Deton Engineering – Risk Assessment

Winch Starter

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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.

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
Alrode Ext. 7
Alberton

P.O. Box 123920
Alrode
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, explosive boxes, 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 and Marketing
I Gasa	Production Foreman
J Downward	Production & Operations
S Barley	Quality & Risk

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

6. Scope of Risk Assessment

The scope of this Risk Assessment is limited to the Deton Engineering Winch Starters 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 Winch Starter 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 Winch Starter in a manner that is safe and provide optimal utilisation.

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	
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	
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	
Quite severe	4	
Severe	3	
Not too severe	2	
Negligible	1	

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

RISK RESULT = **LIKELIHOOD** x **RISK** x **SEVERITY**

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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8.1 Risk Assessment – Equipment Problems

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Damaged casing or lock	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	3	4	4	48	• Inspect Winch Starter casing and lock prior to installation and use • Send to Deton for repair • Safety Training – inspection prior to installation and use
2	Controls damaged/missing	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	3	4	4	48	• Inspect Winch Starter control panel prior to installation and use • Send to Deton for repair • Safety Training – inspection prior to installation and use

8.2 Risk Assessment – Installation Problems

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Installation not performed by Competent Person	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	2	4	4	32	• Only make use of Competent Person to install and commission Winch Starter • Competent Person to check installation for operation and safety prior to handover

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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
2	Installation of Winch Starter in area that could be flooded	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	2	4	4	32	• Do not install Winch Starter in area that could be subject to flooding (IP 55 rating does not cover immersion of enclosure) • Responsible person to authorise location of Winch Starter • Competent Person to install and commission
3	Incorrect Cable used	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	2	3	3	18	• All cable to be 4 Core SWA PVC cable • Cable size of no less than 2,5mm x 4 core SWA PVC cable to be used for lengths not exceeding 60m • Cable of size larger than 2,5mm x 4 core SWA PVC cable to be used for lengths exceeding 60m • All installations and commissioning to be done by Competent Person
4	Incorrect Gland size and/or Type used	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	2	3	3	18	• All Cable Glands to be of No.1 Mechanical steel Gland type with rubber shroud • All installation and commissioning to be done by Competent Person

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
5	Incorrect Supply Voltage applied	• Intrinsic Safety of Winch Starter is compromised, Winch Starter may not operate – EFFICIENCY and/or INJURY	1	3	3	18	• Supply voltage on starter must be 525V, Three Phase • All installations and commissioning to be done by Competent Person

8.2 Risk Assessment – Operating Errors/Human Factor

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Unauthorised operation of Winch Starter	• Damage to Winch Starter, product and people – EFFICIENCY and/or INJURY	4	2	1	8	• Authorised control of the Winch Starter is ensured through the ability to lock the controls, with the key to be held by the person allocated the responsibility of operating the Winch Starter • Safety Training
2	Sudden change of winch direction	• Damage to Winch Starter, product and people – EFFICIENCY and/or INJURY	4	2	1	8	• Winch Starter will not change direction without use of 'Dead Man's Switch' • 'Dead Man's Switch' has a 30 second delay prior to permitting energising of winch or change of direction • Safety Training