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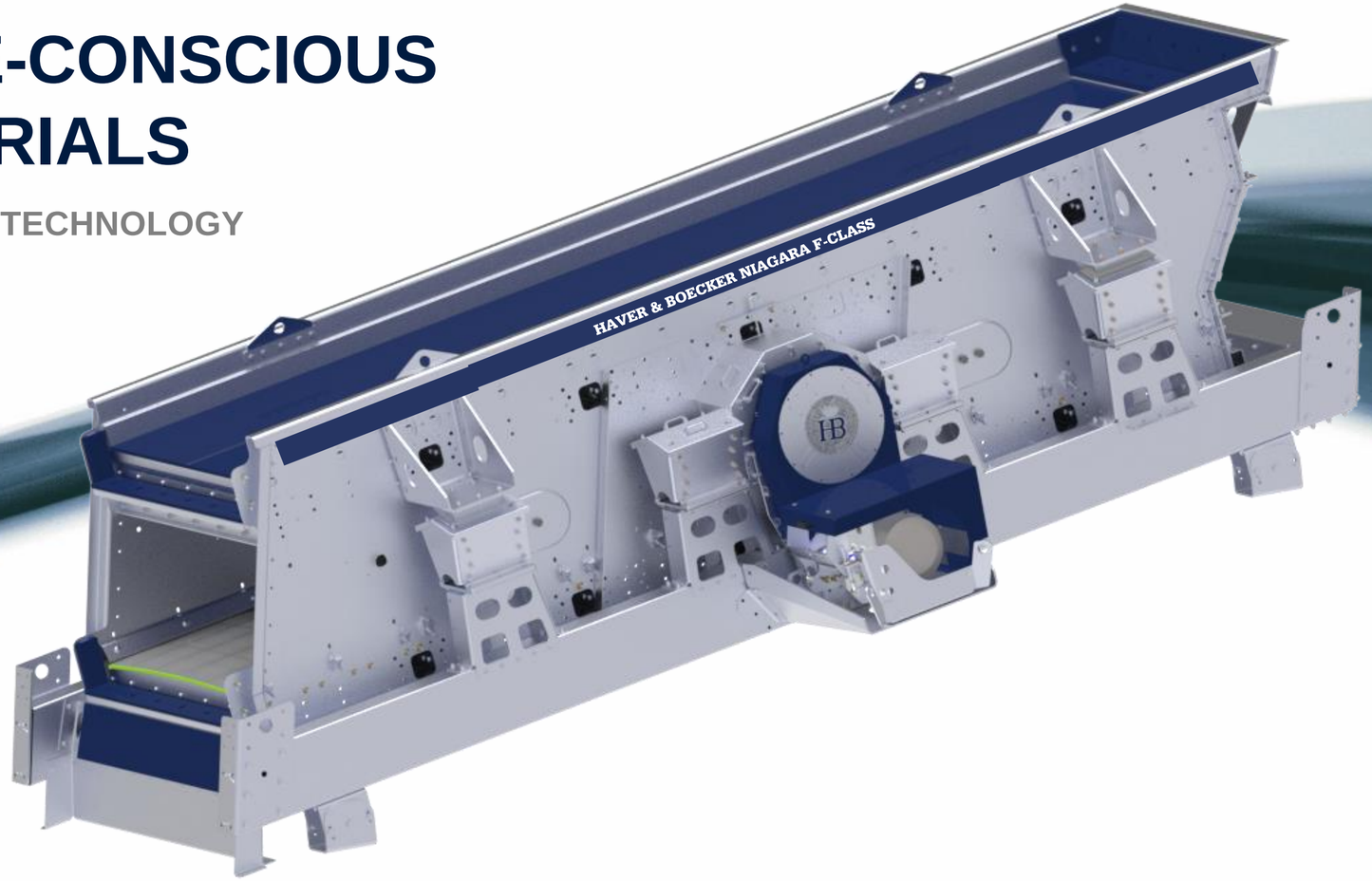
EFFICIENT AND RESOURCE-CONSCIOUS SCREENING OF RAW MATERIALS

NIAGARA F-CLASS: ADVANCING ECCENTRIC DRIVEN TECHNOLOGY



W.S. TYLER · IBAU HAMBURG · sommer · Feige · BEHN-BATES · HAVER & BOECKER · AVENTUS · NEWTEC BAG PALLETIZING

AGENDA

1. Motivation
2. Screening Dynamics: A Physical Perspective on Particle Classification
3. Double Eccentric Screening Technology

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OUR MOTIVATION

By transitioning from wet to dry processing methods, valuable resources can be conserved, significantly contributing to sustainability in mining.

Through innovative technologies, water consumption can be drastically reduced while greatly improving both the efficiency and environmental performance of mineral processing operations.

AS MOISTURE INCREASES…

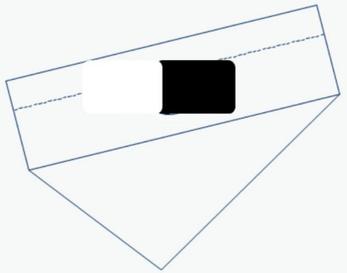
..cohesive forces between water molecules increase – the material tends to form *lumps*.

