Which Way to the Future

Methods of Processing Municipal Solid Waste

- City of North Augusta
  - Bag Opening System
  - Ballistic Separator
- Dirty MRF
  - Finger Screen

Technologies for Separating MSW

City of North Augusta

- Existing facility 19 years old
  - Transfer station for MSW
  - Single Stream System with one picking line
- Criteria of new MRF
  - Process both MSW and Single Stream on same system
  - Open bags of MSW
  - Add second pick line
  - Separate containers from paper to improve throughput
  - Remove glass, organics and fines

City of North Augusta MRF

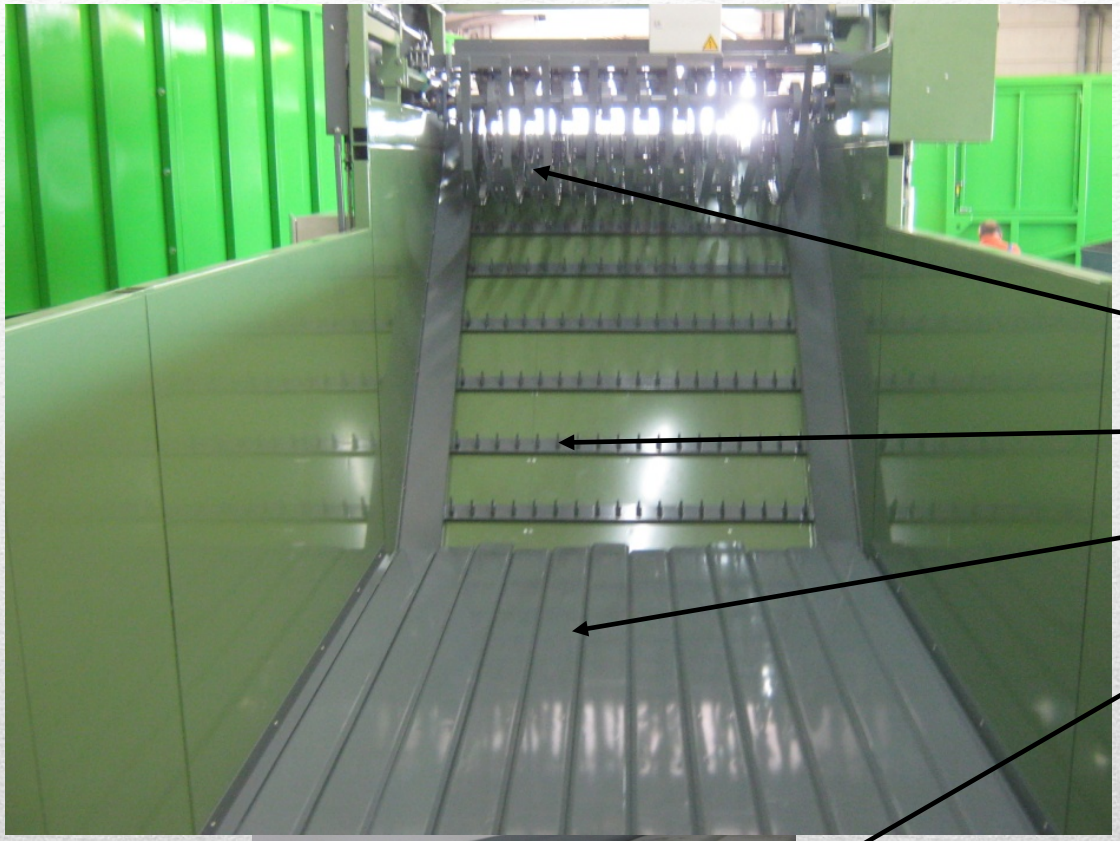
Bag Opening System – Criteria

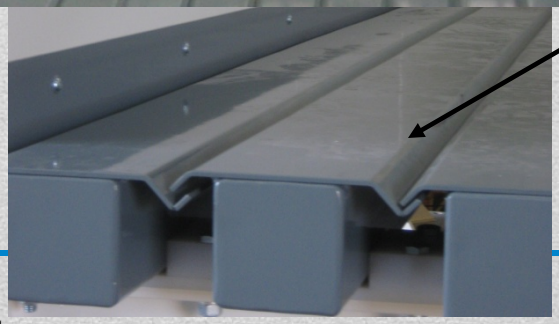
- Open bags effectively
- Do not blend material
- Low maintenance
- No wrapping
- Metering effect on material

