



Deton Engineering – Risk Assessment

Monoline System



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1. Introduction to the Deton Group of Companies

Deton Engineering (Pty) Ltd., was established in 1973 by Hercules du Preez, the first product being the Hercules Jack for mining applications.

From this date, Deton Engineering has specialised in the production of products with safety and efficiency in mind, especially for applications in the Mining and Industrial industries. The Deton Group is continuously focussed on the monitoring and improvement of production, reduced downtime, improved safety, and the servicing and support of our products which has made Deton a leader in its field.

Within the Deton Group of Companies are the following companies whose processes are incorporated in our Quality Management System –

Deton Engineering (Pty) Ltd. – Deton Engineering manufactures Jacks, Rail Benders, Snatch Blocks, Pulleys, Hercules Jack and related products for the Mining and Industrial markets.

Wearresist SA (Pty) Ltd. – Wearresist manufactures, sells and applies a range of wear-resistant coatings, based upon a resin matrix with a 90% alumina content, targeted at the Mining and Industrial markets.

Ceramic Linings (Pty) Ltd. – Ceramic Linings manufacture and market alumina ceramic tiles for high abrasion, high impact and high temperature applications. The products compliment the Wearresist products and can be used in conjunction in such environments.

Cutlass Products (Pty) Ltd. – Cutlass manufacture and market a range of corrosion and abrasion resistant products, aimed at the general Industrial market.

Densit S.A. (Pty) Ltd. – Densit supplies and applies a range of branded wear-resistant products to the general industrial markets, under license from Densit Norway.





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2. Details of Deton Engineering

This Risk Assessment refers to our Alberton based Head Office and Workshops, the details of which are –

6 Barium Street	P.O. Box 123920
Alrode Ext. 7	Alrode
Alberton	1450

Telephone: (011) 908-1922	Facsimile: (011) 864-5386
E-mail: info@deton.co.za	Website: www.deton.co.za

3. Scope of Quality Management System (SABS ISO 9001:2008)

The manufacture and repair of Hercules Jacks, Snatch Blocks, Monoline System, mining equipment, rail benders, pipe splitters, railway rolling stock and re-railing equipment for mining, agriculture, postal and transport industries, the manufacture of corrosion-coating resins and wear-resistant linings, including the Cutlass range of epoxy products.

4. Risk Assessment Team


As a result of Deton Engineering's commitment to our customers, this Risk Assessment was conducted in order to ensure that all potential health, safety and related hazards are identified, the risks evaluated and controls implemented to ensure that the products are safe and without risk to our customers, as far as is reasonably practicable.

This Risk Assessment was compiled by the following team -

HP du Preez	Chairman
A du Preez	Managing Director
W Germishuizen	Sales & Marketing
I Gasa	Production Foreman
J Downward	Production & Operations
S Barley	Quality & Risk



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5. Excerpt from Mine Safety Act (Act 29 of 1996)

Section 21 of the Mine Safety Act states the following -

21.(1) *Any person who -*

- (a) *designs, manufactures, repairs, imports or supplies any article for use at a mine must ensure, as far as reasonably practicable -*
 - (i) *that the article is safe and without risk to health and safety when used properly and*
 - (ii) *that it complies with all requirements in terms of this Act;*


21.(2) *Any person who bears a duty in terms of sub-section (1) is relieved of that duty to the extent that is reasonable in the circumstances, if -*

- (a) *that person designs, manufactures, repairs, imports or supplies an article for or to another person; and*
- (b) *that person provides a written undertaking to take specified steps sufficient to ensure, as far as reasonably practicable, that the article will be safe and without risk to health and safety when used properly and that it complies with all prescribed requirements*





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6. Scope of Risk Assessment

The scope of this Risk Assessment is limited to the Deton Engineering Monoline Systems and their application in a mining environment.

The objective of this Risk Assessment is to, as far as is reasonably practicable -

- identify all potential health, safety and related risks that the Monoline System could pose to the end-user
- measure the level of risk of the identified risks
- to recommend controls to alleviate or minimise the risks

The aim of this Risk Assessment is to provide end-users with detailed information that will permit them to use the Monoline System in a manner that is safe and provide optimal utilisation.





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7. Format of Risk Assessment

The Risk Assessments are reflected in tabular format, with the specific aspects listed under the following main headings -

Potential Hazard - what could go wrong?

Consequences & Impact - what could happen if the instance occurred?

Recommendations & Controls - what measures are in place or should be taken?

The aspects are then rated in terms of -

Likelihood (What are the chances of the incident occurring, probability?)

LIKELIHOOD	Index Value	Result
Most likely	5	<input type="text"/>
Highly likely	4	
Likely	3	
Unlikely	2	
Highly unlikely	1	

Risk (What level of risk/element of danger would this incident expose you to?)

RISK	Index Value	Result
Very high risk	5	<input type="text"/>
High risk	4	
Medium risk	3	
Low risk	2	
Very low risk	1	

Severity (What could the severity of this incident be in terms of injuries, damage)?


SEVERITY	Index Value	Result
Extremely severe	5	<input type="text"/>
Quite severe	4	
Severe	3	
Not too severe	2	
Negligible	1	

From the above results, the "Risk Result" is tabulated as follows -

$$\text{RISK RESULT} = \text{LIKELIHOOD} \times \text{RISK} \times \text{SEVERITY}$$



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7. Format of Risk Assessment (cont.)

The figure obtained (the Risk Result) is then classified as follows -

- 61 + High risk requiring immediate corrective action
- 39 - 60 High risk requiring corrective action (identified in RED)
- 21 - 40 Substantial risk with corrective action needed
- 6 - 20 Possible risk, must be brought to people's attention
- 5 Risk tolerable

This is reflected as "RR" on the accompanying Risk Assessment Charts.