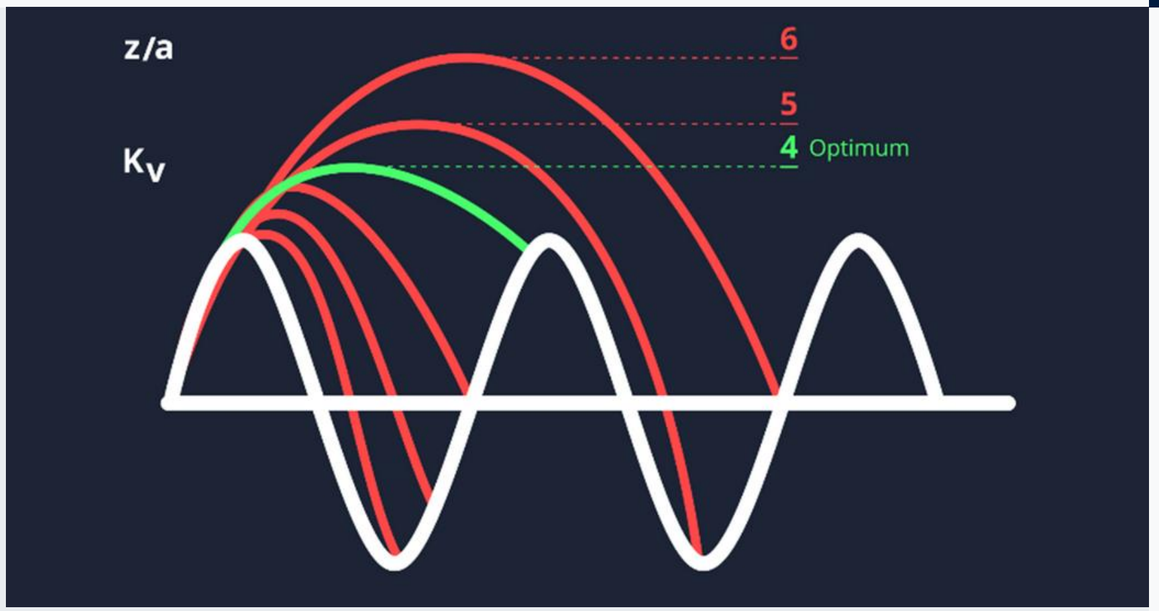
…adhesive forces between the material and its surroundings – the material tends to stick or cake.

…the effects of both cohesive and adhesive forces as a function of material fineness.

THE RIGHT ACCELERATION

Circular vibrations offer an advantage over linear vibrations by providing acceleration perpendicular to the screen surface.



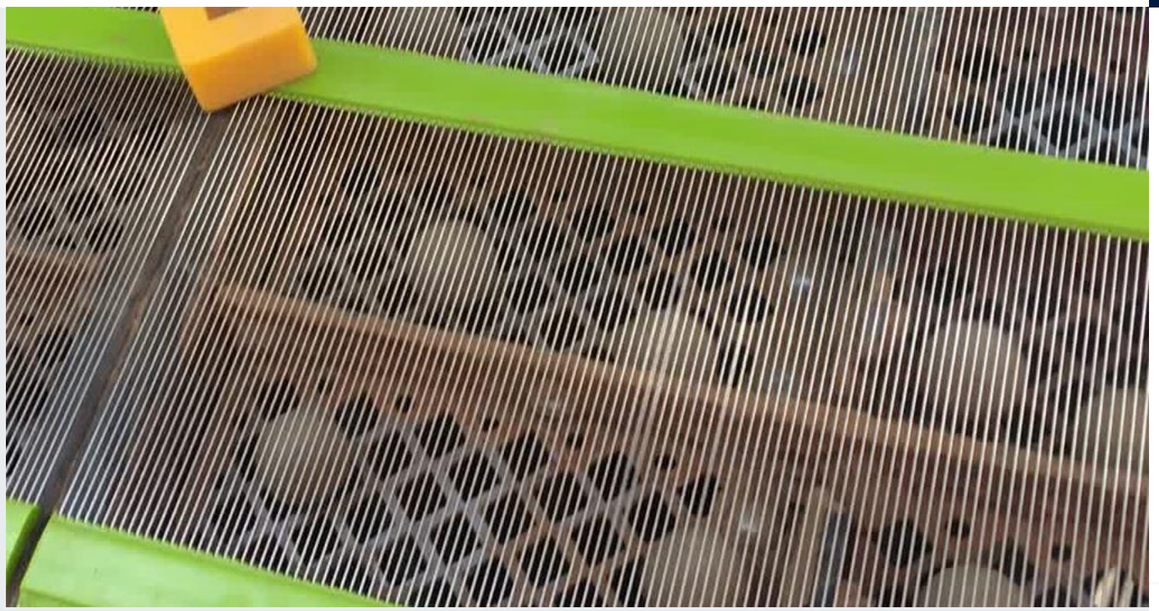


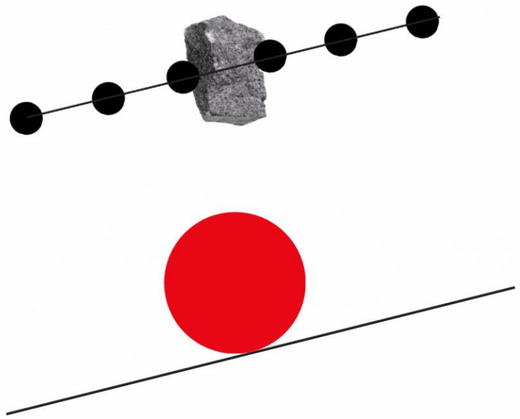
Circular vibrating screens should be operated at an acceleration factor

$$K_v = 3{,}8 – 4{,}0$$

SCREENING AIDS

Screening aids increase the acceleration of the screen mesh and help to dislodge clogged particles.





