



INTERNATIONAL

MINING

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HALL OF FAME

Werner Baller / BULK HANDLING



Werner Baller is the founder and Chief Executive Officer of South-African based WEBA Chute Systems. This leading global producer of customised bulk material transfer chutes serves hundreds of clients in more than 15 countries worldwide.



The Weba Chute System is a custom engineered transfer point solution designed to address the numerous issues plants face with material movement

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He was born in 1940 in Brotdorf in then West Germany, studied a National Diploma: Ceramic Engineering at Koblenz /Rhein, Hoergrenshausen in 1964 and came to South Africa in 1965.

In 1983 he purchased a small mining supply firm, M&J Engineering, that specialised in underground coal mining equipment, laying the foundation for the establishment of WEBA.

Recognising a need in the mining and material handling industries, Baller was a true visionary who steered the company to specialise in bulk material transfer and transformed it to become what it is today: renowned as a producer of "the best quality transfer chutes in the world."

With more than 27 years' experience in transfer chute systems and over 45 years total experience in the mining and engineering industries, Baller has developed nine patented products including the WEBA Chute System.

It was during the early 1990s, that the company conducted a comprehensive study into the negative and cost incurring aspects of conventional chute design and then set about designing a transfer chute which would eliminate these problems. The result led to the birth of the WEBA Chute System – a

patented, streamlined, scientific approach to the dynamics of bulk materials handling at transfer points.

The WEBA brand is derived from the first name and surname of Werner Baller. The WEBA Chute System was patented in 1991.

A program of continuous development and improvement has seen various other patents being lodged over the years, the latest of which is the WEBA Swing Chute, Patent 2013/09648.

Current managing director of WEBA Chute Systems is the founder's son, Mark Baller who in his own right has over 20 years' experience in the mining industry, in manufacturing and project management. He studied Mechanical Engineering at the Vaal Triangle Technikon in South Africa before completing his national service and joining the family business in 1990.

Initially working on the ground floor doing installation and fabrication management, Mark Baller then spent two years in Australia, first at the University of New South Wales and then in Perth where he completed several courses in material handling. On his return to WEBA Chute Systems, he first assumed the position of Production Manager and later became Managing Director.

He is supported by Alwin Nienaber, Technical Director at WEBA Chute Systems, who has over 23 years' experience and this team is considered the perfect succession plan for the business.

Weba Chute Systems pioneered the engineered transfer point and it was through the company's ability to view it in a completely different way that industry is today able to control the flow of material with all the benefits that this brings

WEBA Chute Systems should not be compared to conventional chute systems as these South African engineered and manufactured systems adopt a completely different approach to the control and handling of bulk materials. These are considered by industry as an improved alternative to traditional chute systems.

The WEBA Chute System is based on the lined 'super tube' or cascade system, whereby much of the material runs on material always. The bottom layer of particles in the product stream moves in a tumbling motion and subsequently does not slide down the chute. This not only reduces the wear significantly, but in many cases the lip remains completely covered by material and never needs replacement.



Control of material from the transfer point is critical to optimise belt life

The WEBA Chute System takes this means of controlling material movement a step further by designing the internal angle of the transfer chute to match the product discharge velocity with the belt speed, which eliminates or greatly reduces spillage. Extensive experience and technical expertise, coupled with applications knowledge, has positioned WEBA Chute Systems as the leader in its field.

Each WEBA Chute System is custom designed for a specific application, considering factors such as belt

width, belt speed, material size and shape, as well as throughput. When applied to a greenfield project, this transfer system achieves the optimum design configuration for a specific application.

Both retrofit and greenfield projects using Weba Chute Systems & Solutions can realise an 80% reduction in material degradation as well as greatly reduced dust and noise levels. Other benefits include reduced production losses due to less blockages, significantly reduced spillage and vastly improved safety levels. Inspection and maintenance are facilitated by easy access, while the system does not require ongoing supervision, which translates into reduced labour and related costs.

Teck Resources, recently contracted WEBA Chute Systems to install a new transfer point on an underperforming chute at its Carmen de Andacollo copper mine in the Coquimbo region of Central Chile.

The custom engineered chute system transfers material from a double deck screen that feeds oversize material from both decks to a conveyor. Material throughput is 2,000 t/h, with a lump size of minus 85mm.

In the previous installation, the way that material was being presented onto the conveyor was causing impact damage and excessive spillage and spillage had to be controlled using extremely hard skirtings under such tension that this had been causing extreme damage to the conveyor, resulting in frequent belt replacement.

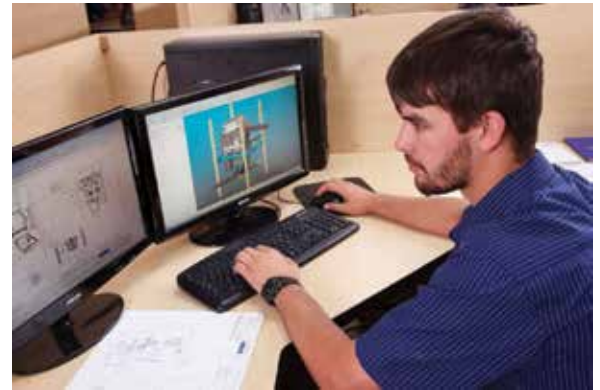
The cost of replacing a conveyor belt, not to mention the downtime associated with belt maintenance and replacement, makes it worth looking more closely at any measures that will extend the conveyor's life. Typically, conveyors such as feeders, crushers, hoppers and screens are selected to match certain operational requirements, but there is little emphasis on the design of the chutes that transfer materials between elements.

WEBA Chute Systems has always maintained that this is a

mistake as chutes are essential elements in a bulk solids handling plant and are also subject to operational characteristics and physical constraints.

Among the most common problems on transfer chutes are spillage, blockages and high levels of wear on the receiving belt due to major differences between the material velocity and the belt velocity. There is also a potential misalignment problem of the receiving conveyor belt which is caused by uneven loading from the transfer chute.

Key to solving these challenges is good design which is the foundation on which WEBA Chute Systems has been built. While conventional chute design often allows the uncontrolled discharge of bulk materials, WEBA Chute Systems embraces a holistic design focusing not only on the entry and exit points, but also controlling the flow, volume and velocity of the material being transferred.



Extensive use of made of sophisticated 3D computerised software by Weba Chute Systems

A primary aim for the WEBA Chute Systems engineers is to achieve controlled transfer of material onto the conveyor belt, reducing wear and tear on belts while also minimising the impact that creates dust. The results are cost savings for customers and better occupational health and safety compliance.

All WEBA Chute Systems are designed using sound engineering principles and sophisticated 3D software. Discrete Element Method (DEM) simulation is also used as a verification tool.

The company invests thousands of research hours into understanding the dynamics of bulk materials handling at transfer points. This is followed up with quality manufacture in the company's ISO 9001:2015 accredited facility.

However, these capabilities are only as valuable as the data that WEBA Chute Systems gets from its customers, and close working relationship are fostered as a vital cornerstone for a successful outcome on all projects.

The ability to engineer transfer points for individual application requirements within a plant is a unique selling point for WEBA Chute Systems. This capability has enabled it to supply a total of 13 custom chute systems to a diamond mine in Botswana, where they have replaced existing aging transfer points, and were designed taking all operational factors into account.

These replacement chutes formed part of an upgrade being done to the plant and assisted the operation to increase production.

