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More than a box that shakes !

General Information for your vibrating screen applications

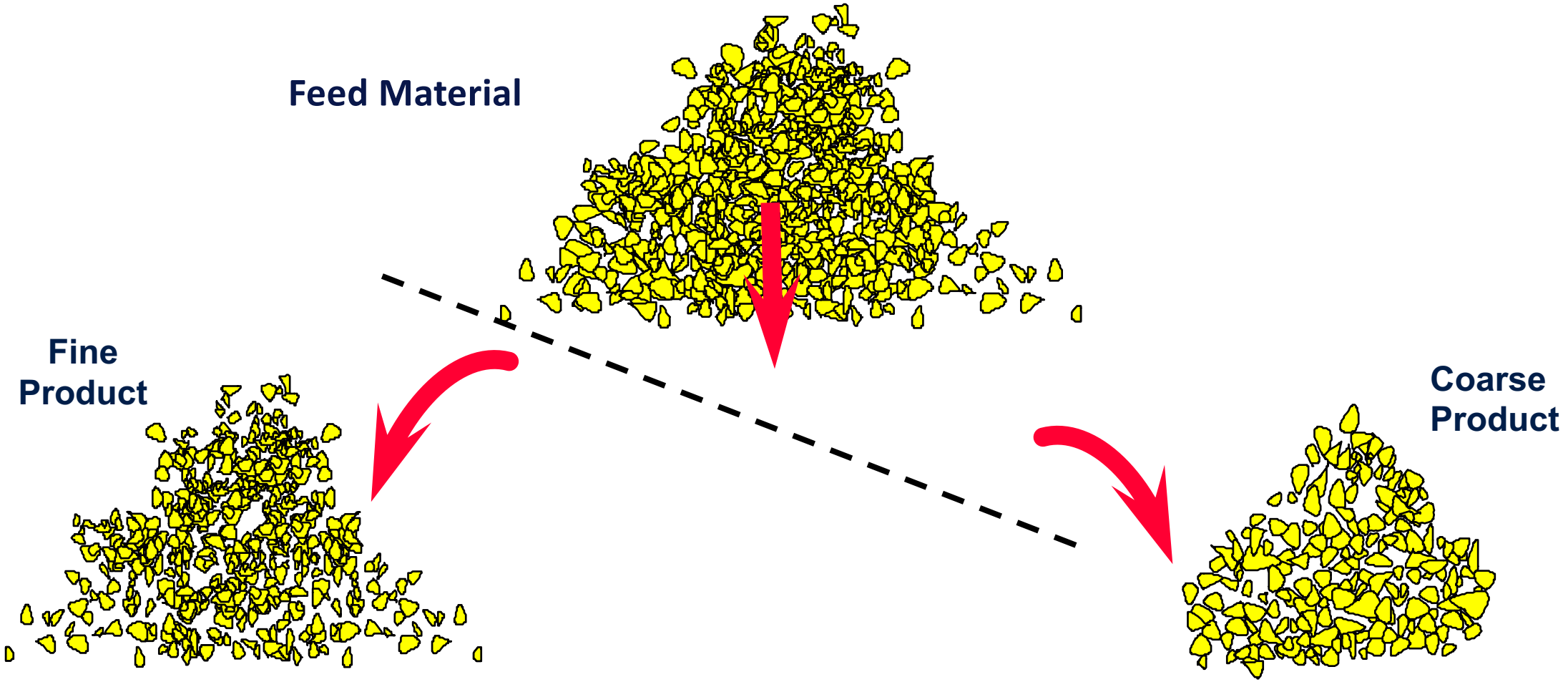
SCREENING BASICS

What Is Screening

- Separation of granular materials by size-comparison between particle diameter and defined openings.
- Screening is a statistical process.
- Screening requires relative motion between particles and screen media.

SCREENING BASICS

Simple terms we want to separate as close to 100% efficiently the larger particles from the smaller particles



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What contributes to poor screening results?

- **Changing material conditions**
  - **Moisture**
  - **Particle shape**
  - **Too many fines**
- **Incorrect speed or stroke**
- **Type of screen media**
  - **Opening shape**
  - **Excessive wear**
- **Amount of available surface area**
- **Poor vibrating screen operation or wrong setup**

…and that's only the tip of the iceberg!

Choosing the Right Vibrating Screen for Your Application

Choosing the right machine for your application?!

Extremely coarse

to **very fine**

Evaluating Your Application

Key Evaluation Points:

- Material Type
- Particle Size and Distribution Size
- Feed Tonnage including recirculated load