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The strength of eccentric technology in processing technology

ADVANTAGES OF THE ECCENTRIC DRIVE

Constant acceleration provided by a four-bearing eccentric drive.

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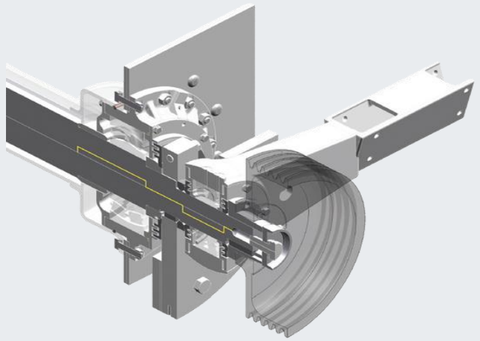
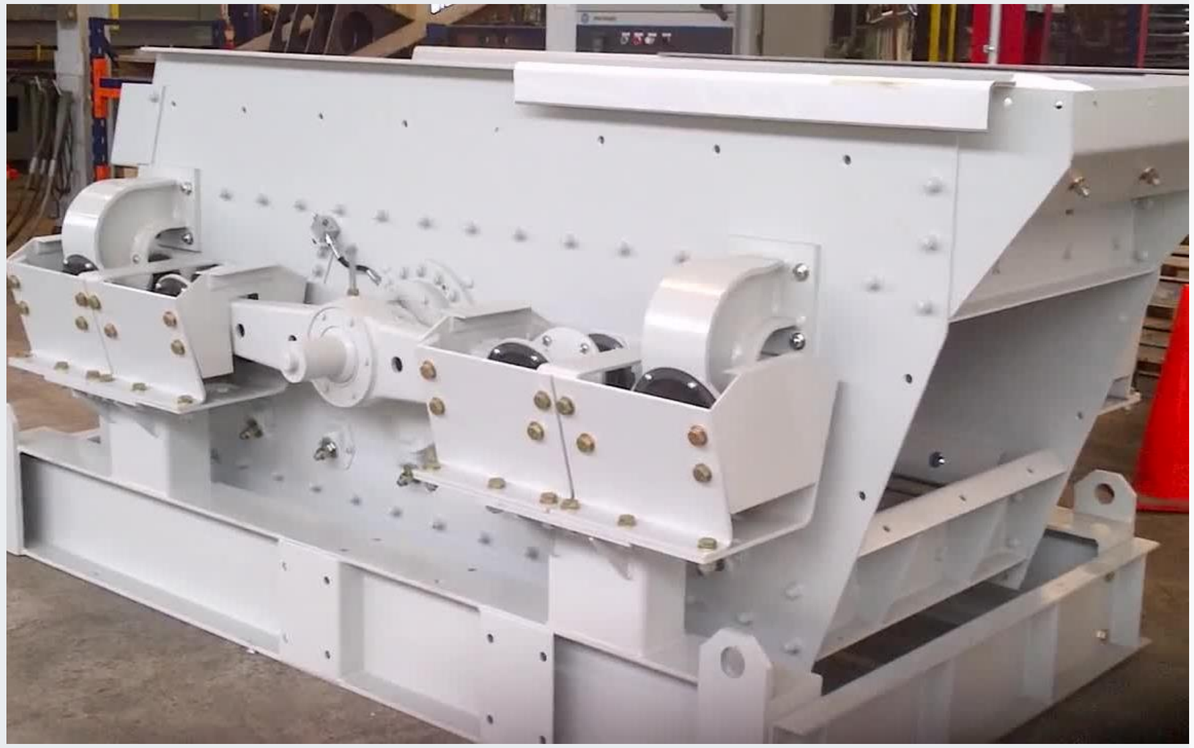


DUAL ECCENTRIC SHAFT

A dual eccentric drive significantly enhances smooth operation in addition to providing constant acceleration.



