

COBALT HYDROXIDE FILTER CAKE STORAGE AND FEED (2011)

Democratic Republic of Congo



SUMMARY

KAMENGO FEEDERS:	(4) Kamengo Feeders
BIN STORAGE:	(4) 1090 cu-ft bins
POWER:	(2) 10HP motors
CAPACITY:	0-15 t/hr
PARTNERS:	Hatch Mississauga

SIMILAR PROJECTS

Recycled Gypsum Storage and Feed (1994)
Vancouver, British Columbia, Canada

Recycled Gypsum Storage and Feed (1996)
Winnipeg, Manitoba, Canada

Rock Phosphate Storage and Feed
Edmonton, Alberta, Canada

Synthetic Gypsum Storage and Feed (2009)
Fort McMurray, Alberta, Canada

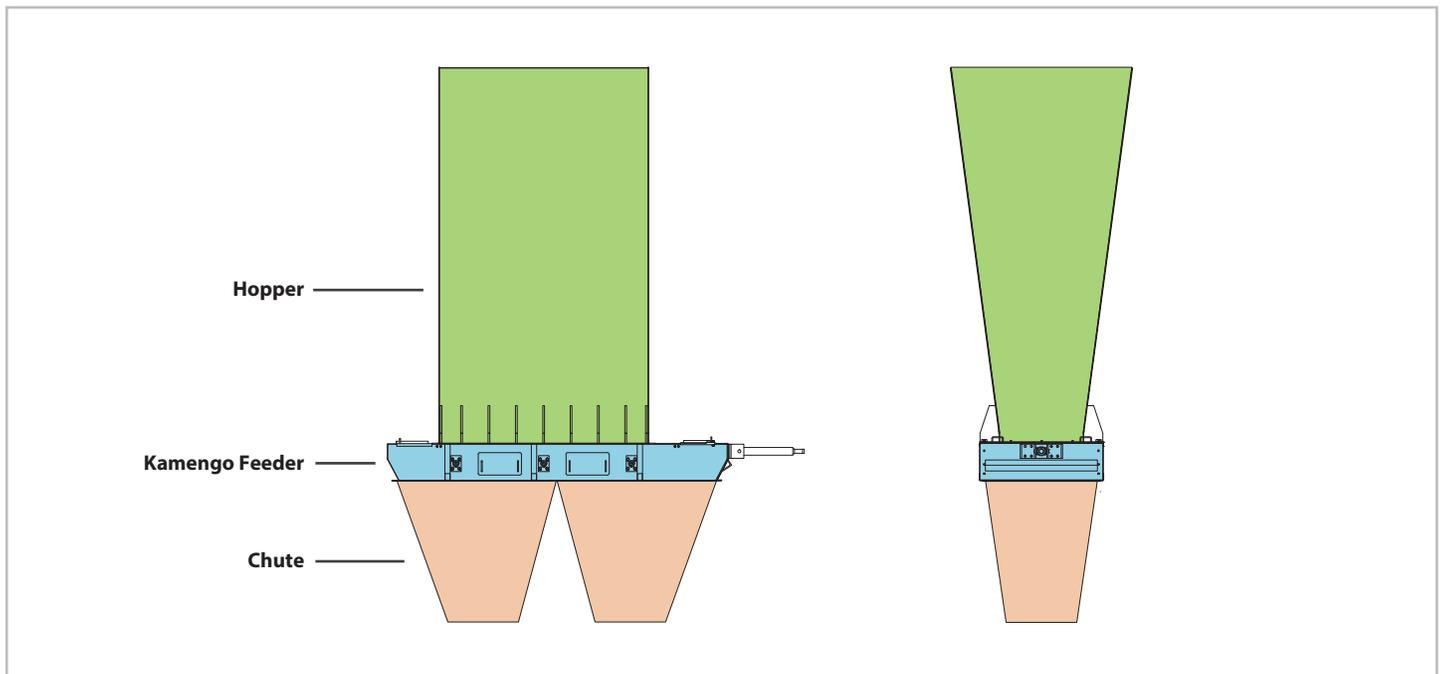
SYSTEM OVERVIEW

This installation serves one of the world's largest copper and cobalt mines. Jenike & Johanson was hired to do material characterization testing and recommended to the client that it use a Kamengo Feeder. J&J concluded that the material is very difficult flowing and that a mass flow feeder was required.

