

African

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Troy Timm – Earthrings (Pty) Ltd

Entrepreneur brings worldwide electric motor solution to S.A

The whole world is protecting their electric motors against this.....

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Troy Timm - Owner and founder of Earthrings (Pty) Ltd, South Africa.

Innovator makes U.S.A technology affordable to South Africa

Spirited and inspired, Troy Timm created a product that is saving mines tens of millions of dollars that are lost to preventable problems.

Troy Timm is the proud owner and founder of Earthrings (Pty) Ltd. Durban born and raised, Timm admits that while growing up, innovation was his main passion. He wanted to create something unique or new and to become wealthy doing it. Life had other plans, though, and like everyone, he had to get a job to pay the bills. And at only twenty years old, he joined an armature winding company.

The repair field is not known for innovation or making millionaires and Timm saw this just as a fleeting stint. However, twenty years later, he was still in this old school field, but the difference was that he had created a product, tested it, and funded it, and was now ready to launch his product to an international audience.

African Mining Brief finds out what inspired the spirited entrepreneur to risk-it-all and venture into this new field, and where he feels innovation and entrepreneurship are heading in South Africa.

AMB: Troy, what is this new product you have created?

TT: It is called "Earthrings™" and it was designed to solve a new problem experienced worldwide - the premature failure of electric motors' on variable speed drives. Bearings of electric motors that run from VSD's have what they call high "shaft currents", which

destroy motor bearings, gears and gearbox bearings, bearing grease, pump bearings, just to mention a few problems, mainly due to electrical arcing.

Factories and mines in western countries have standardised bearing protection on all motors run from variable speed drives as a necessity. The USA for example has an engineering status quo that all motors on drives must be protected from shaft voltages, irrelevant of the size. That is why I saw this as a great opportunity to innovate in a new field with new problems that need a solution.

AMB: What motivated you to take the plunge and invest in a new field when most people are risk averse?

TT: While at the armature winding company we noticed a trend in bearing motor failures due to this shaft voltage arcing. I headed up a Research and Development (R&D) project and I analysed thousands of bearings over 3 years, and was shocked how this fitted in with overseas research papers.

My entrepreneurial spirit was honed from my upbringing, besides, I have always enjoyed innovation. I was fortunate to have been born in a family that was running small businesses, but my family was poor, worked very hard and battled to get ahead, living from month to month.

I quickly learnt that innovation and

differentiation of a business is the fastest way to get ahead. I studied this a lot. Now I even consult to companies in the field of "Innovative Differentiation" where we change the unique selling point (USP) of the businesses to give them an edge over their competitors. It always came natural to me.

Earthrings solved a new problem that is growing all over the world and costing companies millions in lost production, so it just made sense to take the plunge.

AMB: Is this problem unique to South Africa?

TT: No. It is not unique to us, but surprisingly, the problem of bearing failure in electric motors that run on VSD technology is rarely faced in Western countries. This is because, in Western countries, the problem is taken very seriously, and almost all VSD electric motors are fitted with bearing protection and/or shaft grounding rings as an industry standard. Actually most manufacturers have a range of motors with factory fitted protection as an off the shelf item.

AMB: What could be a realistic estimate of the percentage of actual motor failure in South Africa?

TT: Well, as an example, recently 12 brand new electric motor with drives were installed in a reputable blue-chip company in Kwazulu Natal. Of the 12 installed, 3 had arcing problems immediately on startup (25%), using their own testing equipment. They sent us there report as they were shocked at this insight into their factory. Our own on site tests show that 9 out of 10 motors fail IEC standards, and 2 to 3 motors out of 10 are arcing in factories in South Africa and Africa. This is a huge percentage and is why bearing protection on all VSD motors is regarded as a necessity all over the world.

AMB: But I was told insulated housings in VSD electric motors also offer sufficient protection?