Bag Opening System

Bag Opening System

Walking Floor Bunker Storage





Bag Opening Mechanism

Chain Conveyor

Walking floor

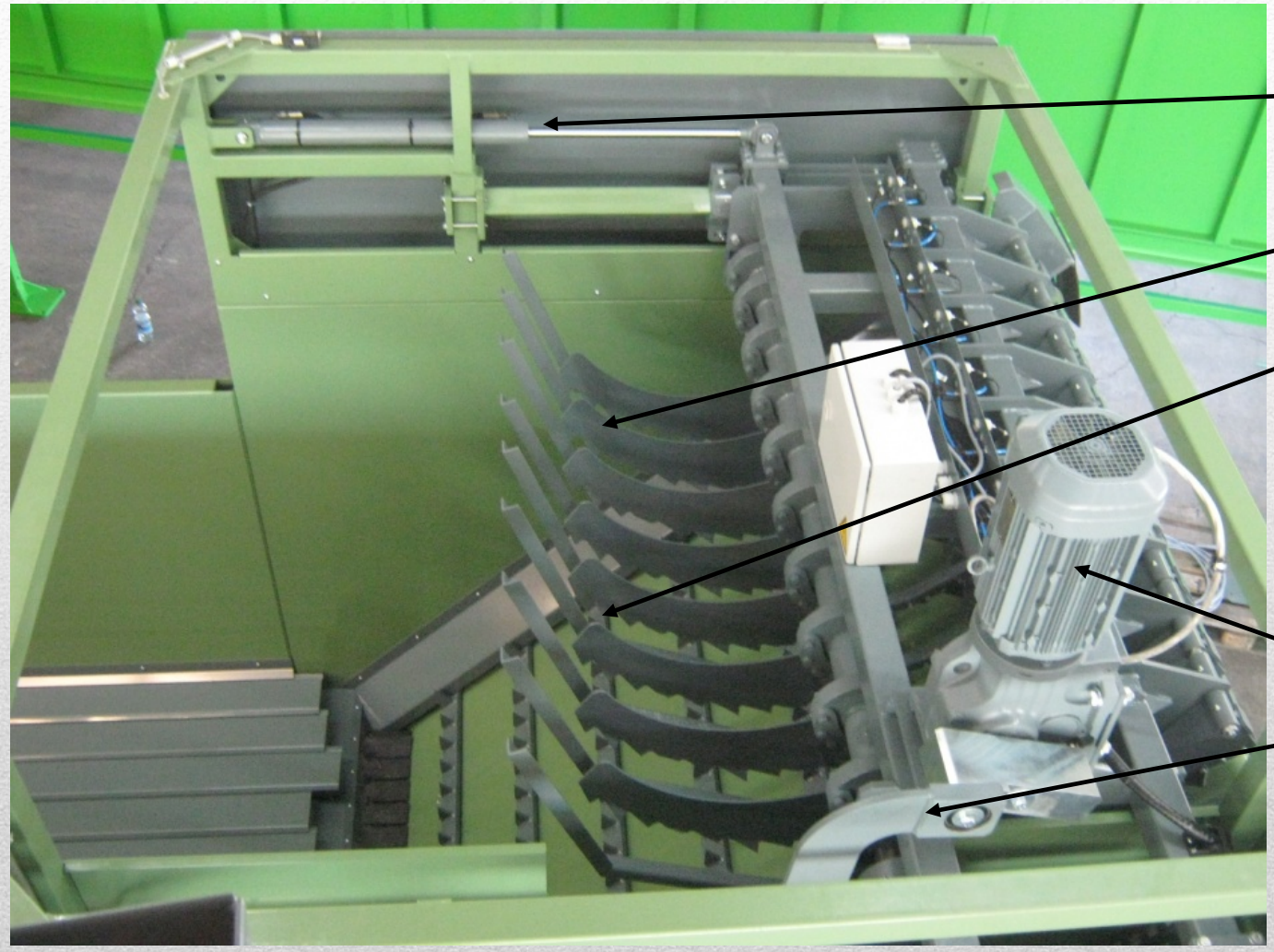
Walking floor slats

Metering Chain Conveyor

Metering chain conveyor

Steel bars with teeth for enhanced bag opening and material transfer.