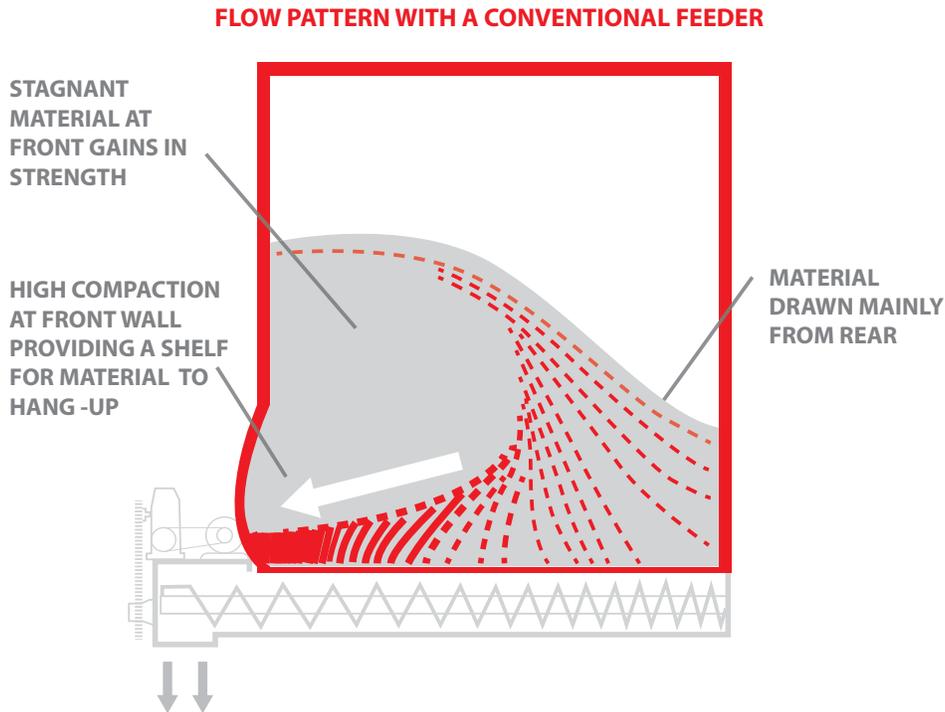
Kamengo also performed material testing and found that the material is similar to gypsum – a sticky, cohesive material. Using the material's flow characteristics Kamengo proposed a concept using a plane flow, mass flow bin. The concept with the Kamengo Feeder was tested using Kamengo's pilot scale bin and feeder located in Vancouver, BC. The client shipped several barrels of material from site which was further wetted down and run through the pilot bin and feeder. The successful pilot scale test convinced the client to expedite the project.

On-site, the client has four feeders in operation. Each feeder fills two bags with cobalt hydroxide filter cake as the material is received from a filter press. Above each feeder is a plane flow hopper designed by Kamengo.

SYSTEM LAYOUT



WHY DO CONVENTIONAL FEEDERS PLUG?



WHAT IS HAPPENING INSIDE THE BIN?

Most feeders draw material primarily from the rear of the bin, with little material drawn from the front. This problem is particularly severe when handling low bulk density fibrous materials. With fibrous materials, the pulling action of the feeder is felt well above in the bin, resulting in severe compaction, and in extreme cases, distortion of the front bin wall.

