

# HOG FUEL BOILER STORAGE AND FEED RETROFIT (1994)

Kamloops, British Columbia, Canada



# SUMMARY

**KAMENGO FEEDERS:** (12) Mini boiler feeders

**BIN STORAGE:** (12) Surge bins

**POWER:** (1) 20HP motor

## SIMILAR PROJECTS

**Hog Fuel and Turkey Waste Boiler Storage and Feed (2007)**  
Benson, Minnesota, USA

**Hog Fuel Boiler Storage and Feed (1993)**  
Peace River, British Columbia, Canada

**Hog Fuel Storage and Feed Day Bin Retrofit (2007)**  
Port Townsend, Washington, USA

**Hog Fuel Storage and Feed Bin Retrofit (2004)**  
Bogalusa, Louisiana, USA

**Hog Fuel Pile Reclaim (2003)**  
Kamloops, British Columbia, Canada

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## SYSTEM OVERVIEW

The Kamloops installation is a retrofit of an existing hog fuel storage and feed system on two boilers.

The Kamengo equipment replaced a series of rotary star feeders. Kamengo supplied a new surge bin, Kamengo Feeder, and chute for each boiler inlet. Each set of bin, Feeder and chute are supported off the existing concrete floor.

The boiler feed system for the first boiler (Boiler #3), was retrofitted in 1994 after a one year trial. The mill was pleased with the performance of the Kamengo Feeder so it retrofitted its Boiler #4 feed system when it was re-built in 1996.

Mill personnel have remarked that with the introduction of the Kamengo Feeder, biomass as a per cent of fuel consumed increased from 75% to 95%.

In addition to improved reliability from the elimination of hang-ups, the Kamengo Feeder provides a uniform steady discharge of hog fuel, which is in contrast to the pulsating action of screw or star feeders. This steady stream of fuel resulted in improved boiler efficiency and steam output.

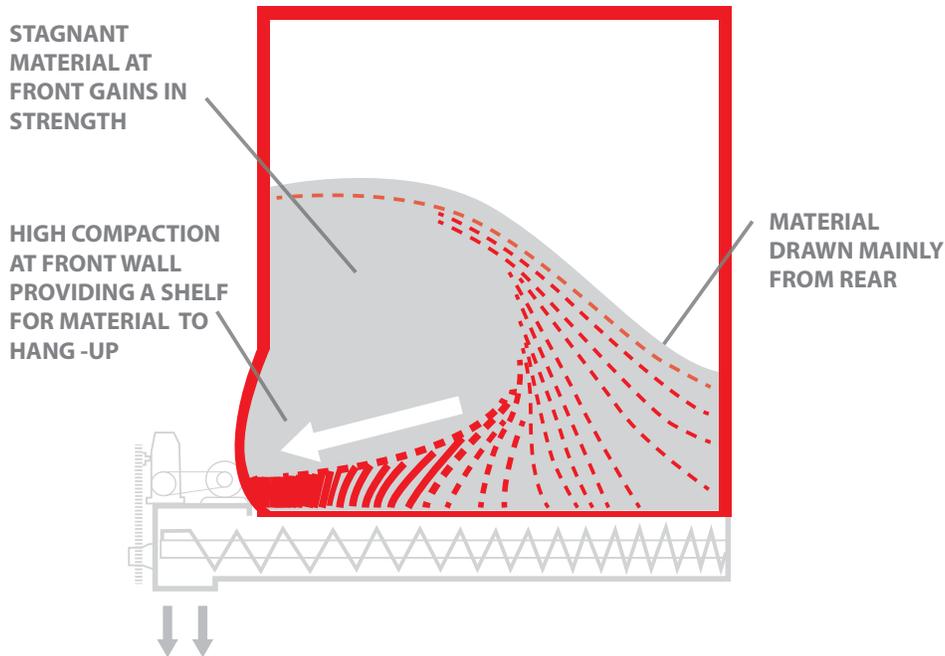
**With the introduction of the Kamengo Feeder, biomass as a per cent of fuel consumed increased from 75% to 95%**

The corresponding reduction in supplemental fuel and improvement in boiler efficiency resulted in a quick pay back - which is typical of a Kamengo Feeder boiler feed retrofit.

Since undertaking the boiler feed retrofit, the mill continued to demonstrate confidence in the Kamengo Feeder and its capabilities. In 1995, the mill installed a boiler fly ash storage and load-out system using the Kamengo Feeder. Further, in 2003 the mill installed a 19-foot reclaim feeder that is used to reclaim hog fuel from a 30-foot high pile.

