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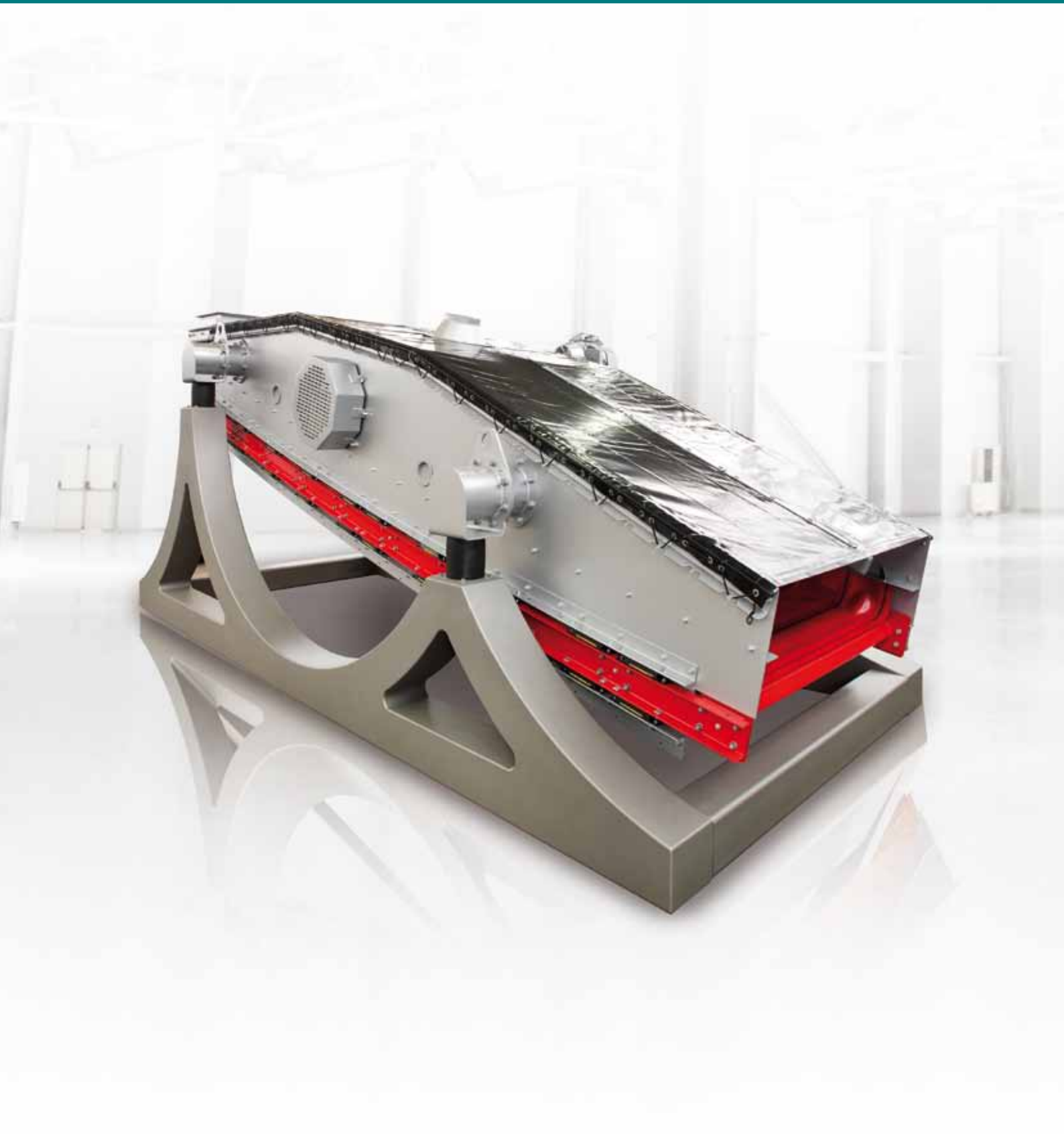
BIVITEC

Efficient screening of difficult-to-screen bulk materials



Task

Screening is an important step in the processing of bulk materials. With the BIVITEC, Binder+Co starts where conventional vibratory screens become inefficient and less economical. Difficult products, such as damp, stalky and leafy materials or matted substances block the screen openings of conventional vibratory screens, thus making efficient screening impossible.

BIVITEC provides a simple solution to these challenging demands: with the help of resonance, a driving mechanism provides two vibratory movements in which the flexible polyurethane mats are expanded and compressed in turns, and the difficult-to-screen product is separated at high acceleration. The dynamically excited screen mats thus remain free and allow efficient screening.