Bag Opening Mechanism



Operation of Bag Opening System

Operation of Bag Opening System

No rotating shafts for cleaning and easy maintenance

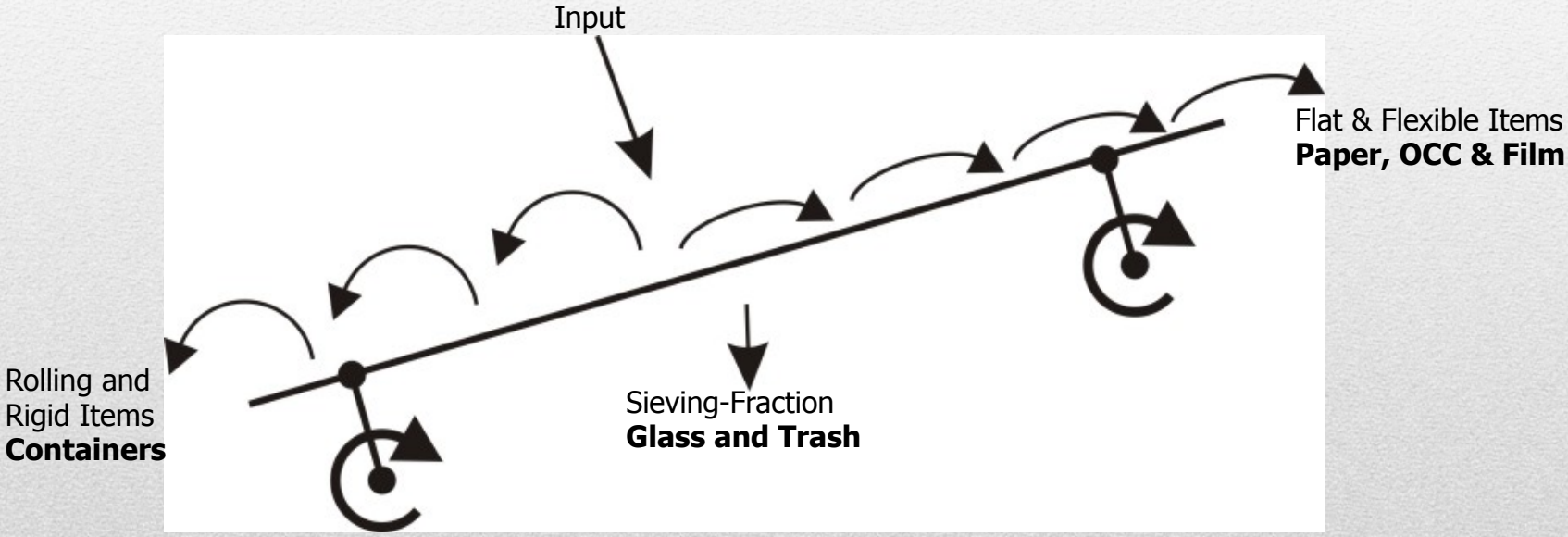
Ballistic Separator

- Separation of flat/flexible from rigid material
- Remove glass/fines for waste stream
- Ease of maintenance and cleaning

Ballistic Separator

How the Sorting-Process works on a Ballistic Separator

- -Angled cleats will kick rolling and rigid items down the paddle
- -Flat and flexible items will carry up the paddle
- -Small items will fall through the sieve mesh



