CASE STUDY

Vortex® Discharge System

Bradken Vortex® Discharge Ends are designed to improve uni-directional AG/SAG mill performance. Each design is customised to suit your mill size, application and operating conditions.

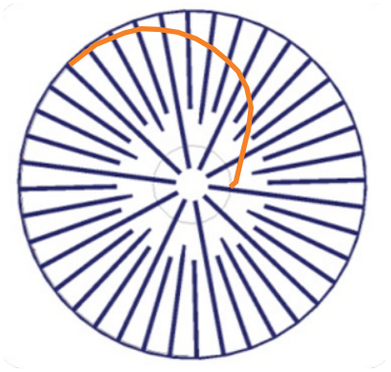
The Vortex® design can be fully retrofitted to an existing mill or supplied for new mills.

The Vortex® Discharge End has been developed to encourage early discharge of coarse product that travels down the pulp lifters during each revolution of the mill. Modelling shows the Bradken Vortex improves product movement and reduces the time to exit the discharge cone.

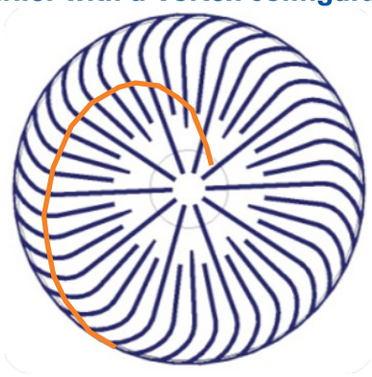
The Bradken Vortex® Discharge System

- Provides superior discharge performance for SAG and AG mills
- Is ideally suited to high throughput, high solids discharge mills
- Increases ore throughputs
- Increases pulp lifter wear life
- Increases recycle loads
- Can be fully retrofitted

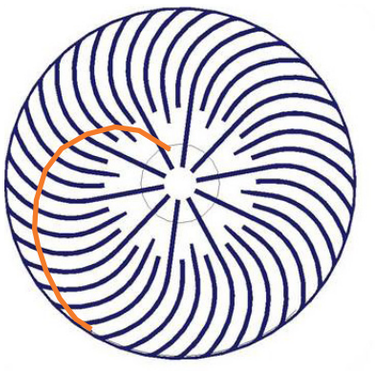
The following images represent the modelling of an 80mm ball travelling down the pulp cavity of a 40ft mill using the same operating settings and demonstrate product discharging earlier with a Vortex configuration.



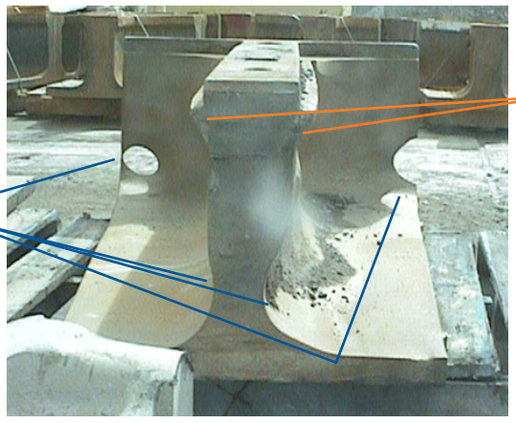
Ore exits at 3 o'clock using a straight radial design



Ore exits at 1 o'clock using a vortex vane

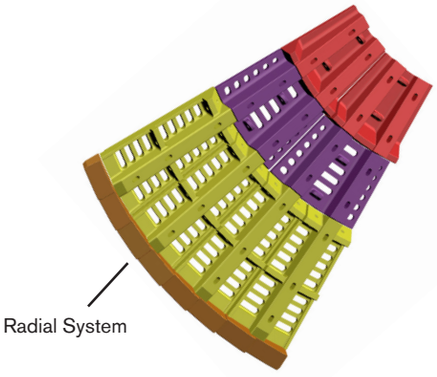


Ore exits at 12 o'clock using a surper vortex vane

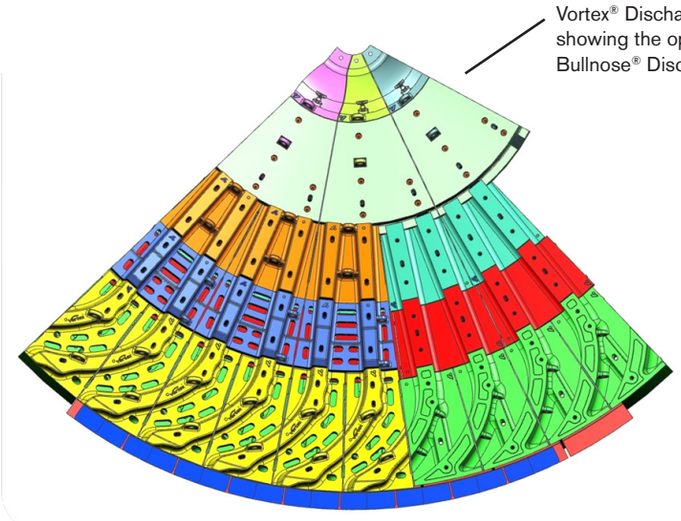


Wear pattern from product exiting the pulp channel

Wear pattern from product flowing back down the pulp channel that has not exited the mill



Radial System

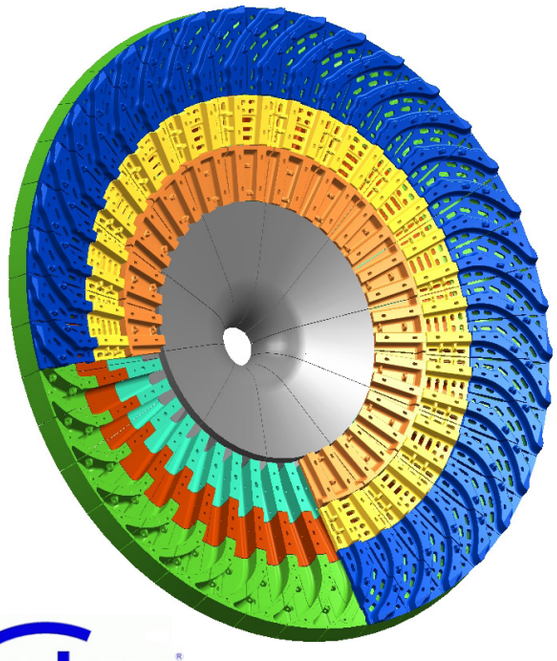


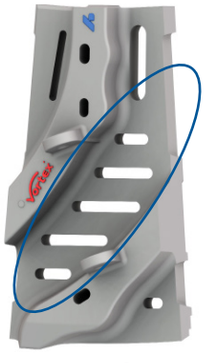
Vortex® Discharge System showing the optional Bullnose® Discharge Cone

Benefits of the Vortex® Discharge System compared with the Radial System

- **Increased Throughputs**
  - Overall increase from 2434 t/hr to 2646 t/hr
  - Increase in total effective open area from 5% to 6.15%
- **Increase Wear Life**
  - Pulp Lifters life increased from 14 months to 24 months
- **Recycle Loads**
  - 29% Increase
- **Installation & Fit**
  - Able to be Fully Retrofitted

Radial Grate
Effective Grate open Area 5.25 m²
Total Effective Open Area 5.00%





Vortex Grate
Effective Grate open Area 6.46 m²
Total Effective Open Area 6.15%