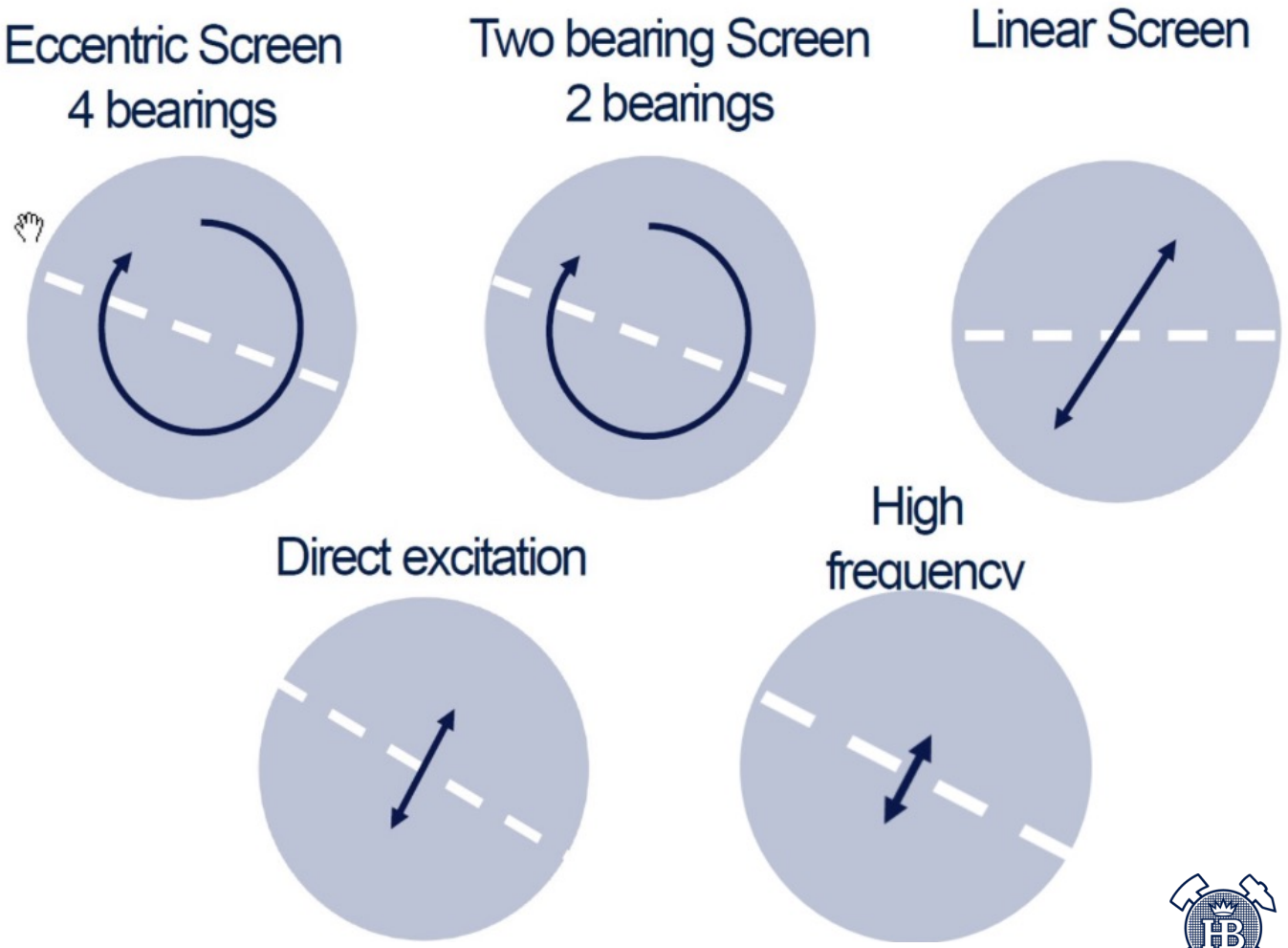
Evaluating Your Application

Key Evaluation Points:

- Moisture Content
  - Middle Moisture is Challenging
- Material Temperature
- Desired Output or Efficiency
- Preferred Media Type
- Current Experience
  - What Works and What Doesn't

Which Screen Type Do I Choose?

Types of Screening Motion Systems



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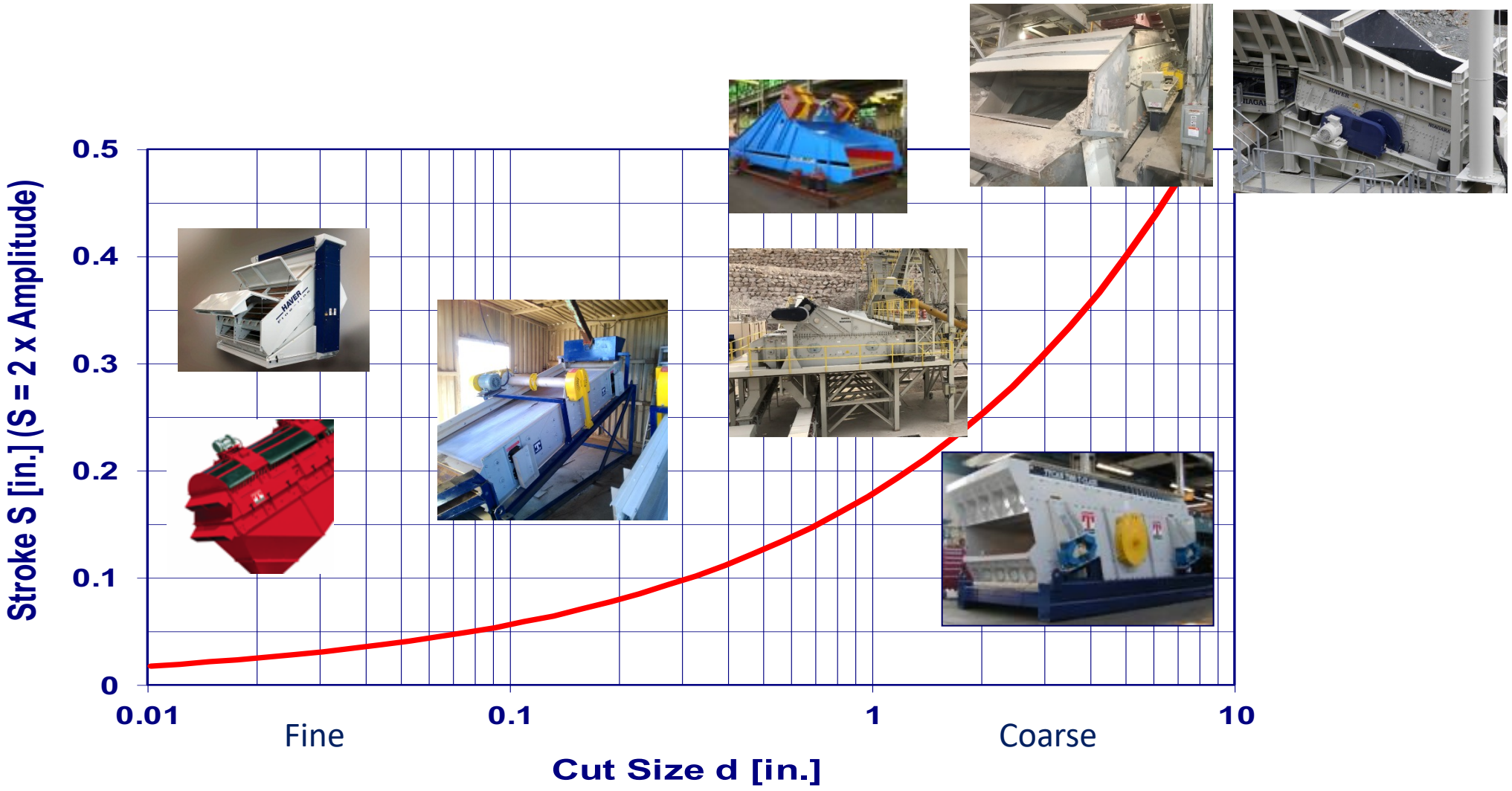
What machine works where?



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Large Rocks (Primary screening)

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N-Class

Parameter	N-Class Technology
Movement	Eccentric circular
Amplitude & Vertical Force	Constant g-force maintained during surging, starting and stopping under load to ensure safety and equipment longevity.
Openings	Perforated Plate with conical holes to prevent pegging.
Product Speed	Relatively low

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Free oscillating 2 bearing vs Eccentric 4 bearing

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Track Mounted

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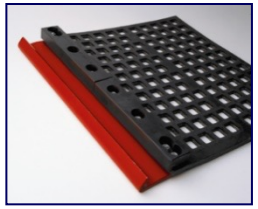
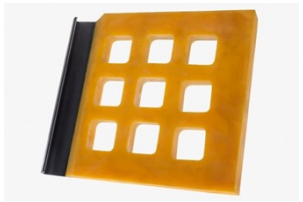
Wheeled Chassis

Screen Media to Choose?

