Chip Conveyors and the Appropriate Applications
Choosing the proper chip conveyor

- Choosing a chip conveyor was easy at one point in time.
- 15 years ago it was a hinge belt chip conveyor 95% of the time.
- Today, our figures show this number has dropped to 50% and often, the 50% are misapplied.
- What has changed to dramatically alter the conveyor manufacturers are choosing?
Change!

- What has changed over the last 15 years?
  - Machine spindle speeds have increased dramatically – especially machining centers.
  - Coolant flow rate for the traditional use and to move chips inside machine cabinets has increased dramatically.
  - Multi tasking machines have become more and more prevalent.
    - Lathes have great milling capability.
    - Mills have turning capability.
  - The result of all of these changes has dramatically altered chip formation on any given machine.
  - The chips are smaller and lighter.
  - The coolant keeps them in suspension.
  - The coolant washes the chips into the machine sump at an alarming rate.
Basic questions for conveyor selection

The questions are simple and will lead to the proper selection of the conveyor:

- Will you be machining a dedicated material or mixed materials?
  - Steel
  - Brass
  - Cast Iron
  - Plastic
  - Aluminum

- What is the size and configuration of the chips?
  - Coarse or stringy
  - Fine
  - A mix of all

- What are the specifications and requirements of the machine?
  - Coolant flow for all pumps
  - Conveyor pocket design
Hinge Belt Conveyors:

- Still the most popular
- Versatile, Affordable and Reliable when used in the proper application
- Good for coarse and stringy chips
- Good for 6’s and 9’s
- Not good for fine chips
Leading to the proper conveyor selection

Magnetic conveyors
• The best choice for broken ferrous chips
• Ideal for cast iron
• Does not offer filtration
  • Many applications add cyclonic or other types of filtration
Leading to the proper conveyor selection

Filtering conveyors
• Filtering conveyors come in 3 basic types
  • MH
  • SFc
  • MF2, MF3
• Selection is based on filtration level and price point
Leading to the proper conveyor selection

Filtration level

• How do I know what I need?
Leading to the proper conveyor selection

Price point
• MH 500
• MH 250
• SFc
• MF3
• MF2
MH 500, MH 250
• Our lowest price point filtering conveyor
• Offers both 500 and 250 filtration levels
• Interchangeable boxes provide the filtration level
• The hinge belt has brushes attached to the bottom of the hinge plates (2 feet pitch) to constantly wipe the boxes to keep them clean.
• Specially designed hinge plate opens to allow fines collected between the belt flights with a place to escape to the conveyor bottom to be wiped out with a scraper cleat.
Leading to the proper conveyor selection

SFcompact
• Our lowest price point 50 micron filtering conveyor
• Takes up the same amount of space as a normal hinge belt or MH
• Uses a mechatronic brush system on the inside of filter boxes to keep the filter media clean
• Uses external brushes under the hinge plates to keep the outside of the filter media clean
• Also uses the special hinge plate to let the fines escape from between the belt flights
Leading to the proper conveyor selection

MF2, MF3

- Highest price point filtering conveyors
- Both designs are the same with one difference
  - The bottom of the lower conveyor on the MF2 goes under the upper conveyor locking in the space needed to fit the conveyor to the machine
  - The MF3 bottom conveyor does not go under the upper conveyor allowing more adjustability to fit into lower profile spaces
- The upper conveyor is a hinge belt to take away heavy chip loads
- The lower conveyor is a scraper with a drum filter providing 50 micron filtration. The drum filter is back flushed to keep it clean
- Because of the size of the dual conveyor design, a replacement coolant tank is normally needed

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- MH and SFc conveyors have the advantage of normally fitting in the standard machine pocket for a conveyor.
- The MF2, MF3 conveyors take up more space so a new coolant tank usually needs to be provided.
Leading to proper conveyor selection

The final consideration is eliminating the need for indirect labor to move chips in a manufacturing facility.

- A good solution is a versatile system like this 3-D disk conveyor for moving broken chips on large machines or servicing multiple machines.
Leading to proper conveyor selection

The 3-D System is a versatile conveyor to provide a single point of chip discharge over a long distance.