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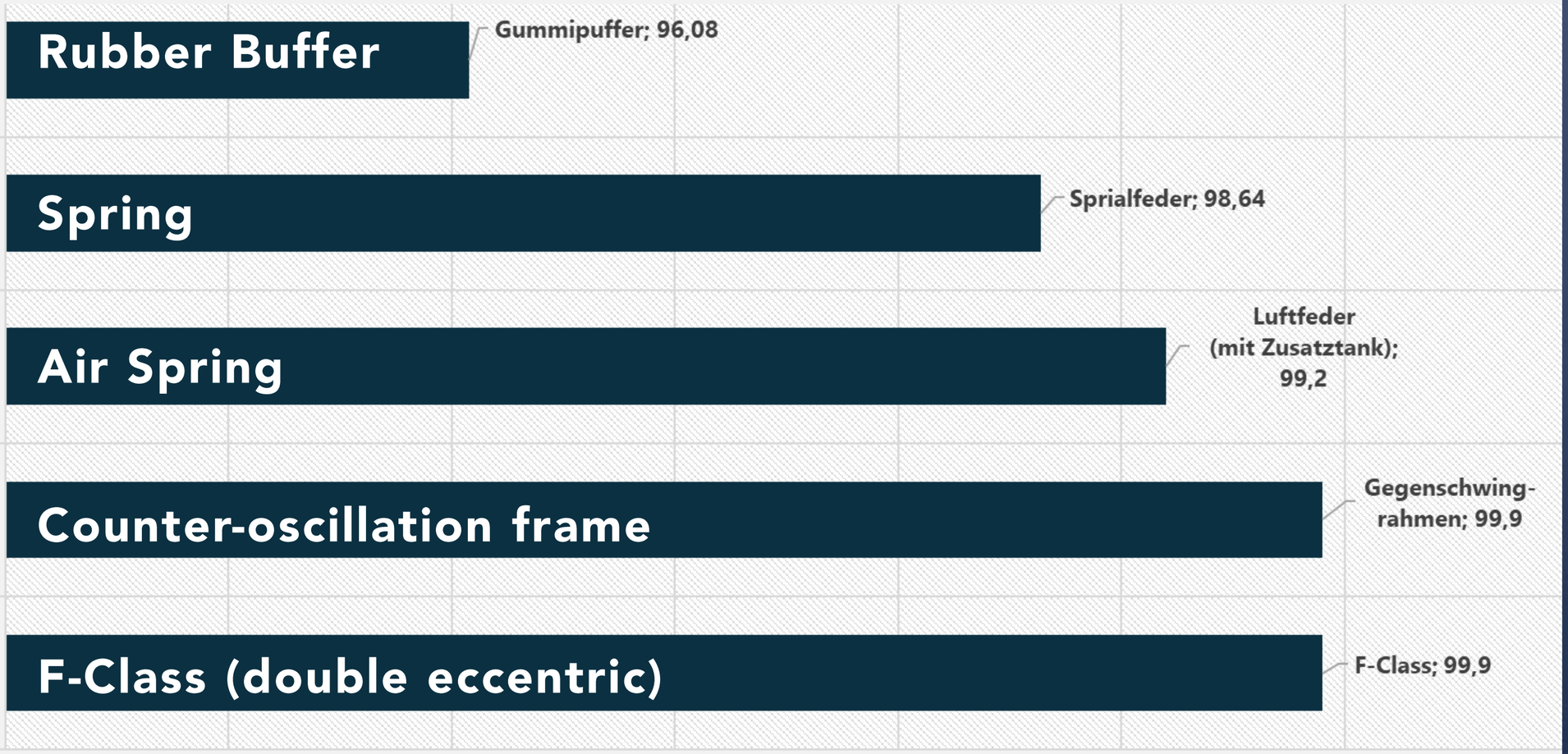
Comparison of Isolation Efficiency (%)



