

The **Full** Monty

A bulk materials handling plant encompasses a number of different specialised mechanical handling systems. The goal is to make one functional system for a specific material as it progresses through its various stages of processing. The norm the world over is for each of these specialised components to be designed and built by specialist manufacturers who often only do a single aspect of the handling system.



Roelf Odendaal, managing director of Rula Bulk Materials Handling

Our EPMC approach means we can provide a unique comprehensive service that includes all aspects of materials handling. The absolute distinction of Rula lies in our capability to not only achieve, but excel in all phases of a project."

Roelf explains, "We are equally involved in all roles, from the initial stages of concept design right through value-engineering, shop detailing, project management, procurement and manufacture, to installation and commissioning. This is accomplished by a variety of expertise in civil, mechanical, structural, C&I and electrical engineering. We also have specific skills in the design and engineering behind pneumatic and mechanical conveying plants and equipment."

Project perfection

Given Rula's extensive base of knowledge and skills, built on the foundation of experience, the company is equipped to deal with the formalities of a project as well as the finest technical details of practical work. "We have perfected the art of pneumatic and mechanical conveying as well as silo storage solutions, making us a major player in the bulk materials handling sector," says Roelf.

"There are no sub-contractors involved as we deal with the client directly, from concept development to handover. This direct relationship allows for responsive

The task of overseeing the design and manufacturing of these various components is usually undertaken by a project house, which can make the construction of an intricate plant even more complex as more and more people join the supply chain.

The 'Full Monty' in terms of bulk materials handling plants

A company that does the 'Full Monty' in terms of bulk materials handling plants is Rula Bulk Materials Handling in Honeydew. "Bulk Handling Today" talks to Roelf Odendaal, managing director of Rula, about the diversity they're offering the South African market.

All roles

"We offer the full scope from under one roof," he says. "Ours is truly a full turnkey solution, anchored in a core of excellence,



A typical Rula double pressure vessel system

communication and concurrent engineering to ultimately produce project perfection."

Benchmark

On the strength of new technology developed in-house, Rula has been recognised internationally with turnkey projects in Turkey, Reunion and Mauritius. "We thrive on design challenges," says Roelf. "As technology keeps unfolding, we never cease to strive toward greater heights by embracing new benchmarks."

Perfected the art of pneumatic and mechanical conveying

"Quality and precision in manufacture is accomplished through an extensive workshop on our premises, allowing a direct link between the skilled labourer and the design engineers," adds Roelf. "Undoubtedly one of our strengths is the ability to learn, assimilate, adapt and improve significantly on existing systems and to implement this knowledge in new designs. A variety of problems, often calling for unexpected solutions, has allowed us to develop a rare sense of creativity in our approach to all challenges. This is a definite competitive advantage in the industry."

Flow dynamics

Materials such as ash, coal and alumina are just

a few on Rula's checklist. "Over the years, our engineers have acquired a great understanding in the field of flow dynamics with integrated dynamic piping systems to cater to individual applications," says Roelf proudly.

"A defining attribute of our business is our belief that prevention is better than cure."

For example, in process design, we will rather implement preventative methods concerning issues such as wear protection, than have to tackle problems later on. It is not just a matter of simply reinforcing areas of high stress. Right up front, we pride ourselves on designing elegant flow patterns for each material flow application."

Not optimal

An example of Rula's pioneering work is their continuous long distance pneumatic conveying system. It has been developed and successfully implemented to convey material on a continuous basis with a constant conveying line pressure.

The system is briefly explained: Figure 1 shows conveying in a fairly typical system. Some have described such a system as continuous, but it is not an accurate description. The curve shows the conveying line pressure (in kPa) vs. time. The conveying sequence of each pressure vessel is quite distinct as a pressure peak at approximately 400kPa. The troughs (at approximately 160kPa)



A conveyor system installed at a power station

are the breaks between alternate vessels conveying. Such a system is not optimal for two reasons:

1. Non-continuous conveying means that the conveying capacity is reduced. There is a time lag before each vessel can convey.
2. The non-constant conveying line pressure means that the air velocity in the conveying line is also not constant. This leads to wear throughout the system as each low-pressure trough has a corresponding high air velocity.

A great understanding in the field of flow dynamics

Figure 1 is a curve from an actual Rula installation at a power station before optimisation. Figure 2 shows the same plant after optimisation. The

conveying line pressure is now almost constant, at approximately 390kPa. There is no time lag between vessels. When the first vessel finishes conveying, the second one is ready to start immediately. Thus the conveying line pressure never drops. Figure 2 represents an RCT System with higher capacity and less wear than a typical conveying system.