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8. Risk Assessment

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Monoline cable slips through the bottom wheels of the Deton Inline Guide and Brow Pulleys	<ul style="list-style-type: none"> Cable that transports materials to the working place will sag under weight - EFFICIENCY, INJURY and/or DEATH 	2	3	3	18	<ul style="list-style-type: none"> Stop transport of material until problem rectified Always ensure nuts on side plates are tightened after installation Inspect Monoline System on regular basis Safety Training for all staff in operation of Monoline System
2	Person slips and grabs onto Monoline whilst cutting transported material loose from the cable	<ul style="list-style-type: none"> Injury to hand, potentially severe if in close proximity to Return Pulley - EFFICIENCY, INJURY and/or DEATH 	2	3	3	18	<ul style="list-style-type: none"> Barricade off all Return Pulleys to obstruct entry point of cable Operator at end of Monoline should be positioned at least 10m from the Return Pulley Safety Training for all staff in operation of Monoline System
3	Person slips and grabs Monoline for support	<ul style="list-style-type: none"> Injury to hand, potentially severe if in close proximity to products on Monoline system - EFFICIENCY, INJURY and/or DEATH 	2	3	3	18	<ul style="list-style-type: none"> No Monoline product should be used if the distance between the entry and pinch points is less than 100mm Safety Training for all staff in operation of Monoline System



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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
4	Anchor securing the Corner Pulley comes loose	<ul style="list-style-type: none"> Corner Pulley is pulled loose, Monoline drops - EFFICENCY, INJURY and/or DEATH 	1	4	4	16	<ul style="list-style-type: none"> Ensure Corner Pulley anchored to roof or sidewall by at least 3 separate chains, as well as a safety or elevating chain Inspect Monoline System on regular basis Safety Training for all staff in operation of Monoline System
5	Person attempts to loosen the strands of twine that accumulate at the Monoline Pulleys whilst the System is in operation	<ul style="list-style-type: none"> Injury to hand, potentially severe if in close proximity to Return Pulley - EFFICIENCY, INJURY and/or DEATH 	2	3	3	18	<ul style="list-style-type: none"> Report to Winch Driver, Winch Driver to stop operation of Monoline System and clear Pulleys Winch Driver to inspect Monoline System regularly for accumulation of twine Safety Training of all staff in operation of Monoline System

Reviewed by: [Signature] [Signature] [Signature]



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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
6	Anchors securing Rope Tensioner or Rat come loose	<ul style="list-style-type: none"> Monoline System cannot operate, injuries to people in proximity - EFFICIENCY, INJURY and/or DEATH 	2	3	5	30	<ul style="list-style-type: none"> Rope Tensioner or Rat must be anchored to roof or side wall by sufficient number of chains Safety Chains to also be fitted to Rope Tensioner or Rat as a precaution Fasten safety chains to Return Pulley on safety chain points (x4), then release the tension on the Rat - Coffin Hoist to only be used to tension Mono Rope at the Return Pulley and not anything else Winch Driver to inspect Monoline System regularly for loose items Safety Training of all staff in operation of Monoline System
7	Rat is overloaded	<ul style="list-style-type: none"> Hook or chain breaks - EFFICIENCY, INJURY and/or DEATH 	2	2	2	8	<ul style="list-style-type: none"> Always ensure that Monoline System is not overloaded Monoline must be operated by trained Winch Operator Safety Training of all staff in operation of Monoline System
8	Rat's hook is damaged, worn excessively or excessive play exists between hook & clevis	<ul style="list-style-type: none"> Hook could break - EFFICIENCY, INJURY and/or DEATH 	3	3	4	36	<ul style="list-style-type: none"> Always do inspection prior to operating Monoline System Monoline must be operated by trained Winch Operator Safety Training of all staff in operation of Monoline System



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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
9	Rat's chain is worn, rusted or stretched	<ul style="list-style-type: none"> Chain could break - EFFICIENCY, INJURY and/or DEATH 	3	3	4	36	<ul style="list-style-type: none"> Always do inspection prior to operating Monoline System Monoline must be operated by trained Winch Operator Safety Training of all staff in operation of Monoline System
10	Rat's gear covers or latch damaged	<ul style="list-style-type: none"> Rat will fail to operate - EFFICIENCY and/or INJURY 	2	3	5	30	<ul style="list-style-type: none"> If chain is damaged or broken, send Rat for repair Always do inspection prior to operating Monoline System Monoline must be operated by trained Winch Operator Safety Training of all staff in operation of Monoline System
11	Latch not engaged properly	<ul style="list-style-type: none"> Rat will fail to operate in correct direction - EFFICIENCY and/or INJURY 	1	1	1	1	<ul style="list-style-type: none"> Monoline must be operated by trained Operators Safety Training of all staff in operation of Monoline System



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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
12	Monoline cable slips off Corner Pulley under weight due to non-elevation	<ul style="list-style-type: none"> Transportation of materials interrupted, potential for injuries – EFFICIENCY, INJURY and/or DEATH 	1	2	4	8	<ul style="list-style-type: none"> Always ensure Safety Catch is in place by rigging chain from roof to floor, in close proximity directly in front of each Corner Pulley Always do inspection prior to operating Monoline System Monoline must be operated by trained Winch Operator Safety Training of all staff in operation of Monoline System
13	Corner Pulley safety guards missing or damaged	<ul style="list-style-type: none"> Entry point of Pulley is exposed, with potential for injuries – EFFICIENCY, INJURY and/or DEATH 	1	3	4	12	<ul style="list-style-type: none"> Ensure the free-moving guards fitted to the Corner Pulley are present and functional Always do inspection prior to operating Monoline System Monoline must be operated by trained Winch Operation Safety Training of all staff in operation of Monoline System