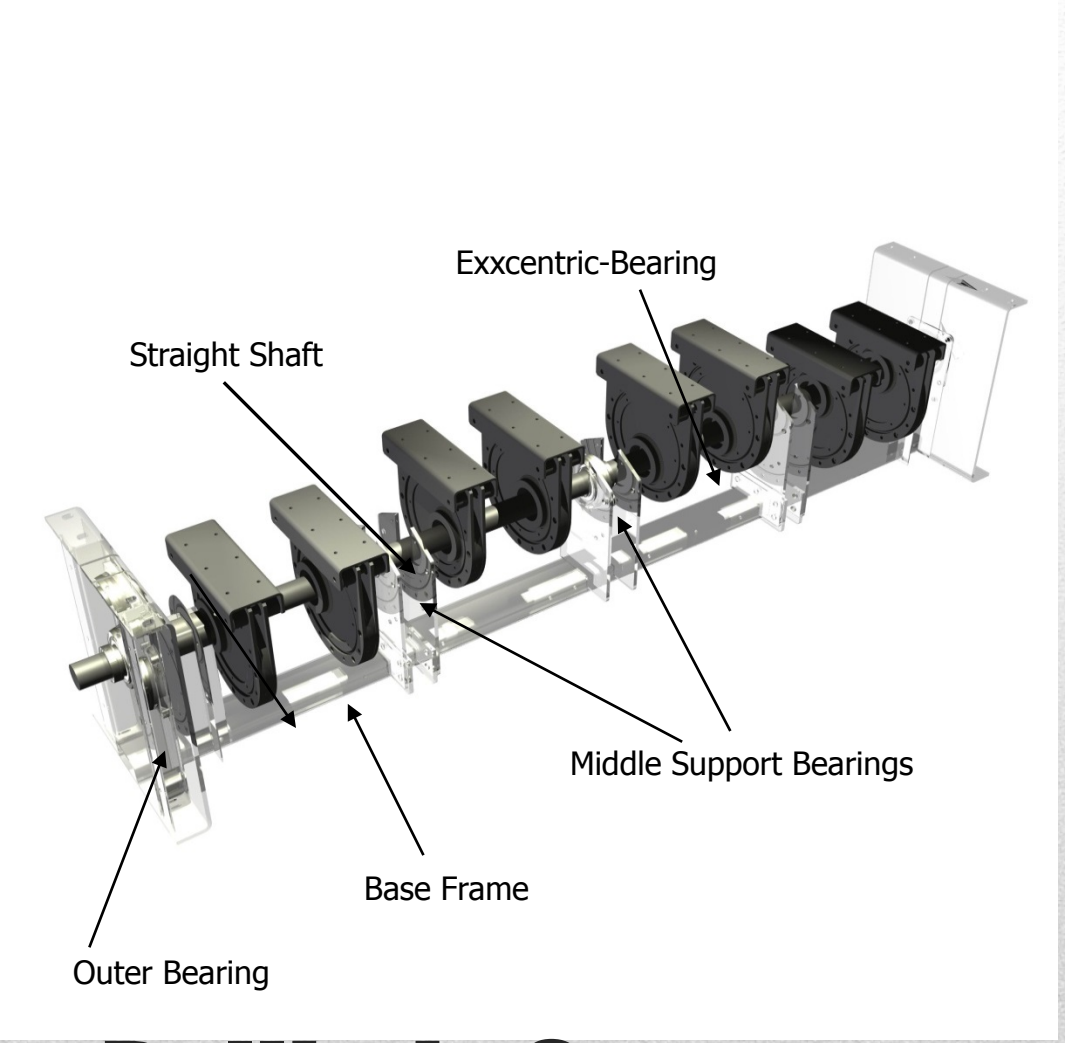
Ballistic-Sorting Process

Ballistic Separator Operation

- The patented Crankshaft-Construction consists of the following Components:

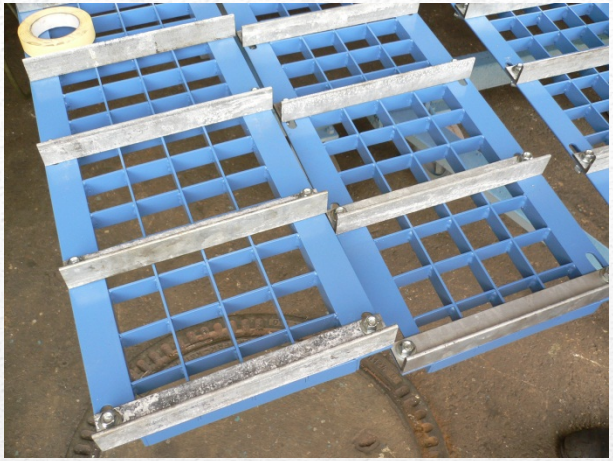
- 6-10 Eccentric-Bearings
- 1-3 Middle Bearings
- 2 Outer Bearings

- The Crankshaft is mounted in a base frame with covers to protect the shaft from material wrapping around.
- The Crankshaft bearing top and side covers protect the bearing seals from grit and glass.