Reference machine with 8 t swinging weight

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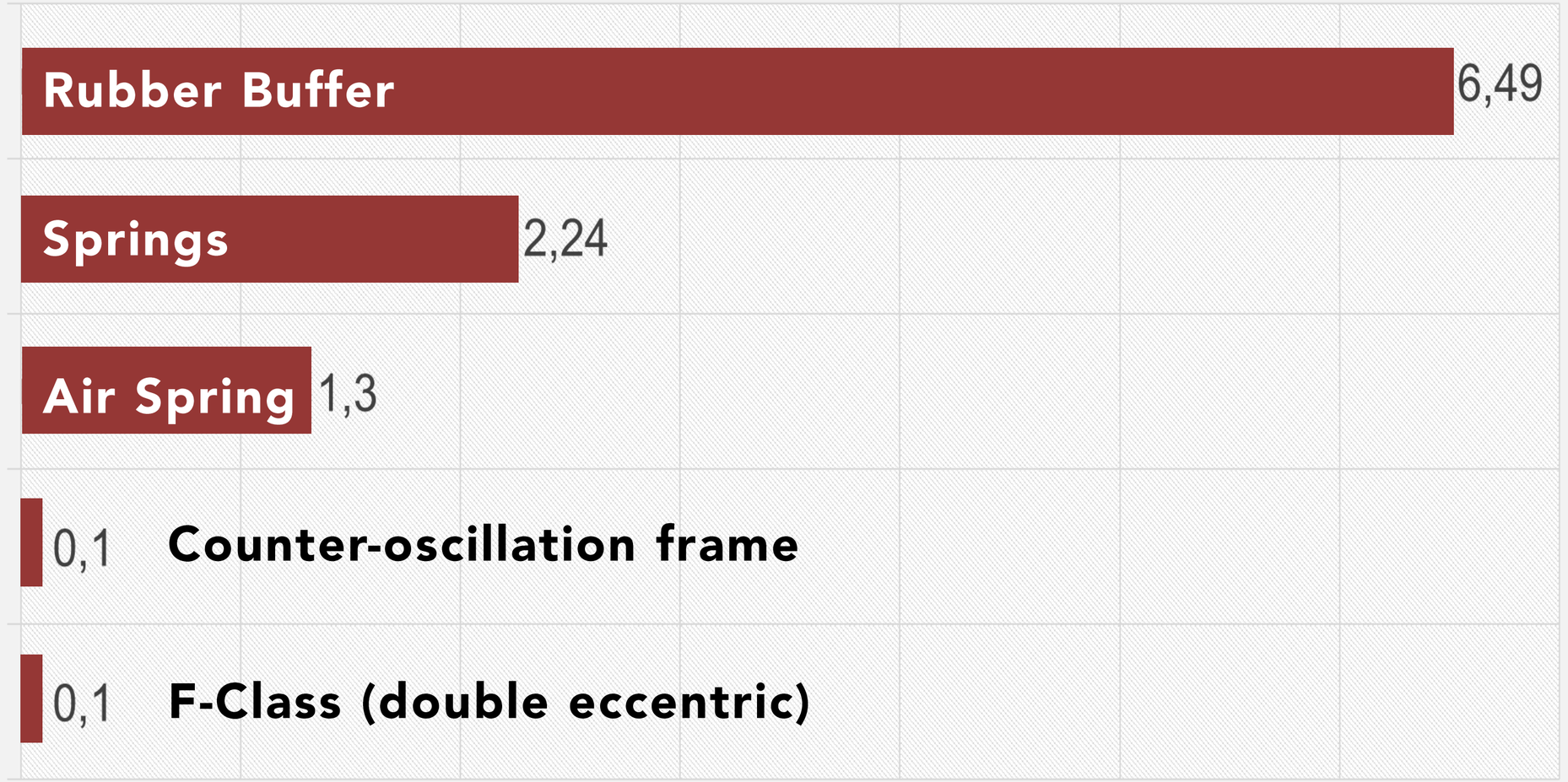
Force input into the ground in kN



Reference machine with 8 t swinging weight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BLOCKING
VIDEO I SCAN ME

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ZUM VIDEO

SCAN ME

The low dynamic loads allow the installation of multiple machines operating at the same speed.

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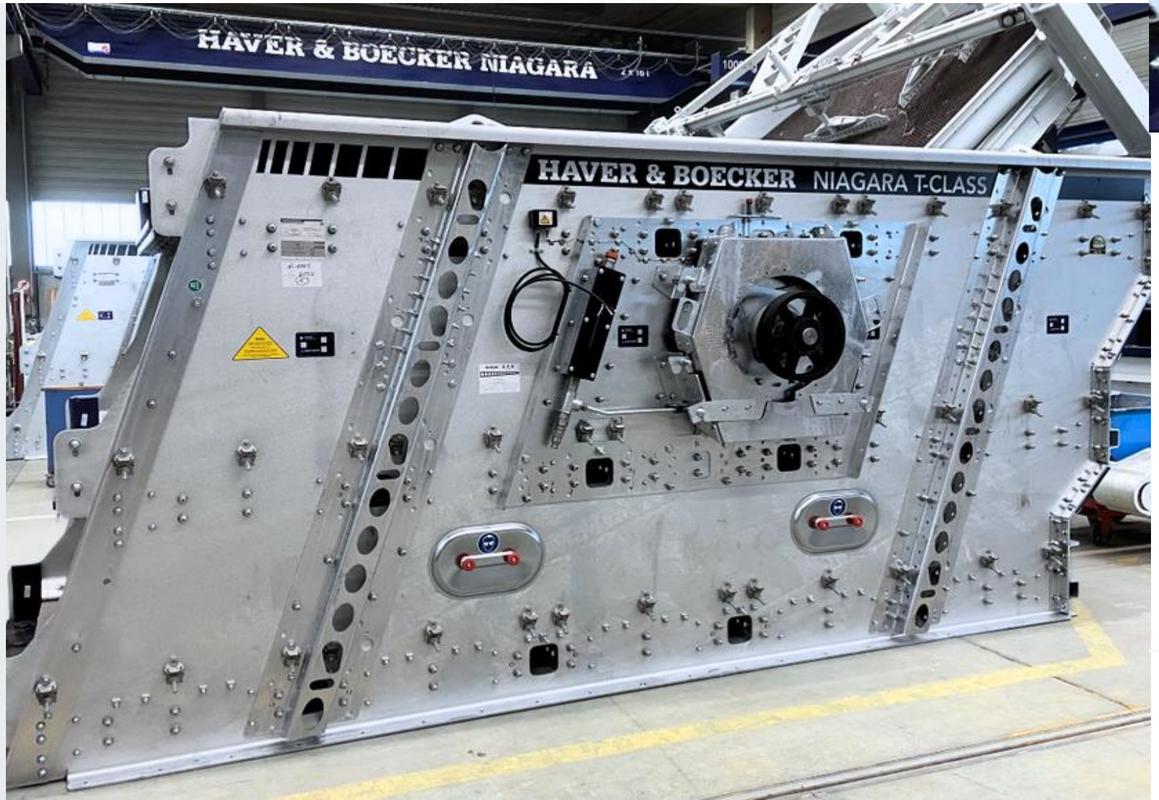
STATIONARY FRAME

Multiple mounting options (stationary dust cover, platforms, fine material hopper, chute system)

WELDING-FREE DESIGN



The welding-free construction ensures greater structural stability and durability of the machine. By eliminating weld seams, internal stresses and potential weak points are avoided, significantly improving operational reliability.

