



Fertilizer Producer Ramps Up Capacity
**with CDM Bucket Elevator
and En-Masse Conveyor**

“I’ve always felt that CDM’s equipment meets exactly what we want out of it and their customer service is the best I’ve ever come across. There’s a lot of value in being able to get a hold of them when you have a question.”

– Senior Project Manager, Fertilizer Producer

THE SITUATION

A North American Fertilizer Producer was updating its process to increase production of a specialty product. The process required various screens to be added for over and under separation.

A NEW BUCKET ELEVATOR WAS NEEDED TO LIFT THE PRODUCT AND A NEW EN-MASSE DRAG CHAIN CONVEYOR WAS NEEDED TO MOVE THE PRODUCT THROUGH THE SCREENING PROCESS.

Off-spec product, unable to pass final screening for loadout, would be recycled back through the process.



THE CHALLENGE

With a very limited installation envelope inside the facility and the large physical size of the additional screening equipment, a 15-degree incline was required for the en-masse drag chain conveyor – which would carry product to two separate screens and a recycle discharge.

THE MILL'S NEED FOR A 700 MTPH CAPACITY AND SPATIAL LIMITATIONS RESULTED IN DIFFICULT EQUIPMENT SIZING, LAYOUT AND OPERATING CONDITIONS.

CDM had to figure out how to accommodate the expansion in production with a challenging installation and configuration.



