UNIVERSITY OF NEWCASTLE AUSTRALIA

TUNRA BULK SOLIDS

Services

Transfer Chute Design

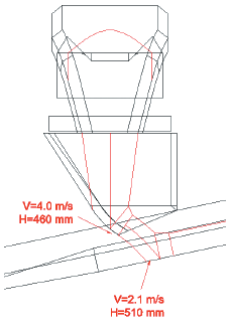
Transfer Chute Audits, Reviews and Conceptual Design

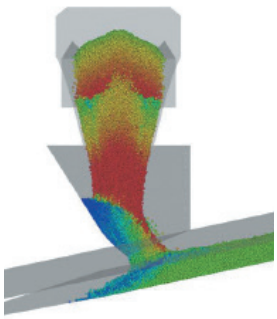
In the field of bulk solid materials handling, transfer chutes are critical components of mines, ports and power plants. The key to design an optimal transfer chute is a deep understanding of granular dynamics and material properties. TUNRA Transfer Chute Technology includes the utilisation of both continuum modelling and DEM simulation.

Continuum Modelling

With regard to transfer chute analysis techniques, the continuum method was developed by Em/ Prof Alan Roberts in 1965 – based on granular dynamics and uses measured material properties

- Equations of motion
- Material properties



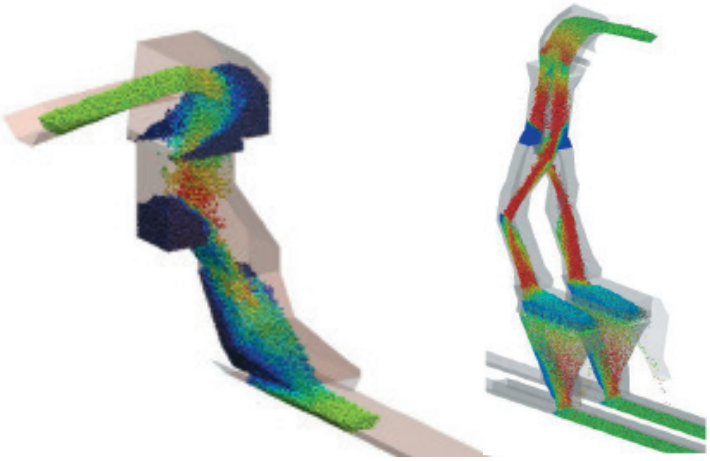


Continuum – granular dynamics based on bulk density and friction – predicts velocities and burden depths

Discrete Element Modelling (DEM)

DEM has proven itself to be an effective tool for analysing and optimizing particulate flow in a wide range of bulk material processing and handling operations. TUNRA Bulk Solids provides consulting services involving the use of DEM, including audits/reviews and conceptual design of transfer chutes.

- Material properties
- Contact model
- Calibration



DEM – parameters are selected based on calibration testing – excellent visualisation tool as well as allowing numerical analysis

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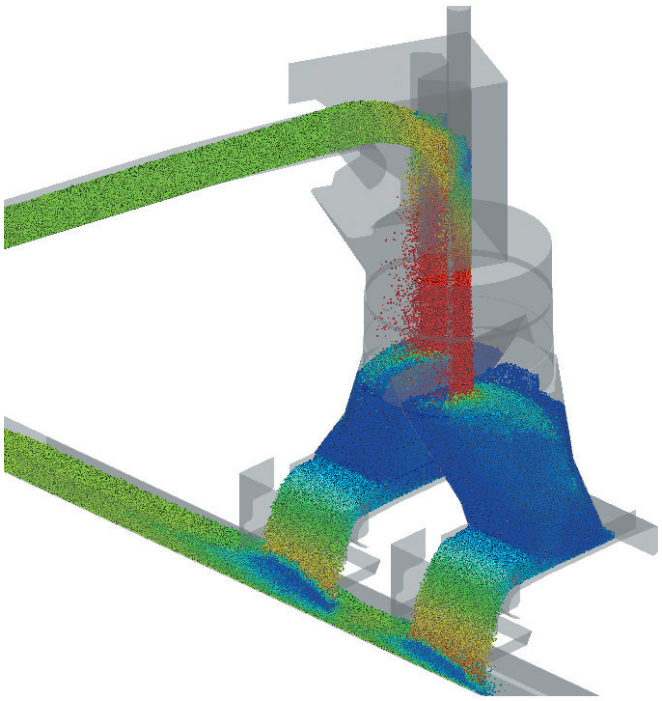


What Transfer Chute Design Services are available?

With the track record of successful completion of transfer chute projects in various industries, TUNRA Transfer Chute Technology ensures:

- Increase of plant throughput by efficient transfer of bulk solids without spillage and blockages;
- Cost reduction of chute and belt wear;
- Minimisation of plant stoppages caused by belt mis-tracking;
- Environmental control by reducing dust emission and noise;
- Favourable chute cut-off angles (slope) to guarantee flow at specified rate under all conditions, minimising flow retardation and preventing blockage;
- Selection of the most favourable wall lining material based on flow property testing results - lowest friction, highest abrasive wear resistance;
- Minimisation of normal component of bulk solid material stream velocity at loading point - reducing impact wear on the belt.

Our wide-ranging experience includes:

- Hood & spoon transfer chutes;
- "Rock box" transfer chutes;
- Large/small vertical drop transfer chutes;
- Stacker and reclaimer chutes;
- Ship loaders;
- Train loaders and discharge.

Why TUNRA Bulk Solids?

Experience and Expertise
We have provided expert solutions to industry for over 45 years and are the leading organisation for materials handling research and consulting in Australia and internationally

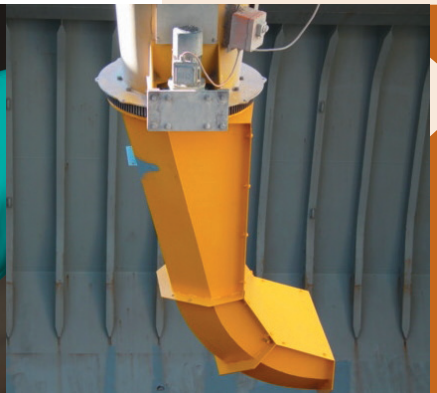
Research and Development
We have a proven track record in research and development through the close association with The University of Newcastle

Quality Service
We have highly qualified, well-trained and specialist staff that are committed to delivering excellence

First Class Facilities
Our laboratory is a state of the art facility located within the Newcastle Institute of Energy and Resources (NIER) at The University of Newcastle

Industry Standards
We are accredited to ISO 9001, ISO 45001 and ISO 14001

Independent
We are independent and not for profit



Further information

- To access our Case Studies **visit www.bulksolids.com.au**
- To discuss your industry and business needs **phone 02 4033 9055**