100% welding-free design of the vibrating screen machine | Reduction of failure points through innovative engineering.

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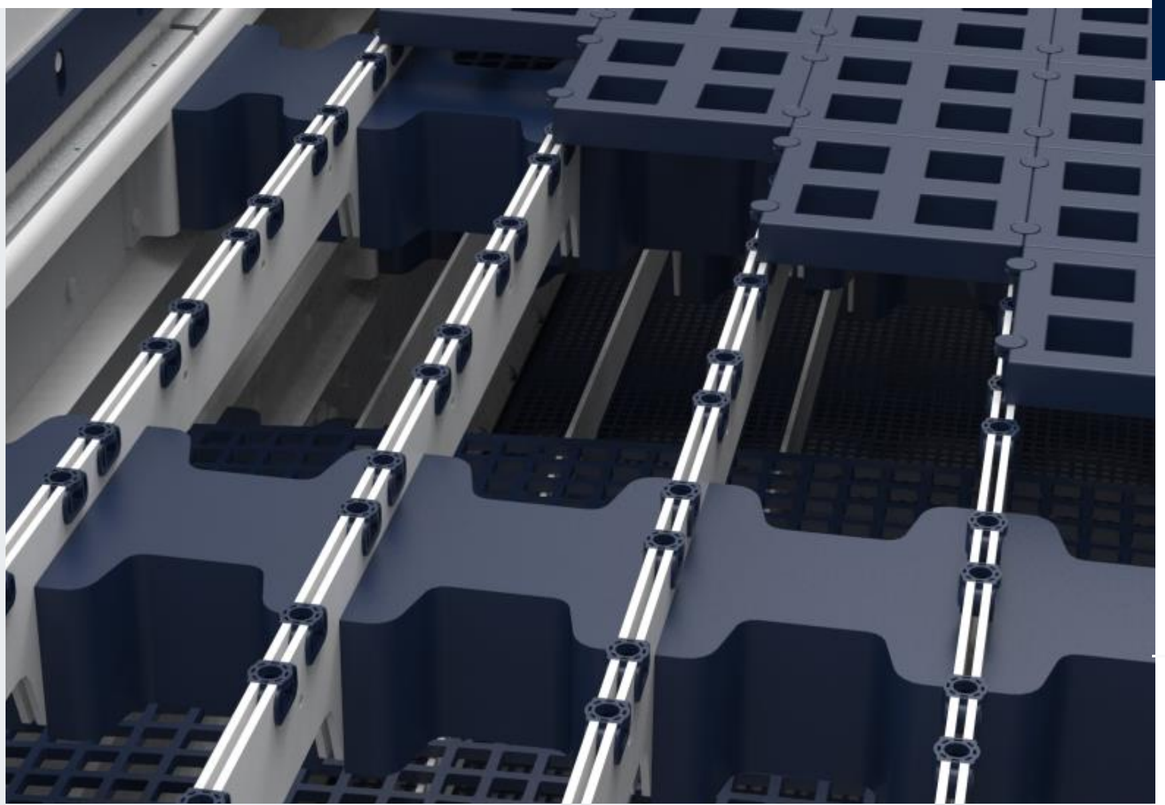
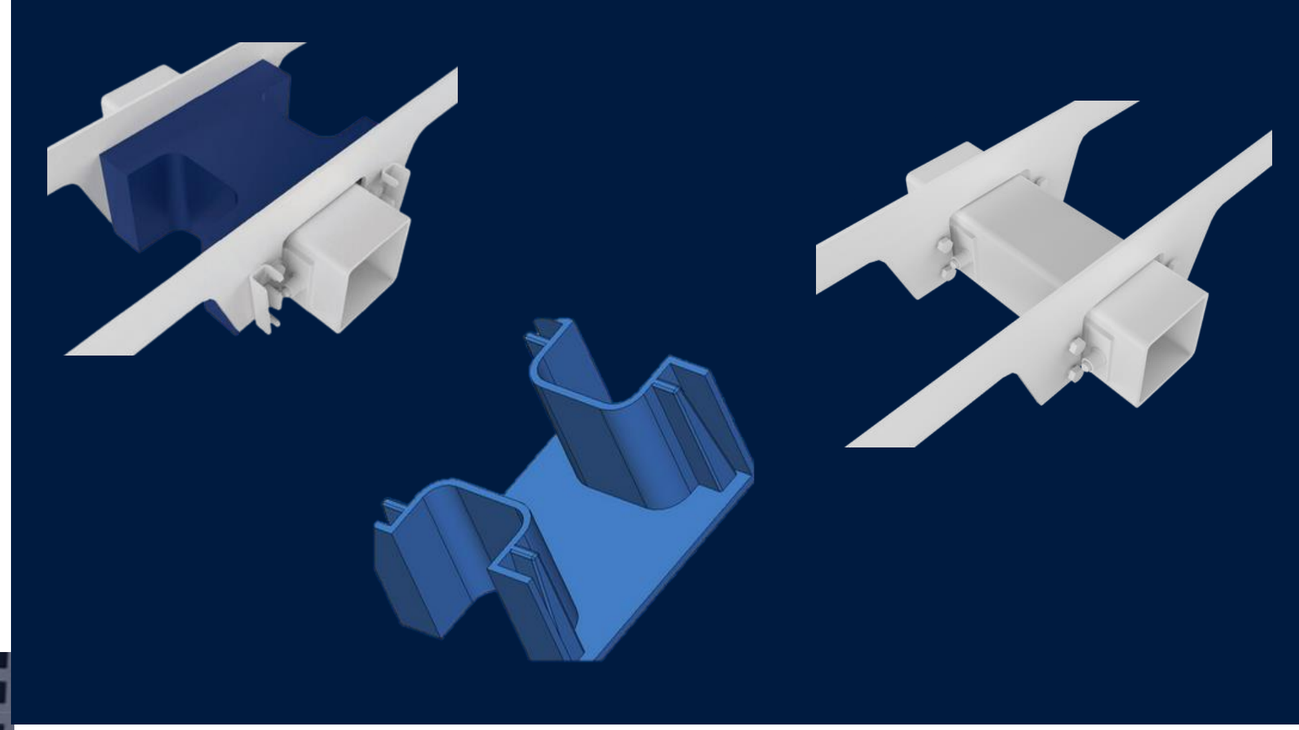
OPTIMIZED WEAR RESISTANCE