SCREEN MEDIA

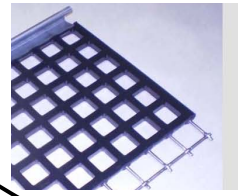


Ty-Dura
Rubber



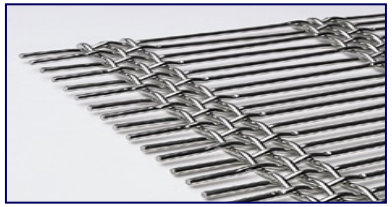
Ty-Max PU

Ty-Wire Composite

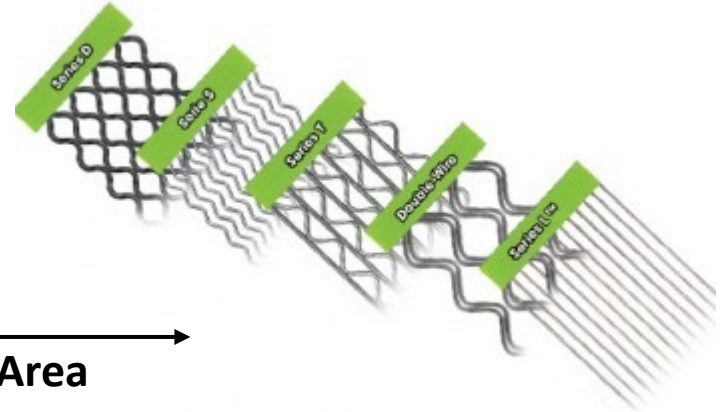


Woven Wire Cloth
Square Opening

Woven Wire Cloth
Slotted Openings



Self Cleaning



Wear Resistance

Open Area

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Perforated Plate

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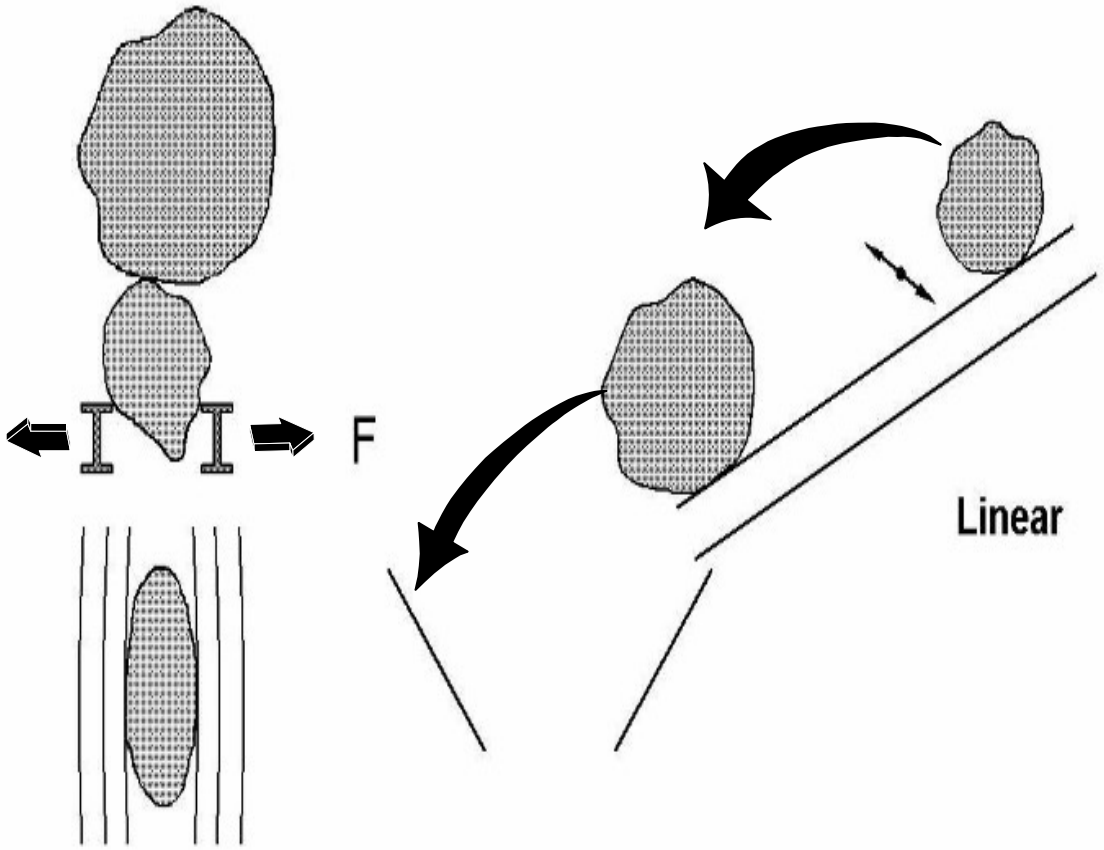
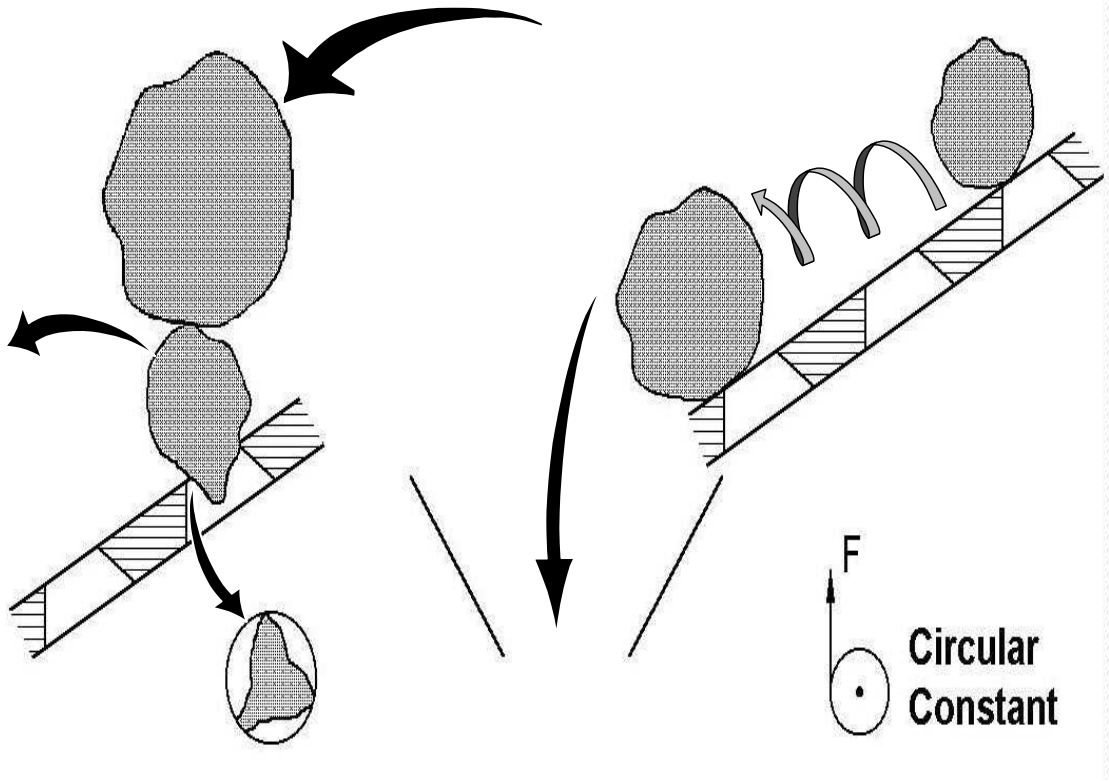
GRIZZLY SCREEN