POOR FLOW PATTERN RESULTS IN HANG-UPS

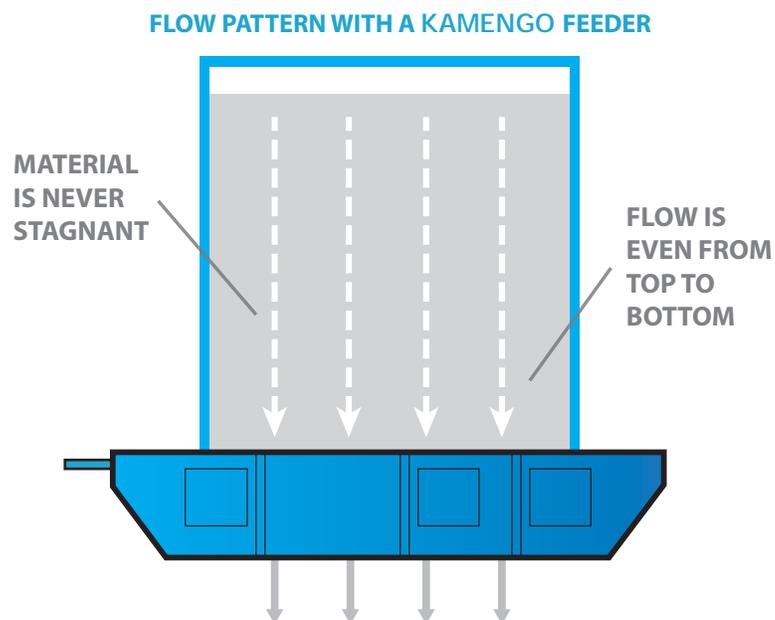
The compacted and stagnant material at the front of the bin is a major cause of bridging and hang-ups. Also, with material drawn mainly from a small section at the rear of the bin, live storage is greatly reduced, and stable rat-holes are permitted to form, resulting in dangerous bin hang-ups.

PUTTING ENERGY TOWARDS THE WRONG PURPOSES

Most feeders withdraw material by developing a shear line at the hopper/feeder interface. This shearing action not only contributes to compaction of the stored material, but also results in excessive wear of mechanical parts.

To learn more about reliable bin and feeder design, visit our website at www.kamengo.com.

HOW IS THE KAMENGO FEEDER DIFFERENT?