95% HOT-DIP GALVANIZED CONSTRUCTION

100% PROTECTION OF CROSS BEAMS AND ALL FASTENERS

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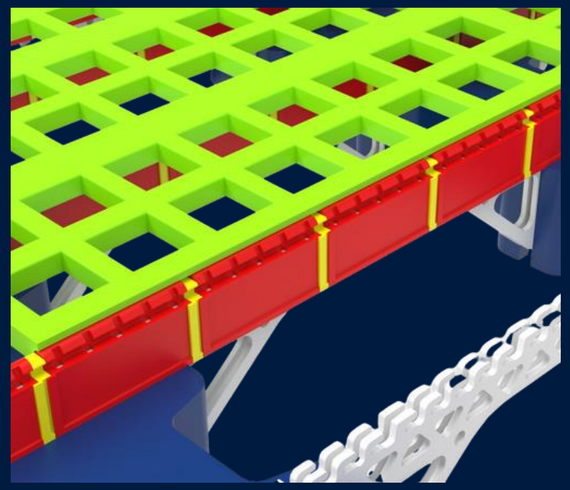
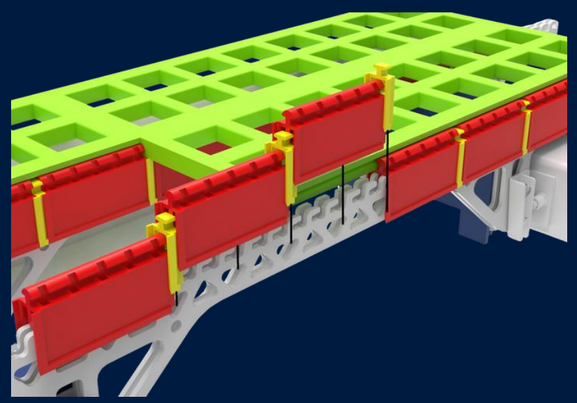
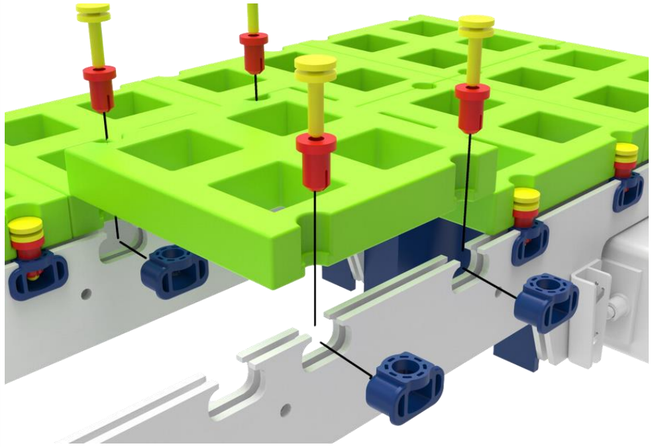
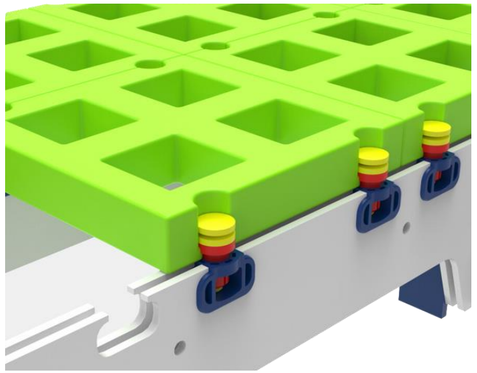
OPTIMIZED WEAR RESISTANCE





The deck design allows flexible use of various adapter systems.