Different screen decks / different properties

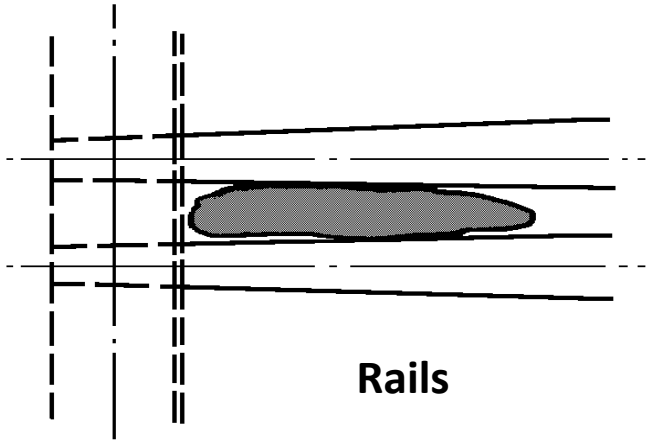




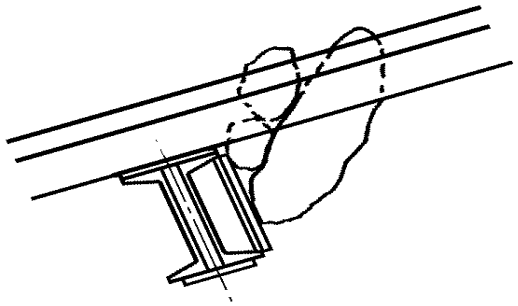
Grizzly

Perforated plate
Round, offset conical

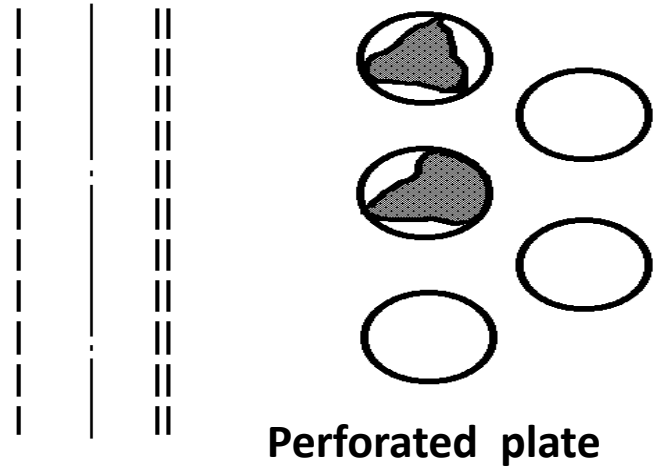
Different screen decks / different properties



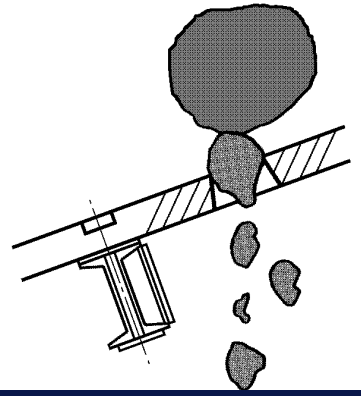
Rails



Grizzly



Perforated plate



Perforated plate
Round, offset conical

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When do we recommend Perforated Plate?

- For high impact and wear applications, to extend the lifetime of the screen media
- For protection of the screen deck in heavy duty applications
- In high heat scalping applications (i.e. slag)
- When there is a sufficient machine deck size to allow for decreased open area over other media selections
- For a feed end solution to excessive wear based on high impact or heavy applications

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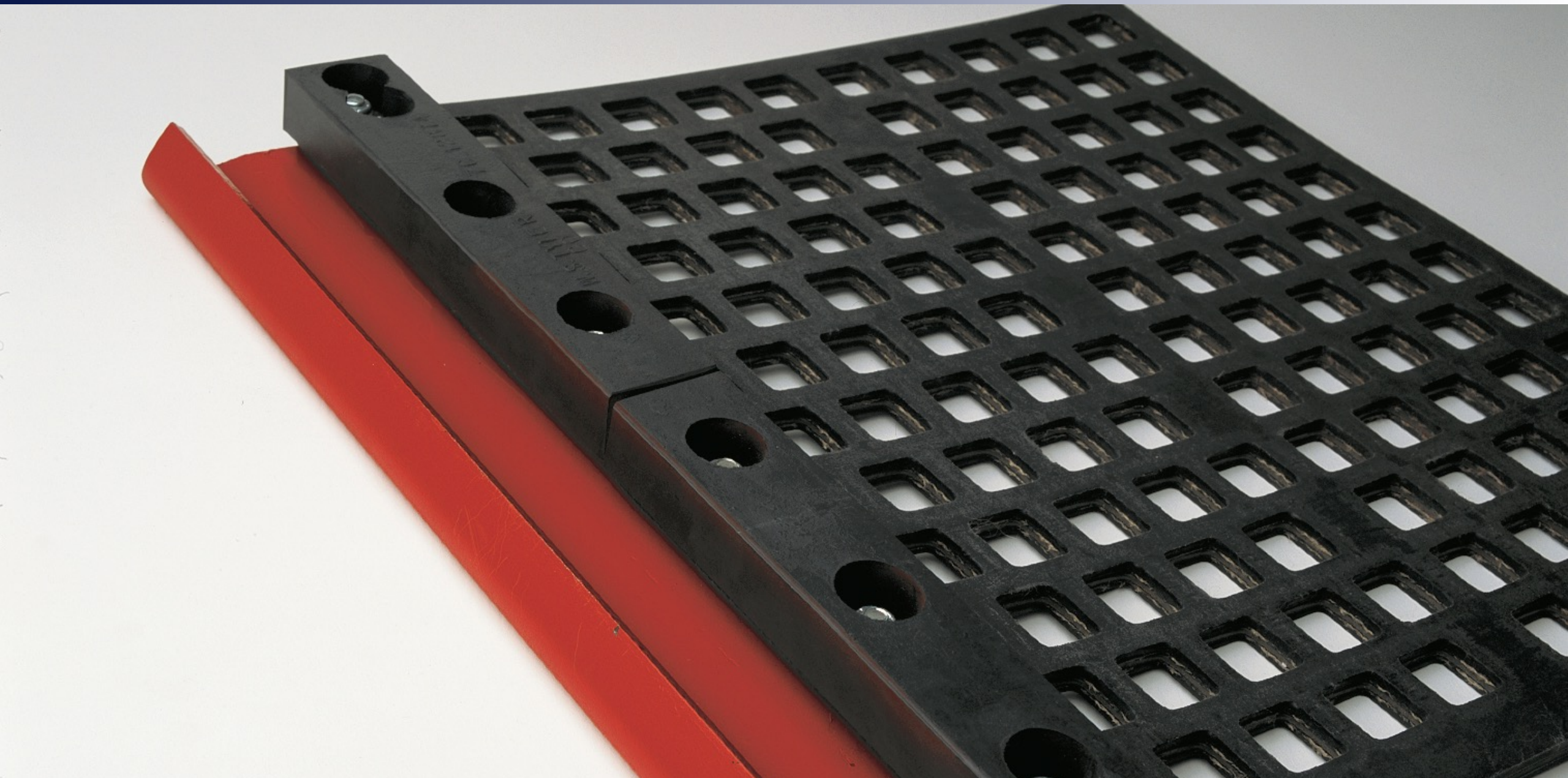
Rubber



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When do I recommend Rubber?

- Heavy loading on screen surface
- Large top size particles
- Need to absorb great impact
- Application noise a concern
- Customization is required
  - i.e. impact areas, blank-out, ceramic wear inserts

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Ty-Max Polyurethane Screen Media

When do I recommend Polyurethane?