Crankshaft of the Ballistic Seperator

- **Features**
- Length: 17.4 or 20.3 ft
- Width: 10 or 13.3 inches
- Reinforced with Hardox
- Changeable Sieve-Mesh
- Mesh-Size from 1 to 3 in (Squared/Round)
- Adjustable position angled cleats



Changeable Sieve-Mesh

Sieving-Deck

Ballistic Separator Paddle Design

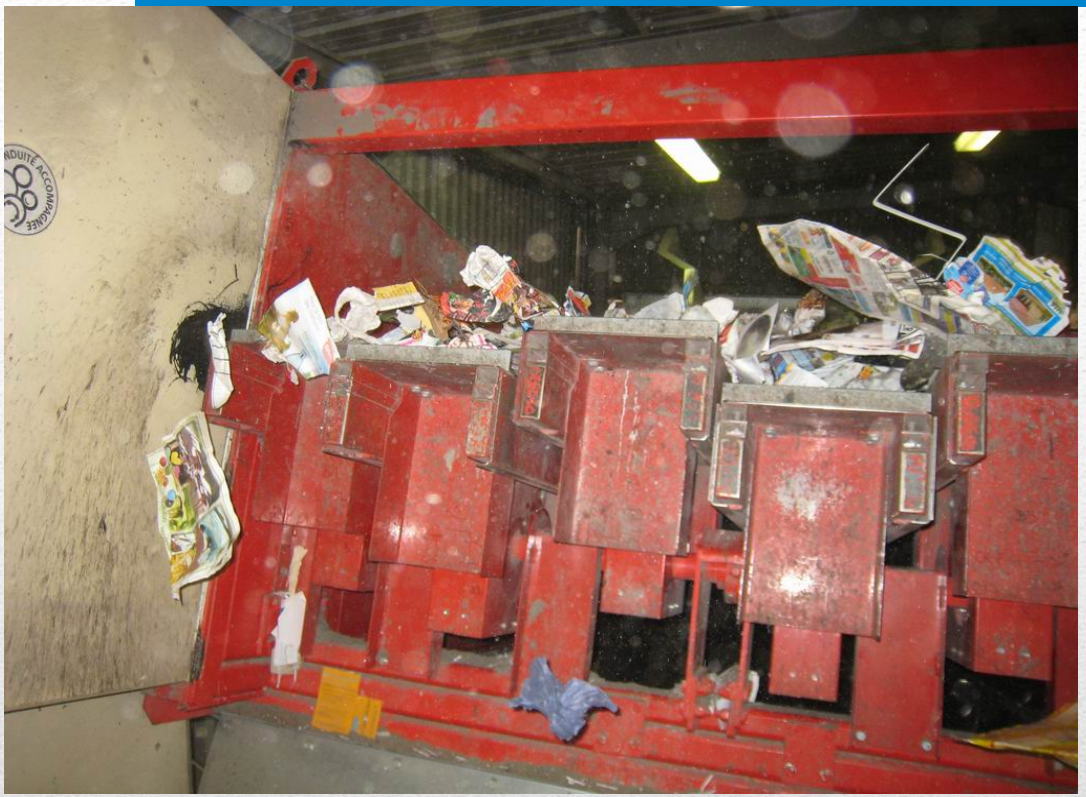
- The Crankshaft is driven by a Gearbox-Motor through a coupling. The Motor will rotate the straight shaft and with it the Exxcentric-Bearings

- The Exccentric-Housing is connected with the Paddles and rotates around the **straight shaft** to create a crankshaft like motion.