All-inclusive

Roelf says in conclusion, "We believe in value engineering, holding paramount the ethics of integrity and intellectual honesty. From project management and engineering right through procurement and manufacture, to installation and commissioning, we possess all of the required expertise to provide all-inclusive, turnkey solutions."

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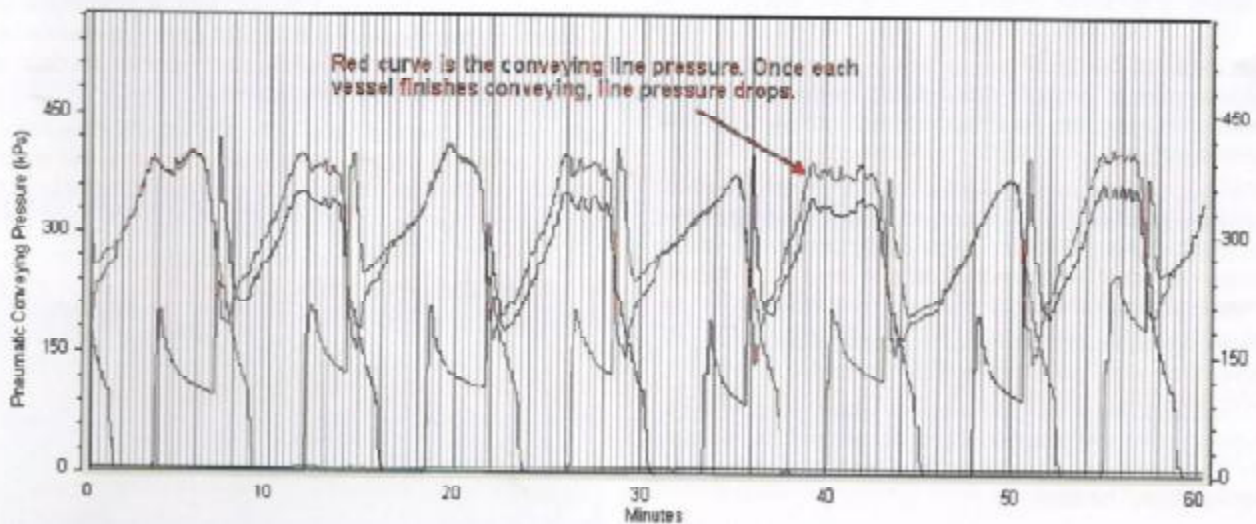


Figure 1 – Typical pneumatic conveying pressures, Line Pressure (kPa) vs. Time

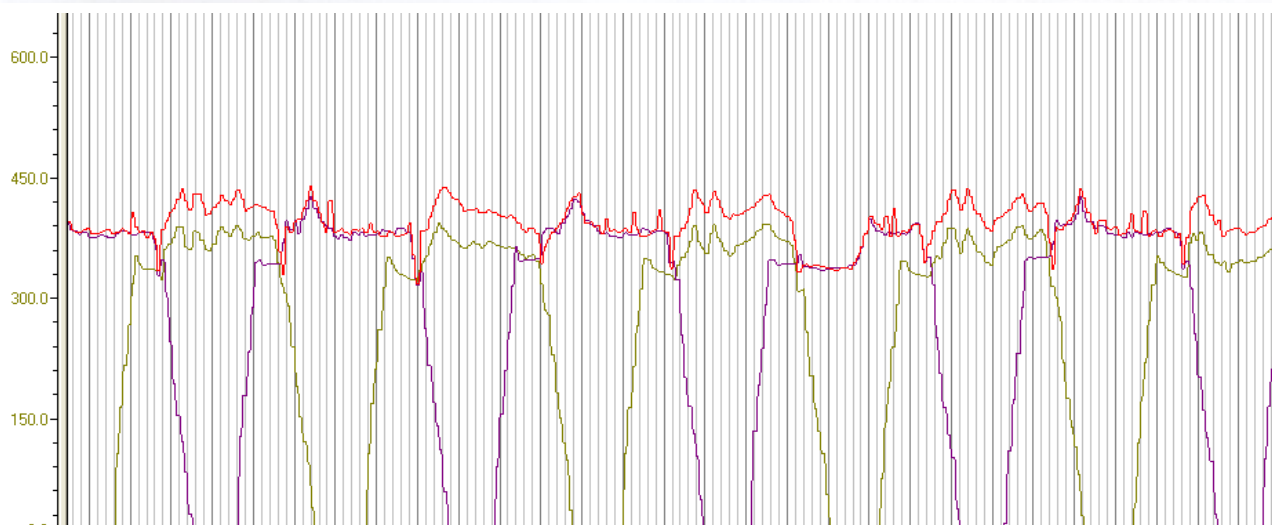


Figure 2 – Rula Continuous Long Distance Pneumatic Conveying System, Line Pressure (kPa) vs. Time