- When top size is 12” or less
- Wet or dry applications
- Premature wear due to abrasion
- Heavy loading
- Need to provide wear and corrosion resistance
- Dewatering applications
- Noise is a concern
- Lots of fines
- Cost effective way to extend wear life over wire cloth

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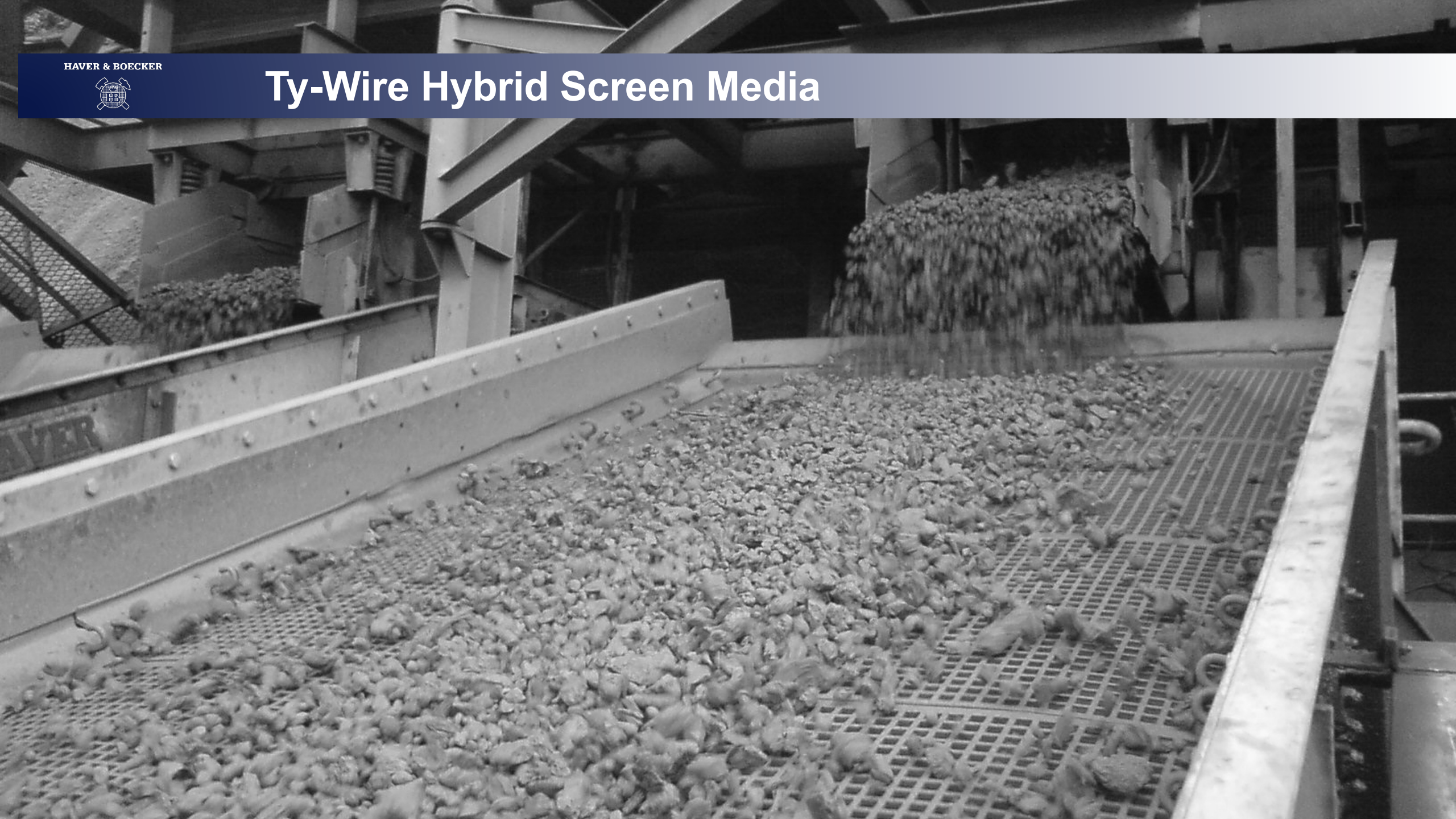
Ty-Wire Hybrid Screen Media



What is Hybrid screen media?

- Woven wire cloth embedded within an engineered composite – meaning there is woven wire around each opening.
- Safer and lighter to handle than wire cloth.
- Side tensioned or modular
- Tapered openings virtually eliminate pegging
- Safer and lighter to handle than wire cloth
- 4-6 times wear life over wire cloth

When do I recommend Hybrid?

- Reluctant to switch from wire cloth – more cost-effective way to try a polyurethane hybrid product.
- Concerns over open area – closer to wire cloth.
- Minimizing labor and downtime

  If customer changes woven wire every four weeks – 12 change outs per year, compared to two or three.

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Woven Wire

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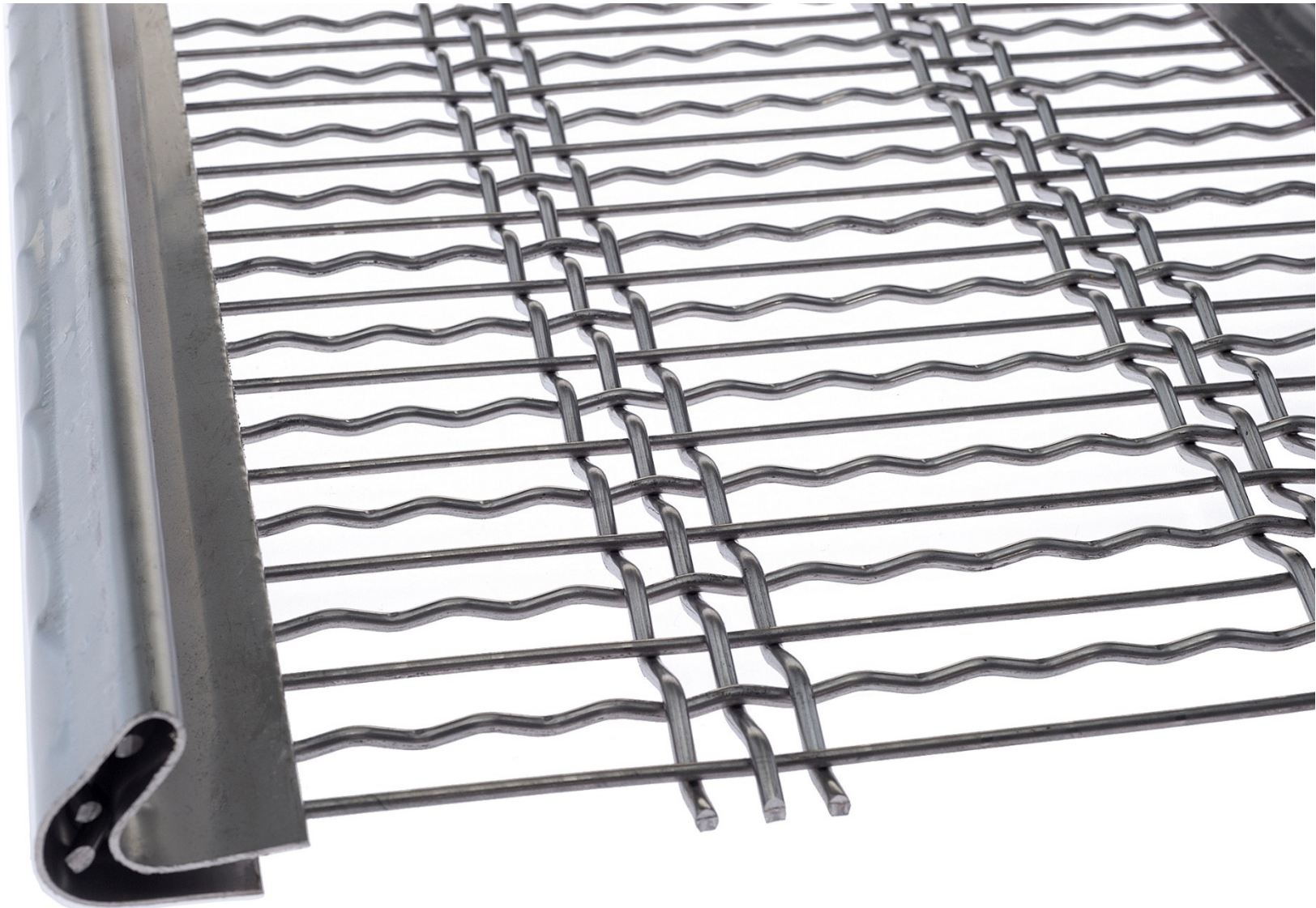
When do I recommend Woven Wire?