# WHY DO CONVENTIONAL FEEDERS PLUG?

**FLOW PATTERN WITH A CONVENTIONAL FEEDER**



## 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

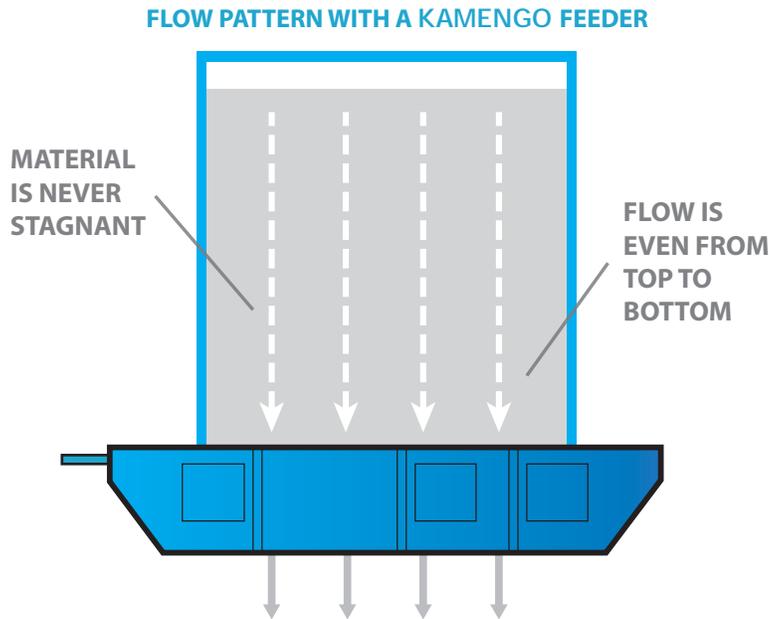
The compacted and stagnant material at the front of the bin is a major cause of bridging and hang-ups. Also, with material drawn mainly from a small section at the rear of the bin, live storage is greatly reduced, and stable rat-holes are permitted to form, resulting in dangerous bin hang-ups.

## 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](http://www.kamengo.com).

# HOW IS THE KAMENGO FEEDER DIFFERENT?

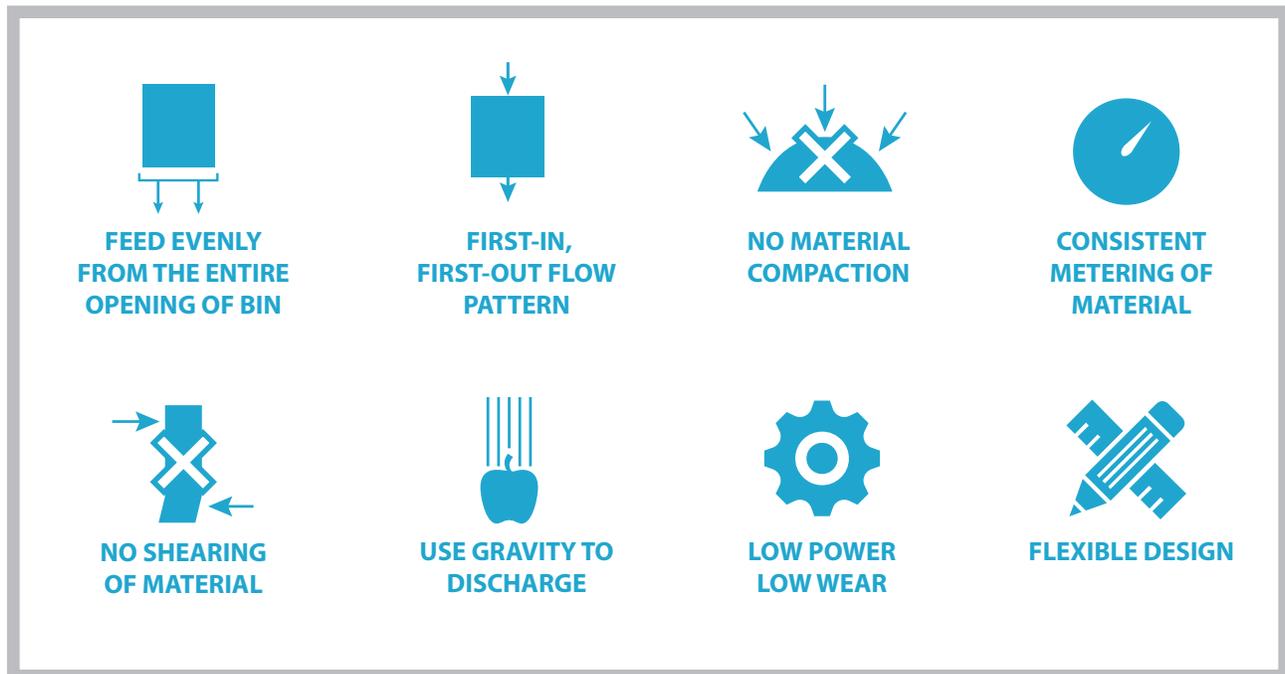


The Kamengo Feeder is different because it meters material evenly from the entire hopper outlet. With no stagnant pockets, the stored material is not afforded an opportunity to hang up.

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](http://www.kamengo.com).

## KEY FEATURES OF THE KAMENGO FEEDER



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

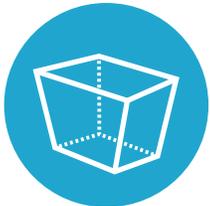


What makes Kamengo different is the tool kit we use to solve complex materials handling challenges:



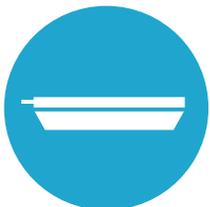
**Equipment To Characterize The Flow Properties Of Fibrous And Cohesive Materials**

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



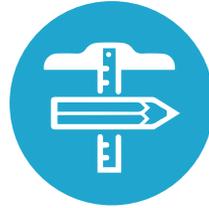
**Design Protocols To Determine Correct Bin, Feeder And Chute Geometry**

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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