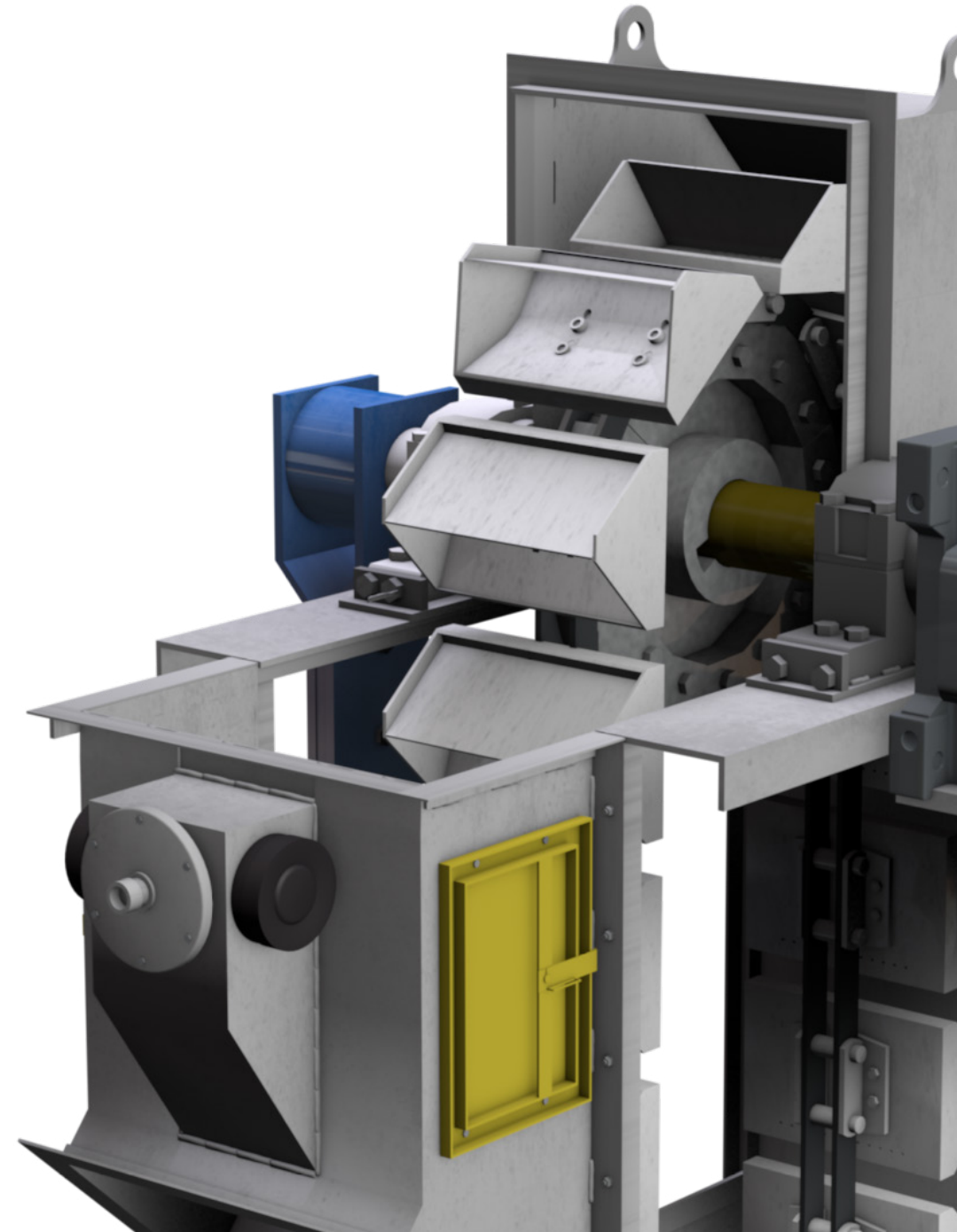
THE SOLUTION

The Fertilizer Producer was able to solve two problems at once with CDM, which manufactured both the high-capacity continuous elevator and inclined en-masse conveyor.

Bucket Elevator:

- Built with high-capacity buckets and robust chain to provide a continuous product flow to the downstream conveyor and minimize surging.
 - Further detail was provided for maintenance and access to the elevator because inspection and observation at the boot would be limited.
 - Sliding barn-style access doors at the boot, internal gravity take-up, 316SST construction for washdown and modular design were all included in the boot design.
- The boot was designed for entire internal take-up assembly (shaft, traction wheels, bearings, take-up frame) to be removed as an assembly through these panels.
 - Upper casing section was provided with inspection doors for observation of the chain, buckets and fill.
 - Strategically located access doors on the casing above the boot section allow for bucket replacement, repair or maintenance at a location more conducive to maintenance personnel.