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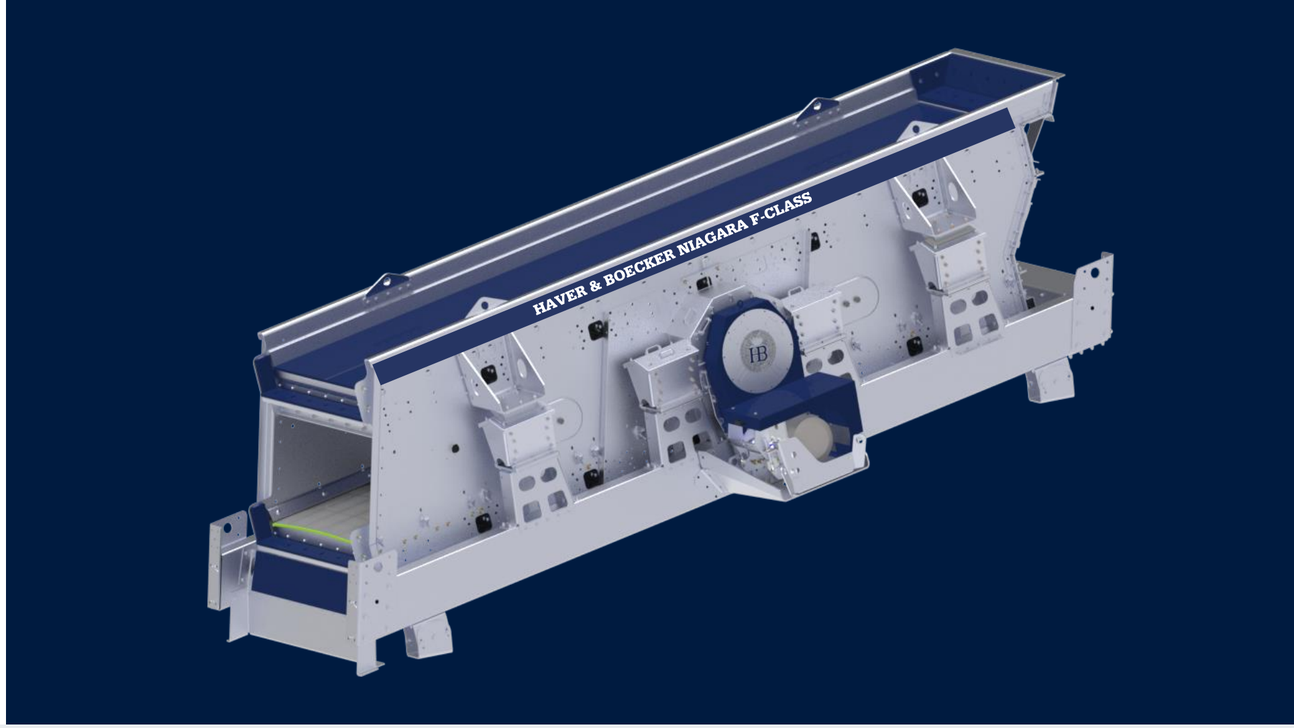
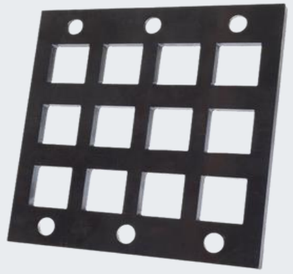
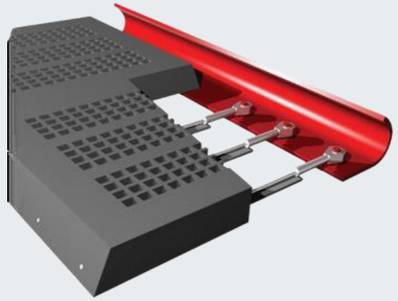
MODULAR DECK STRUCTURE



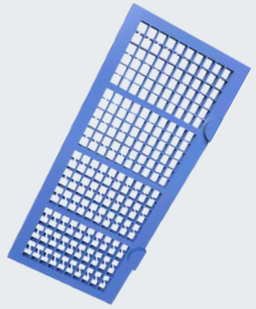


Perforated Plates

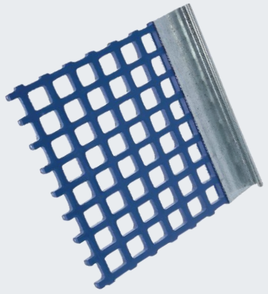
Welded Wire Screens



Rubber Screen Media



PU-Screen Media



Hybrid Screen Media

Self-Cleaning Screen Media

Woven Wire

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FULLY DIGITALIZABLE

- ✓ Online quality control of screening results
- ✓ Online monitoring of machine parameters and components
- ✓ Digital camera access (fixed or mobile)
- ✓ Digital twin
- ✓ Development of AI-based systems

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FOR YOUR ATTENTION

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