Application

The BIVITEC special vibratory screen masters a wide variety of different tasks and can be deployed in classic dry and wet screening as well as in the screening of difficult-to-screen wet materials. BIVITEC screening technology has proved itself over decades in the processing of construction raw materials, industrial minerals, salts, ores, the coal and steel industries as well as in the recycling industry.
Moreover, the BIVITEC screening machine can also be used as a low-maintenance, space-saving alternative to a solution using several conventional screening machines for screening unproblematic bulk materials.

Solution/ Operation

To ensure efficient screening, much higher acceleration values than usual have to be transmitted to the screening material in the case of difficult-to-screen materials. With this in mind, Binder+Co has developed a solution which is as simple as it is efficient. BIVITEC special screening machines work with a double vibration principle from one drive mechanism. One drive mechanism provides two vibratory movements with the help of resonance.

Every second cross brace of the BIVITEC screening machine is rigidly connected to the screen box (oscillating mass 1) and carries out the basic oscillation (circular or linear vibration). Between these cross braces there are freely vibrating braces (oscillating mass 2) which are connected to the screen box by means of spring elements (rubber parts). The freely vibrating braces together with the longitudinal braces form their own vibratory frame. This results in a relative movement between both brace systems or oscillating masses. This relative movement alternately stretches and relaxes the screen panels. When the screen panels are stretched, high acceleration values up to 500 m/s² are achieved.

Oscillating mass 1

Oscillating mass 2

Complete system

The amount of movement of both oscillating masses can be adjusted, thus facilitating optimum operation of the machine. Parameters, such as speed and adjustment of the unbalanced masses, can be individually adapted to the screening material. Furthermore, the vibratory characteristics of each single screen deck can be adjusted by the number of rubber parts.

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Screen deck

By means of the dynamically actuated screen mats and the basic vibration, for each screen deck only the right amount of energy is transmitted to the charging material to ensure that the screening material is broken up and the screen panels are kept unclogged. The simple and well-proven drive system via e-motor ensures low maintenance costs.
The screwless fastening system of the BIVITEC screen mats provide for an absolutely smooth screen deck surface, thus counteracting material deposits, or caking, which occurs more often in other fastening systems where screws and strips are used. Assembling and dismantling the screen panels is carried out simply and fast. In about 1 working hour, approx. 10 sq. metres of screen panels can be changed.

Red BIVITEC screen panels are the standard panels and used with all common cut points.

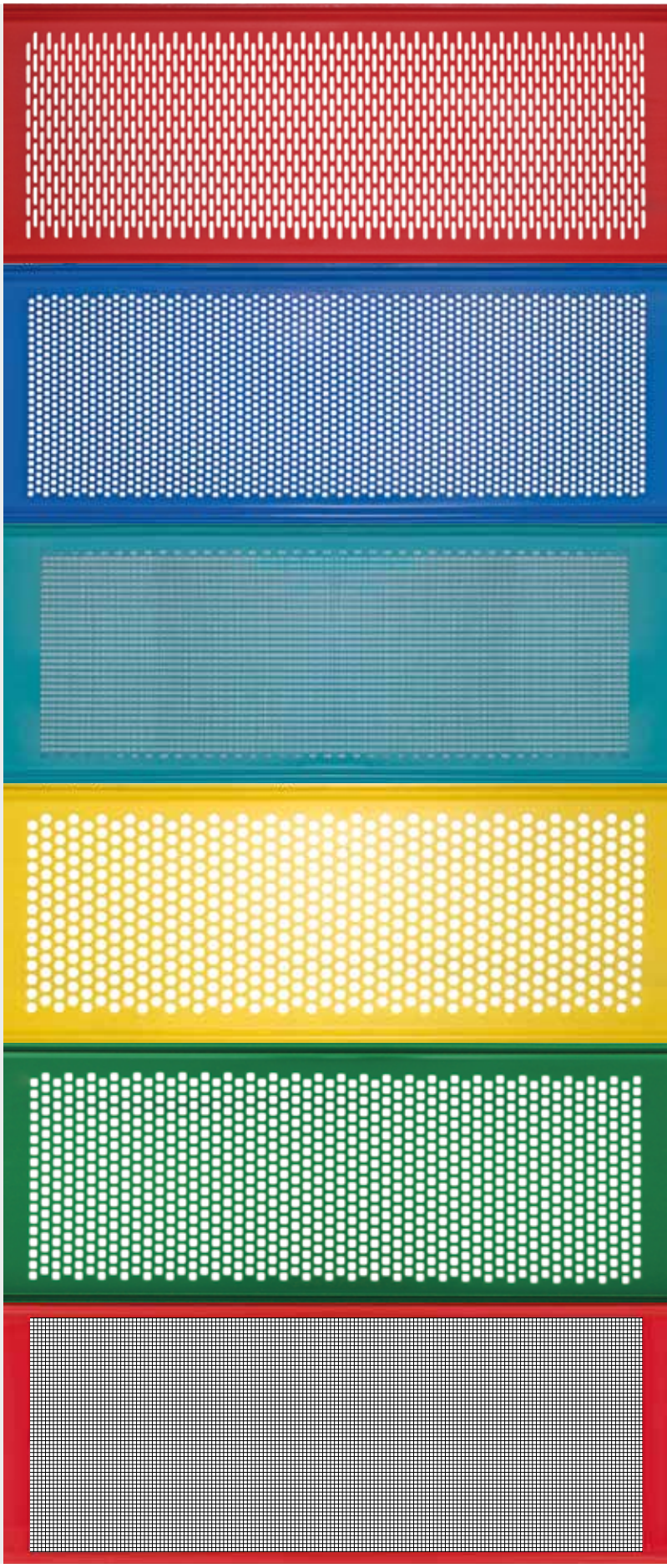
Blue BIVITEC screen panels are softer than the red standard panels and suitable for screening abrasive materials (glass cullet).