- **Features**
- -4.5 inch eliptical motion
- -max. 200 rpm
- -max. 880 lbs Load on each Paddle

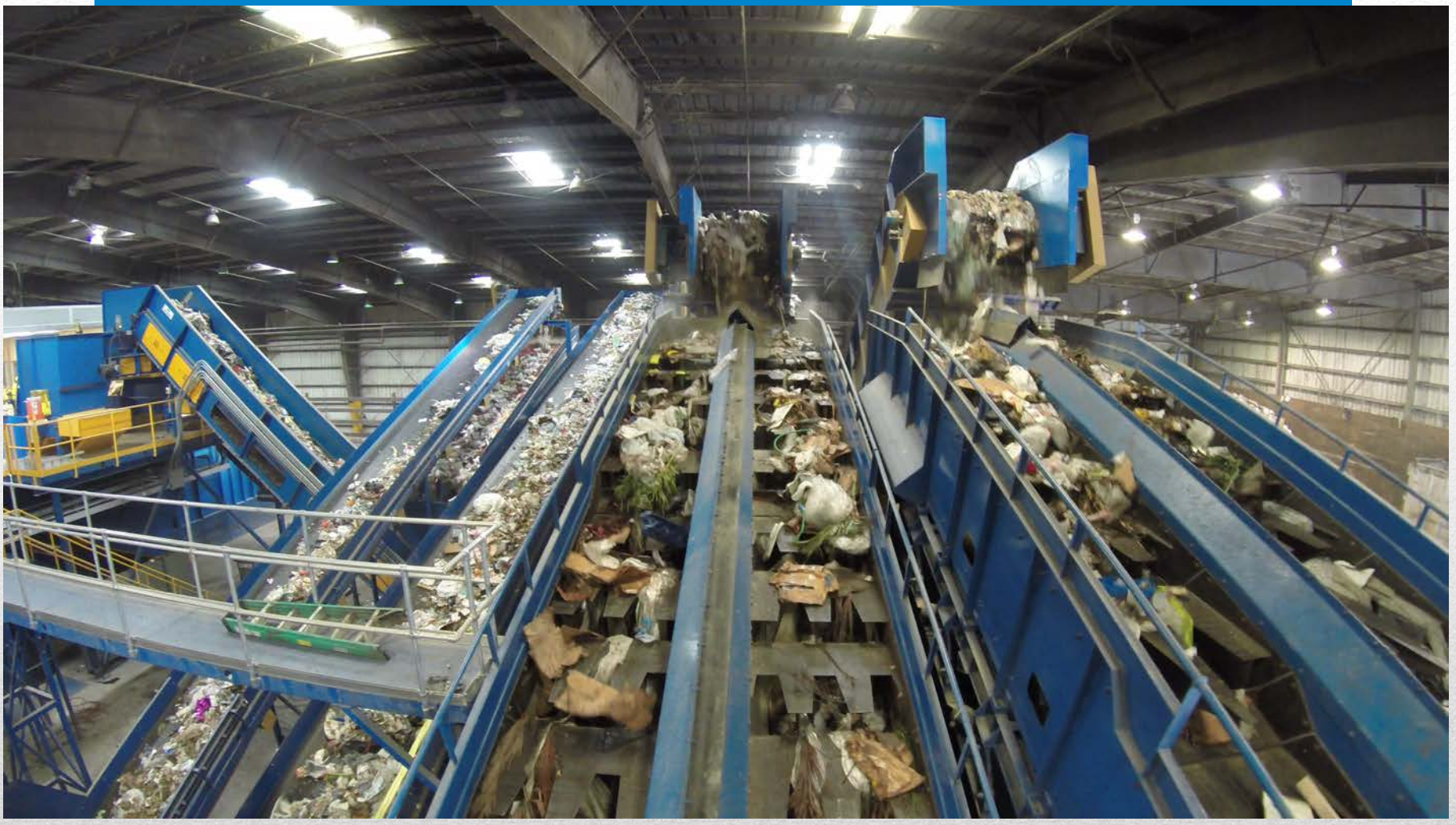
Crankshaft - How it works

Ballistic Separator



- No exposed rotating shafts to wrap
- Paddle angle of 13 to 16 degress for safe access compared to over 30 degrees
- No rotating shafts to cause slips and falls
- Walking on the 2 inch sieve mesh is safe
- Higher screen availabilty

Minimal Wrapping on Ballistic Seperator



Finger Screen - Size Separation

Questions about MSW

- What is the definition of recycling?
- The material can be separated but can it be used productively or sold?
- Does it make economic sense?