- General applications
- Low-cost solution
- Higher open area
- Faster delivery time



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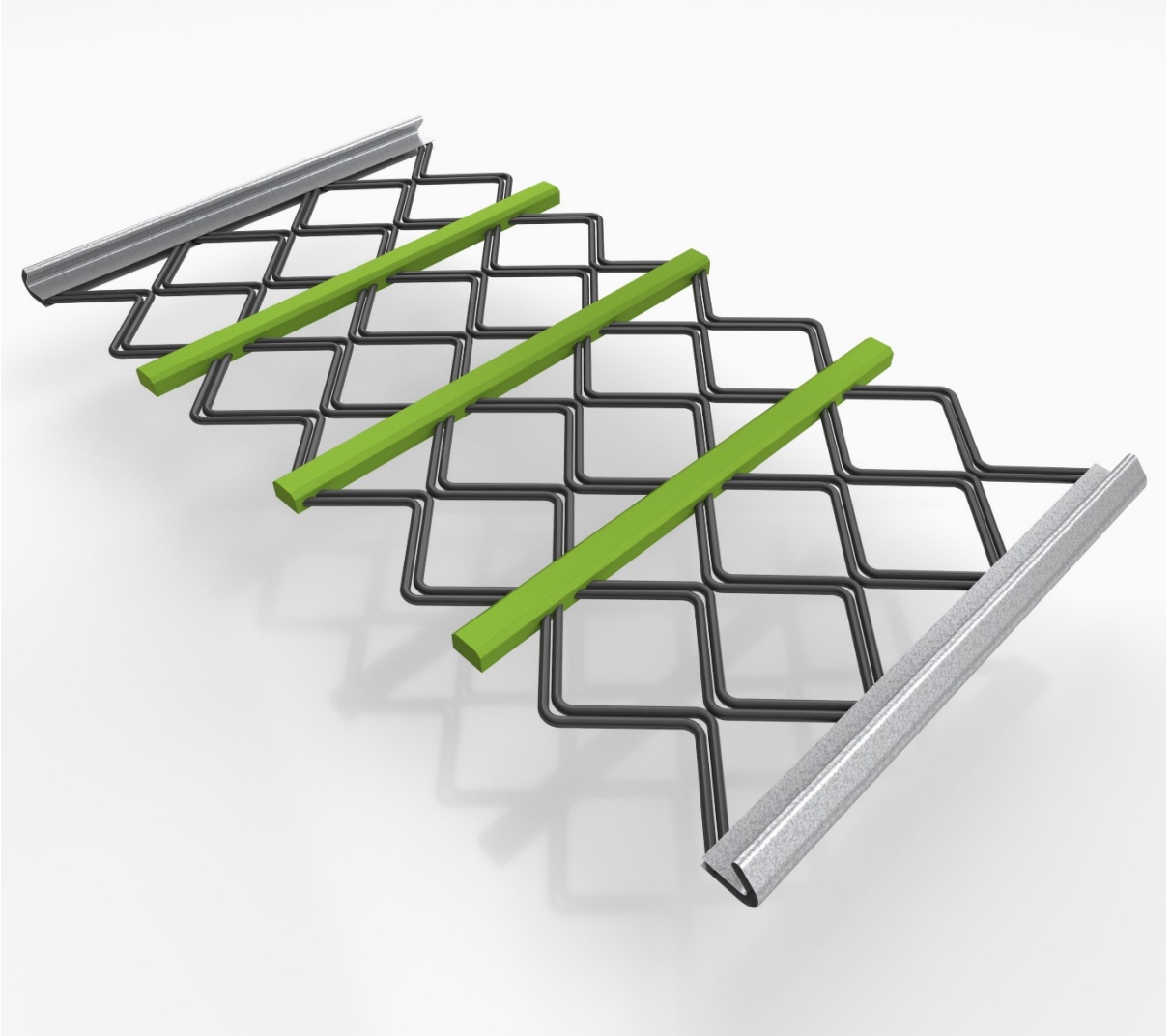
Self-Cleaning

What are the benefits of Self-Cleaning screens?

- Accelerates stratification process to allow more material to pass through screen
- Greatest open area
- Virtually eliminates blinding and pegging



Maintaining good operation?