Turquoise BIVITEC screen panels are of lower thickness and used for screening fines.

Yellow BIVITEC screen panels are characterised by their resistance to bases and acids, and are primarily used for screening artificial fertilisers.

Green BIVITEC screen panels are resistant to microbes and thus ideal for screening compost.

Binder+Co precision woven mats are used for finest screening such as the filler removal with crushed sand.



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Binder+Co's original screen mats for BIVITEC screening machines are characterised by long service life and easy assembly and dismantling. To yield optimum screening results, individual screen mats are used for each relevant task. The ox-horn side-sealing system developed by Binder+Co prevents discharge of outsize material into the screen underflow and also wear and tear between the screen panels and the sides of the screen.

Hole widths	0.08 – 200 mm
Punched holes	Long, round and square-shaped holes and precision woven fabric mats
Special mats for	acidic/ alkaline, abrasive charging material (e.g. cullet), removal of finest crushed sand, compost.

BIVITEC vibratory screens are mounted on hollow rubber springs to ensure low noise during operation and long service life. Hollow rubber springs also possess optimum starting and coasting characteristics.

BIVITEC vibratory screens only require low drive power for the basic vibration. They are driven by means of an e-motor, a V-belt drive, a cardan shaft and a shaft with adjustable unbalanced masses.

Performance BIVITEC Vibratory Screens

Material data	
Feed capacity	up to 1000 t/h
Grain sizes (Bulk density > 1.5 t/m³)	0 – 80 mm (standard BIVITEC vibratory screens)
Grain sizes (Bulk density < 1,5 t/m³)	0 – 200 mm (light material screening up to max. 700 mm)
Machine data	
Number of screen decks	1 – 4
Effective screen width (m)	0.8 – 3.0
Effective screen length (m)	3.0 – 12.0
Screen area (m²)/deck	2.4 – 36.0
Hole widths (mm)	0.08 – 200 mm
Screen inclination	5° – 30°
Driving power	2 – 55 kW
Weight	1 – 25 t

BIVITEC screening machines are available in a wide variety of models. From single deck to multi-deck screening machines. The intermediate decks can be the same as each other or, depending on the task, can be varied for a section of the screening length. Thanks to additional oscillating masses of the screen frame in BIVITEC systems, BIVITEC screening machines can be combined with a conventional screen deck for easy-to-screen tasks or as protection screening deck.

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The Banana BIVITEC provides an ideal solution for the classification of difficult-to-screen materials with high fine-grain material content in the material feed and also for implementing two grain-size separations on one single screen deck.

It combines the advantages of banana screens with BIVITEC screening.

- The constant curvature radius prevents erratic changeovers when going from steep to flatter screening inclinations.
- High material speeds on the screen deck and relatively low layer heights on the output side bring about considerably higher specific throughput rates.
- Markedly lower material speeds, increasing dwell time resulting from this, and layer formation in the output side of the screen deck bring about a significantly improved separation on the basis of grain size.

Binder+Co AG's know-how in processing primary and secondary raw materials is demonstrated in its broad range of special machinery, which is used world-wide in the bulk materials sector.

Binder+Co also designs and supplies complete turnkey plants. The optimum plant concept and the right combination of machinery are indispensable in securing an economic and technological advantage for our customers. Your requirements are Binder+Co's first priority.

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we process the future

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