limit, Real-time Detection rate: 95%
- Below Slight Flaw Value: loss of rope effective metallic cross-sectional area <math>< 20\%</math> for discard upper limit, Real-time Detection rate: 90%



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WE HAVE PROVIDED TESTING DEVICES FOR 2500 USERS IN 42 COUNTRIES



Patent NO.: ZL 200910064519.5

Patent NO.: ZL 200910064518.0

Patent NO.: ZL 200910064517.6

Utility Model Patent: ZL 2016 2 0643347.2

Utility Model Patent: ZL 2016 2 0645 2 77.4

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