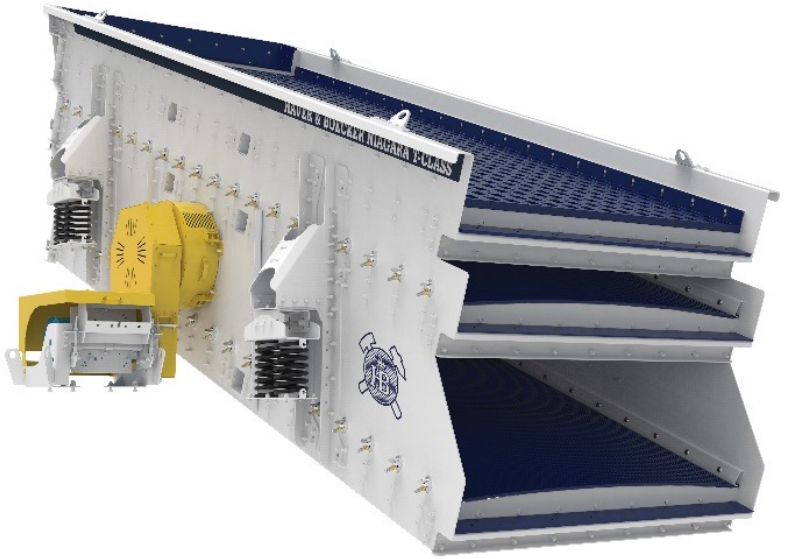
Maintaining the proper g-force

OPTIMUM PERFORMANCE

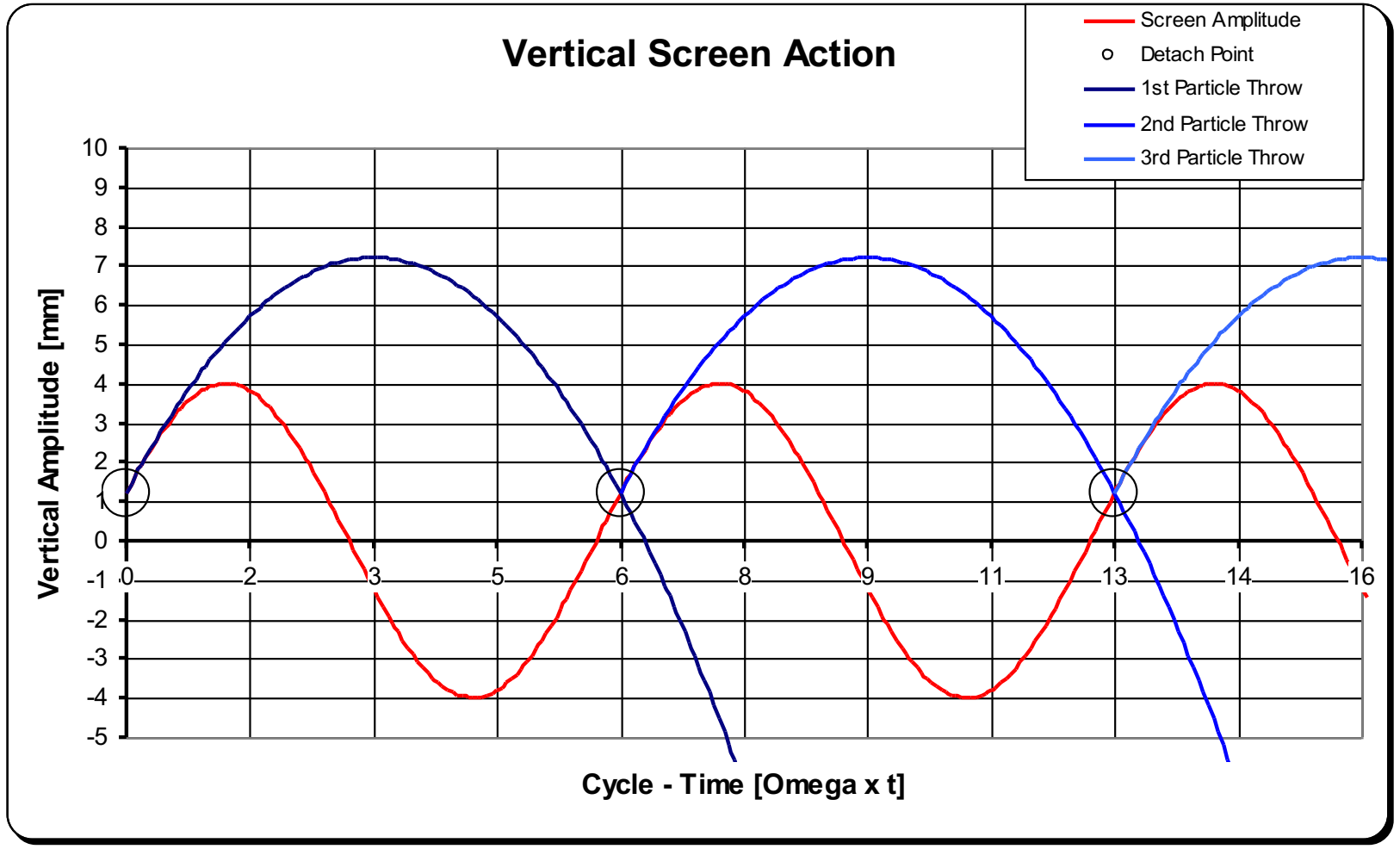
For best screening performance at $K_V = 3.3$

Inclined Circular Motion Vibrating Screens should operate at **K = 3.8 to 4** to compensate for particle friction losses!

(Horizontal Linear motion screens K = 4.7 to 5)
(Banana screens K = 3.7 to 4.3)



Correct Balance



THE RIGHT ACCELERATION

$K_v = 5$

$K_v = 2$

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Diagnostics

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Diagnostics – Pulse Vibration Analysis

- Detection up to 8 wireless sensors
- Magnetic attachment on all vibrating machines
- Shows current machine operation/health
- Analysis on all circular or linear vibrating screens

Pulse Condition Monitoring

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Pulse CM

Monitoring the health of vibrating screens using modern algorithms

- provides accurate measurements
- forecasts complemented by information that is easy to understand.

Pulse CM is the predictive tool

- Helps predict body and drive component failure
- Wireless sensors and components
- Specifically designed for the harsh conditions of the mining industry.

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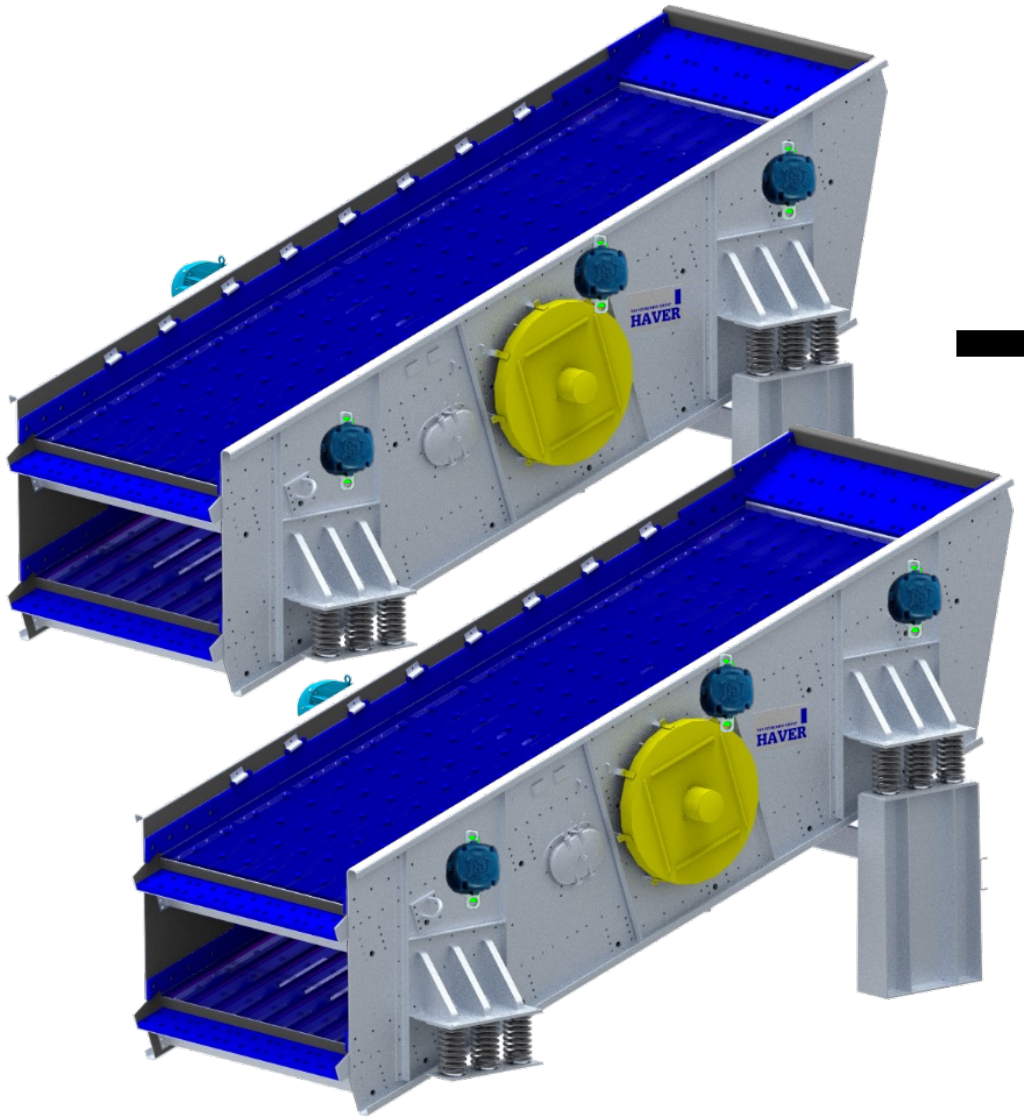
System Components



