Deton Engineering – Risk Assessment

Stepton 10T Jack

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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
E-mail: info@deton.co.za

Facsimile: (011) 864-5386
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 Germishuisen	Sales
K Stewart	Sales
J Downward	Production
S Barley	Quality

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 Stepton 10T Jacks 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 Stepton 10T Jack 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 Stepton 10T Jack 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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9.1 Risk Assessment – Receipt of Stepton 10T Jacks by Customer

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Broken/Missing Components	• Broken Components would result in the jack failing to operate, with no hazard posed - EFFICIENCY • Missing Ratchet would result in time loss – EFFICIENCY	1	1	1	1	RECOMMENDATIONS • Check all incoming Stepton Jacks to ensure Ratchet is present CONTROLS • Full final inspection using Checklist • Despatch inspection
2	Wrong Quantity	• Lost production - EFFICIENCY	1	1	2	2	RECOMMENDATIONS • Reject delivery or accept and contact Deton Engineering regarding shortfall CONTROLS • Despatch inspection

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9.2 Risk Assessment – Effective Use of Stepton 10T Jack by Customer

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1	Object placed between head of Jack and object to be lifted	• Object slips out, necessitating restarting of process – EFFICIENCY • Object slips out hitting Operator – INJURY / DEATH	3	4	4	48	RECOMMENDATIONS • Staff must be trained in correct application of Stepton Jack • Operation of Stepton Jack must be supervised • DO NOT PLACE OBJECT BETWEEN HEAD OF JACK AND OBJECT LIFTED CONTROLS • Compulsory training and supervision
2.	Operator stands over Jack body whilst operating Jack	• No risk to Operator, as Ratchet will not move if Operator leaves Ratchet, unlike traditional Jacks	0	0	0	0	RECOMMENDATIONS • Staff must be trained in correct application and operation of Stepton Jack CONTROLS • Compulsory training and supervision

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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
3	Operator does not use supplied Ratchet, but improvises with badly-fitting or loose-fitting tool	• Item does not function properly, necessitating replacement with proper Ratchet – EFFICIENCY • Improvised Ratchet slips off socket on Jack, injuring Operator – INJURY	2	1	1	2	RECOMMENDATIONS • Staff must be trained in correct application and operation of Stepton Jack • Operation of Hydraulic Rail Bender must be supervised • Ensure that use is made of proper ratchet to operate Stepton Jack CONTROLS • Compulsory training and supervision
4	Operator over-extends Jack	• Jack will stop lifting the object and remain at maximum height position, necessitating repositioning of the Jack – EFFICIENCY	2	1	1	2	RECOMMENDATIONS • Staff must be trained in correct application and operation of Stepton Jack • Attention must be paid to Maximum Height markings on Jack body when setting up Jack CONTROLS • Compulsory training and supervision

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ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
5	Operator/other person places hands or other body parts in way of Jack whilst in action or stationery	• Hands/limbs placed in the gap between the Lifter and the Jack Body will only be at risk if Jack is operated in downward motion – INJURY	1	2	2	4	RECOMMENDATIONS • Staff must be trained in correct application and operation of Stepton Jack • Hands and limbs must be kept clear of the Jack whilst in operation and when under load CONTROLS • Compulsory training and supervision
6	Operator/other person drops Jack	• Injury to foot/limb – INJURY	2	2	2	8	RECOMMENDATIONS • Staff must be trained in the carrying of the Stepton Jack using the handle so provided in the body only CONTROLS • Compulsory training and supervision

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9.3 Risk Assessment - Possible Malfunction

ITEM	POTENTIAL HAZARD	CONSEQUENCES & IMPACT	RATINGS				RECOMMENDATIONS and CONTROLS
			L	R	S	RR	
1.	Load slips off Lifter or Foot of Jack slips	• Load falls – EFFICIENCY and/or INJURY • Jack slips out from under load – EFFICIENCY and/or IJNURY	2	3	4	24	RECOMMENDATIONS • Regularly inspect Jack Lifter and Foot for obvious wear • Ensure Lifter is clear of debris, and that Foot of Jack is securely located • Send to Deton Engineering for repair CONTROLS • User education
2.	Stepton Jack stops operating	• Replacement of Stepton Jack with functioning unit – EFFICIENCY	1	1	1	1	RECOMMENDATIONS • Regularly inspect Stepton Jack in working environment • Send to Deton Engineering for repair CONTROLS • Failure of mechanism will result in unit not functioning, but load remaining in position • User education