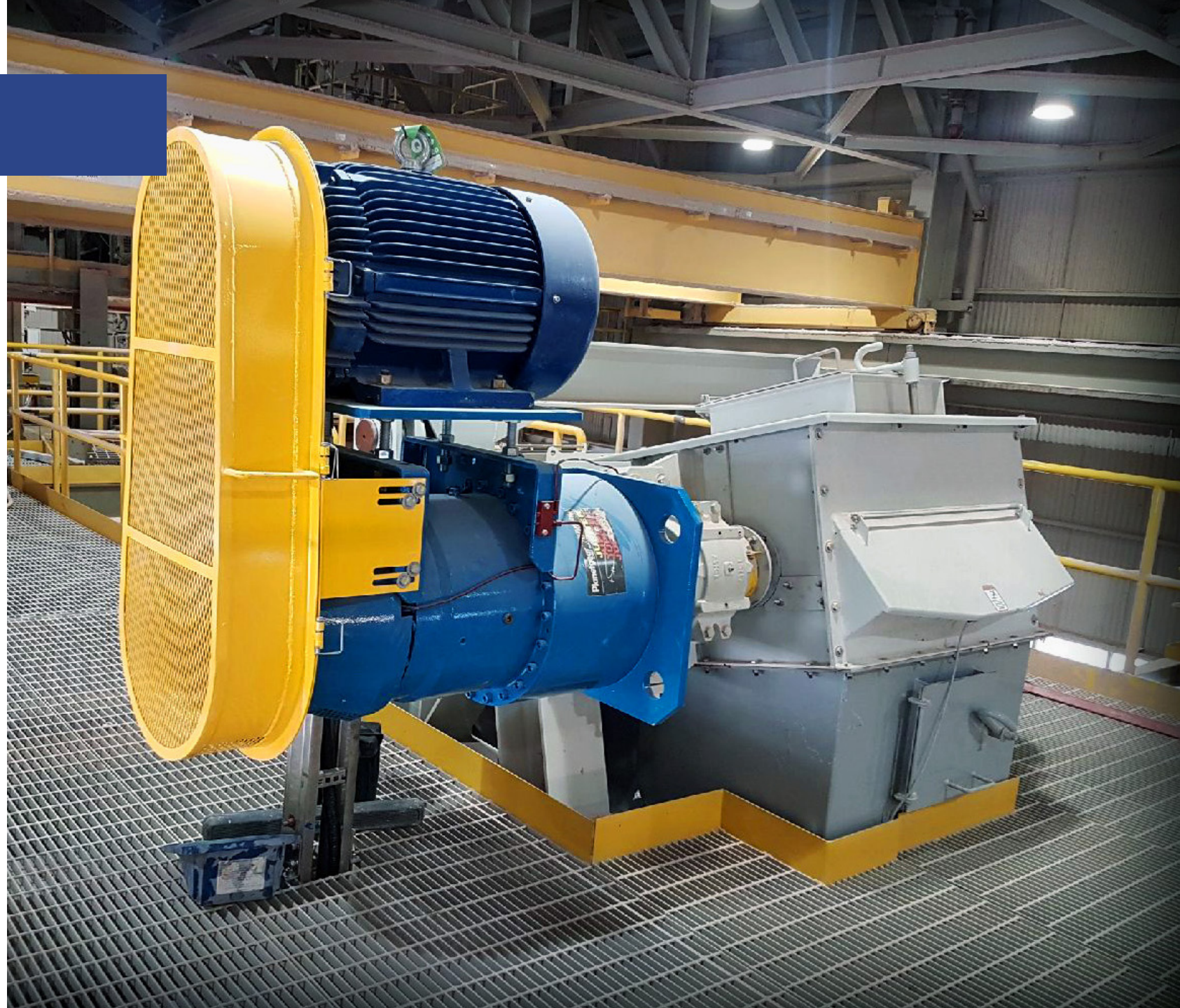
THE BUCKET ELEVATOR WAS ONE OF THE HIGHEST CAPACITIES CDM HAS EVER BUILT - NEARLY TWICE THE SIZE OF ANY OTHER BUCKET ELEVATOR ON FERTILIZER PRODUCER'S SITE.



THE SOLUTION

Drag Chain Conveyor:

- Built with “twin strands” to accommodate the capacity while mitigating the operating speed.
- Materials of construction were altered to improve wear-resistance and minimize replacement of normal wear items because of the associated high capacity and maintenance cycles.
- Chain flight configuration was altered to ensure product acceleration at the inlet and to minimize surging caused by the combination of the conveyor’s incline and a continuous discharge elevator.
- Access panels (50” x 60”) were fabricated from 5052 aluminum and provided with sliding rollers to remove the need for monorail or ancillary winches for access – allowing easier access for proper preventive maintenance.



THE RESULTS

Despite the higher speed and greater load on the equipment, CDM's bucket elevator and en-masse drag conveyor have withstood the rigors of handling a large capacity of the moderately abrasive and moderately corrosive product - which makes it practical for everything from fertilizer, potash, phosphorus, etc.

The Fertilizer Producer has hit their desired output of 700 metric tons per hour, which has allowed them to increase production and maximize profits. Despite rigorous tasks, the Fertilizer Producer hasn't experienced any downtime with the equipment.



The way the equipment is shipped in modular sections really speeds up the installation process. All the parts are easily labeled and were welded into the equipment, so assembly was really easy and really saved important time during construction.”

- Senior Project Manager, Fertilizer Producer