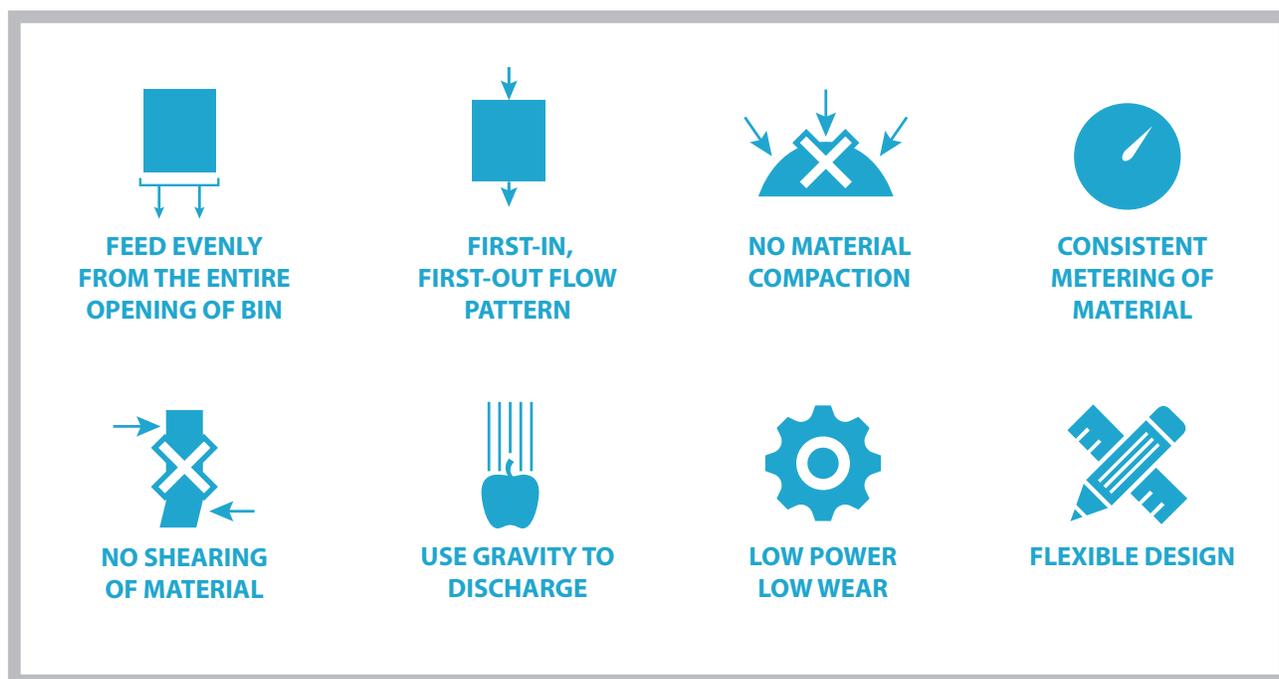


The Kamengo Feeder is different because it meters material evenly from the entire hopper outlet. With no stagnant pockets, the stored material is not afforded an opportunity to hang up.

Also, the Kamengo Feeder does not use brute force to extract material out of storage. Instead the Feeder relies on gravity and good bin geometry to reliably discharge the stored material. As such, the Feeder does not compact material, and thus allow it to gain strength and hang up. Also, because the Feeder does not put energy into shearing the material out of the bin, it requires far less power than a conventional feeder, saving energy and minimizing wear.

To learn more about the Kamengo Feeder visit our website at www.kamengo.com.

KEY FEATURES OF THE KAMENGO FEEDER



KAMENGO SPECIALIZES IN THE STORAGE AND FEED OF DIFFICULT FLOWING BULK MATERIALS

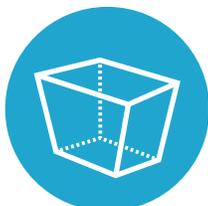


What makes Kamengo different is the tool kit we use to solve complex materials handling challenges:



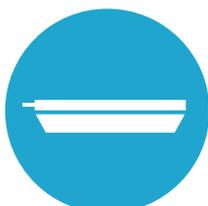
Equipment To Characterize The Flow Properties Of Fibrous And Cohesive Materials

In the 1980's Kamengo developed new testing equipment capable of characterizing the flow properties of stringy, fibrous and cohesive materials.



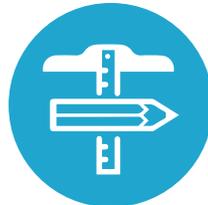
Design Protocols To Determine Correct Bin, Feeder And Chute Geometry

Kamengo has developed design protocols that use a material's flow properties to determine the bin, feeder and chute geometry required to promote reliable material flow. Correct equipment geometry will deny a stored material the conditions it needs to gain in strength and hang-up.



The Kamengo Feeder: Proven Solution For Handling Difficult Flowing Materials

The Kamengo Feeder resolves many of the shortcomings of conventional feeders. The Feeder withdraws material evenly from the full discharge opening of the hopper *and* does not compact stored material, resulting in a fully live bin. With installations running 24/7 for more than 20 years, the Kamengo Feeder has proven that it is a reliable solution for handling difficult flowing materials.



The Kamengo Feeder: A Design Advantage

The flow properties of difficult flowing materials often demand a fully live bin. A fully live bin is very difficult to achieve with a conventional feeder, but is easily achieved with a Kamengo Feeder.



Skilled Design Practice

Over the past 25 years, Kamengo has developed a design practice capable of tackling complex projects, including retrofits of storage and feed arrangements that suffer from plugging. Kamengo has the engineering capability to deliver complete packages of materials handling equipment including storage bins, feeders, chutes, structural work, and conveyors. We have delivered solutions for biomass, ore concentrates, fly and wet bottom ash, wood chips, pellets, and FGD gypsum.

► **We invite you to explore how Kamengo can apply its specialized tool kit to solve your materials handling challenges.**



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