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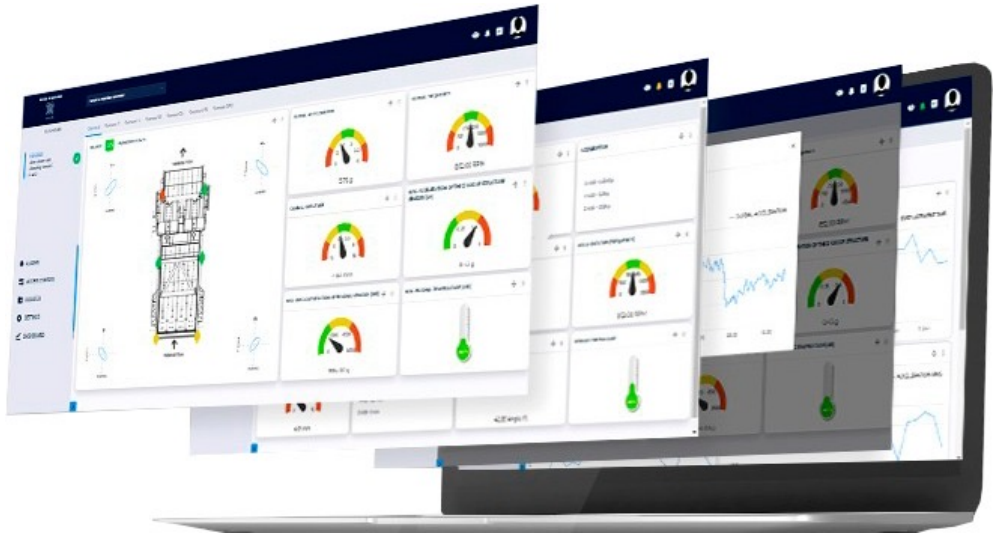
Cloud



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Internet access options

Options available:

- Wi-Fi connection.
- Cellular signal connection.
- Ethernet cable connection to control Wi-Fi traffic.

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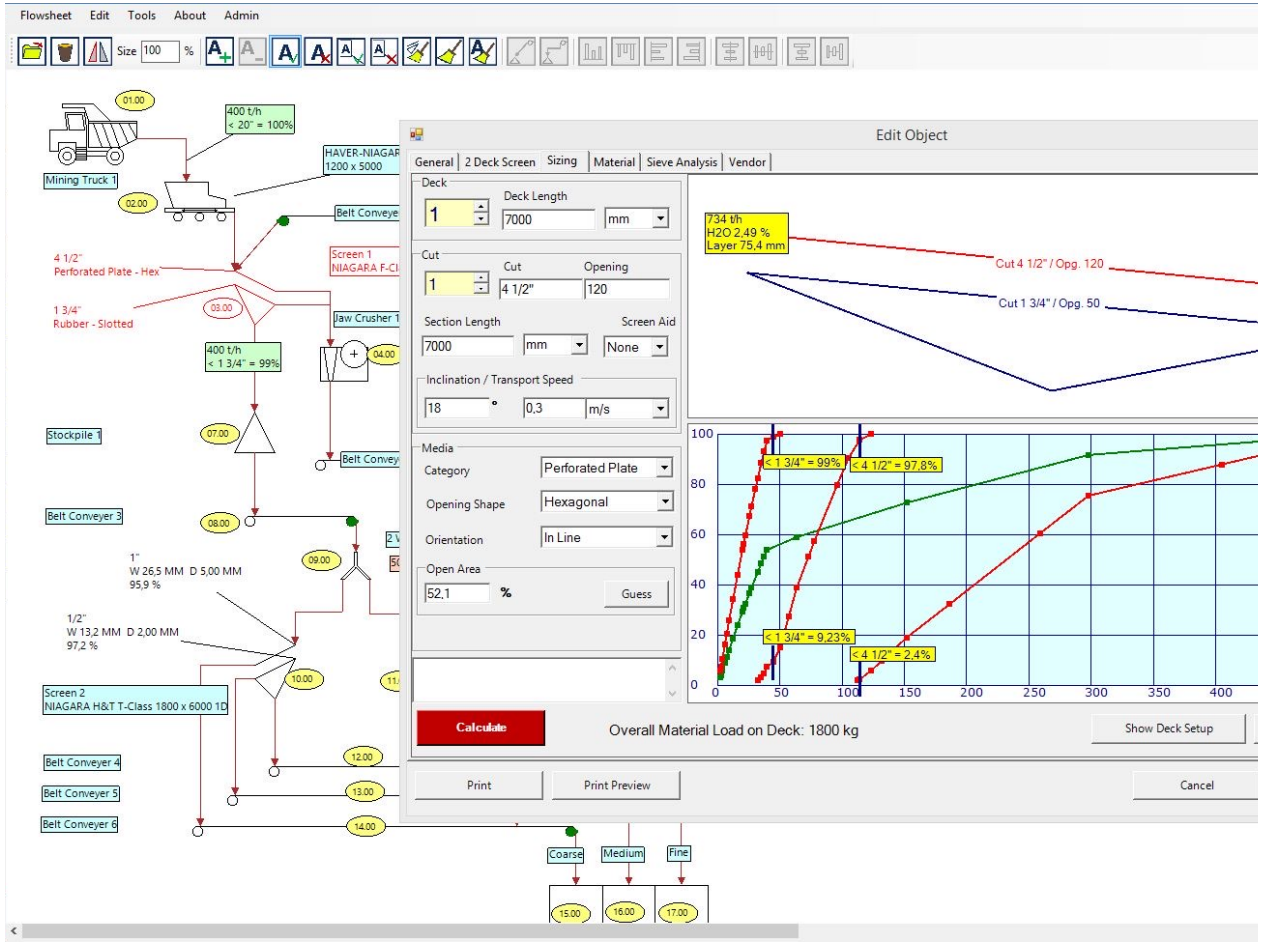
Process Engineering Tools

- Equipment Simulation:
  - Enter equipment parameters to simulate real material effects.
  - Verification with existing plants ensures accuracy.
- Forecasting and Optimization:
  - Forecast changes for better outcomes.
  - Reliable tool for production, equipment and plant optimization.



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THANK YOU
for your attention

Your Questions?

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Canada-Brasil-Germany

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