TT: I wish this was true, but based on empirical evidence, they don't. I have countless stories even in Gauteng where insulated housings did not solve the problem. Actually we just had one two weeks ago on a 600kw motor. Exasperatingly, failure is still being experienced with electric motors with insulated housings as there are two types of currents, and insulated housings only eliminates one type (eddy currents) and not capacitive currents. That is why all blue chip OEM motor manufacturers overseas insist on shaft grounding even if insulated housings or bearings are used.

AMB: Why would respectable OEMs treat customers in SA differently? Is this because South Africa is a small market?

TT: "Ignorance is bliss". From what I have observed, it is more of a consumer awareness issue. Consumers are not educated because motors that fail are not correctly diagnosed so most OEM staff don't educate the customer. "It's too small, we hardly see this problem" is a common comment I hear from OEM staff in South Africa. Most of these failures in South Africa (95%) are never diagnosed or are incorrectly diagnosed so OEM staff don't place much importance on it.

The challenge we have in South Africa is that we don't have the diagnostic capabilities of our first world counterparts, mainly due to our legendary skills shortage. In the USA for instance, all medium and large motor failures that go to large armature winders are analysed as a standard. Here most bearing analysis has to be requested by the customer, and if it is analyzed it is misdiagnosed as old traditional failures as EDM arcing can be hard to analyse, especially if only the grease is negatively affected.

AMB: So, South African industries have accepted the problem of bearing failure in VSD motors as something to be expected....?

TT: No, the industry is just completely unaware of the size of the problem in South Africa.

AMB: What do you imply?

TT: Factories and mines think it is small as they feel they don't see it much. Naturally this is nonsense, the problem is huge, why would all OEMs in USA insist that all electric motors on drives be protected otherwise there is "No Guarantee". As well as motor manufacturers offering electric motors with factory fitted shaft grounding rings as a standard off the shelf items. Even SKF manufactures a tester that detects shaft arcing - once again, proving that the problem is abundant all over the world.



Earthring fitted to Siemens Motor

AMB: It must be tough introducing a product in a market accustomed to a certain way of doing thing. How has response to the Earthring™ been?

TT: Well, Earthrings (Pty) Ltd is one of only three manufacturers of shaft grounding rings in the world. This is a technology that is growing at an incredible pace. We have had a larger response in the US and overseas markets than in South Africa, as the problem is unknown by most engineers in South Africa. However, in the past few months education of this problem has seen growth in the South Africa market. In Sub-Saharan Africa, we have installed Earthrings™ in Nigeria, Malawi, Swaziland, Zambia and other countries. I can confidently declare that future prospects are very bright.

AMB: Introducing a new product is not easy. Hasn't your marketing budget runs into tens of millions of dollars by now?

TT: As a small business, you don't have the luxury of splurging your limited financial

resources on fancy marketing campaigns. It is a matter of strategy. When you enter a market you have to introduce a unique product which adds more value to the end user than what is available.

Innovation is your strength. Consumers are always keen to explore unique benefits which a new product brings. At this juncture, a product's brand does not matter to the end-user, but how it is going to influence their life or business does matter. Good news spreads fast. Word of mouth marketing works like a charm. You benefit from referrals of satisfied customers.

AMB: What do you think is the future of entrepreneurship and innovation in South Africa?

TT: Entrepreneurship in South Africa is not enough, a shrinking market and increased competition require Innovation not just entrepreneurship. Innovation in products or innovation in marketing is required to start or grow businesses. "Innovative Differentiation" is the new key word to success.

AMB: How do you see yourself as entrepreneur in the next ten years?

TT: We believe Earthrings (Pty) Ltd will become a market leader of this technology over the next 3 years. We are seeing new vendors sign up weekly. In the long term, I want Earthrings to grow into a multimillion dollar entity -Africa's equivalent of Elon Musk in the industrial sector.

Currently, we are at an advanced stage of launching a store in Florida State, USA. We want to make the most of e-commerce technology.



Low Voltage Earthrings

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