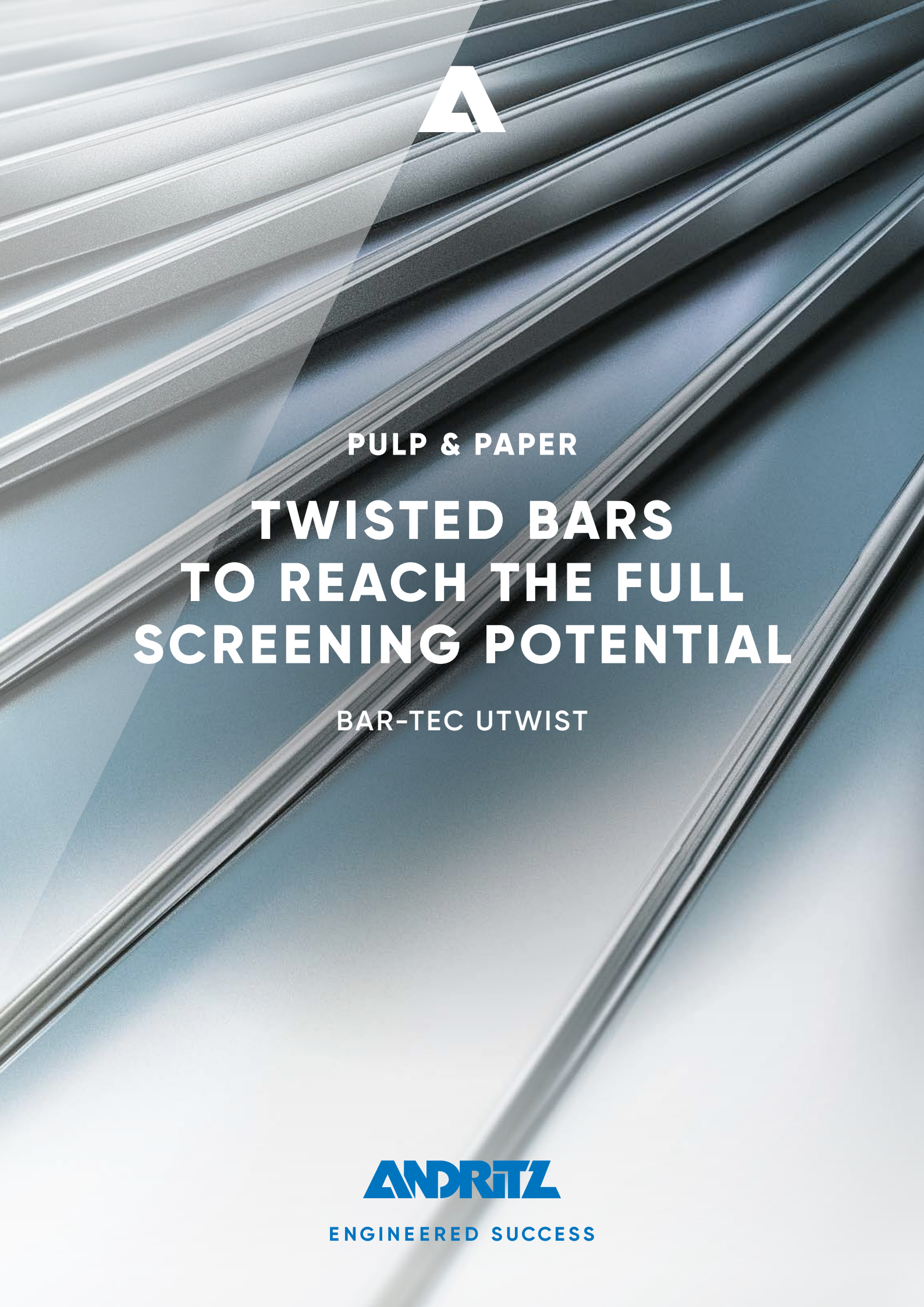


PULP & PAPER

TWISTED BARS TO REACH THE FULL SCREENING POTENTIAL

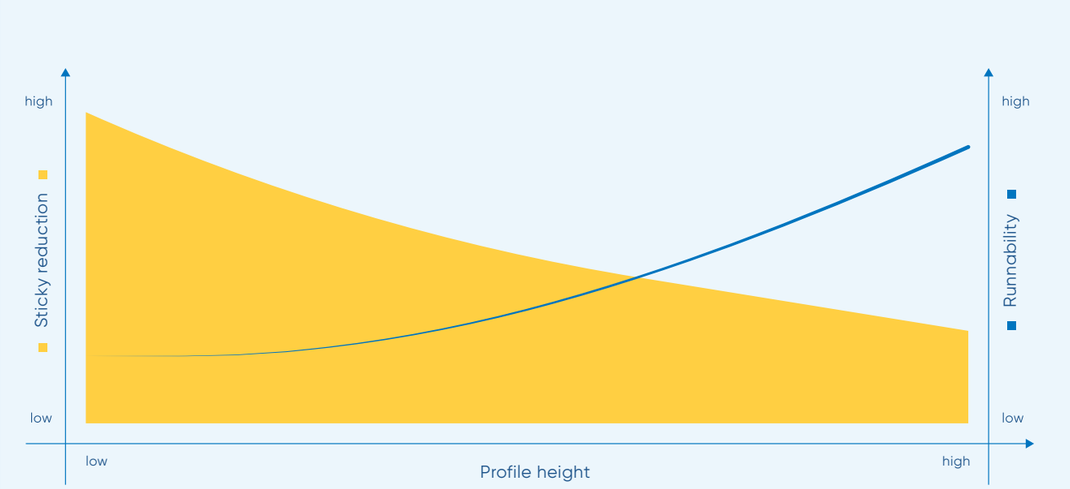
BAR-TEC UTWIST

ANDRITZ

ENGINEERED SUCCESS

The challenge: Finding the balance between efficiency and runnability

The main goal in the screening process is to efficiently remove debris, including stickies, shives and other contaminants, from the stock. However, there are other factors to consider, such as targeted capacity, reject rate, energy efficiency, and runnability.



Effect of the profile height on sticky reduction and on runnability

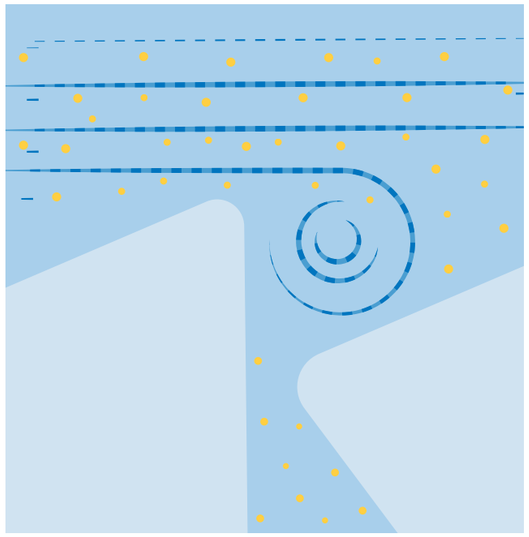
THE SCREENING PRINCIPLE

Since screening efficiency and runnability are contradictory objectives, this points to the inherent compromise in basket specification; setting the wire profile height low enough to ensure good efficiency (high accept quality with minimal contaminants), yet high enough to produce enough turbulence on the basket surface to maintain throughput and high runnability.

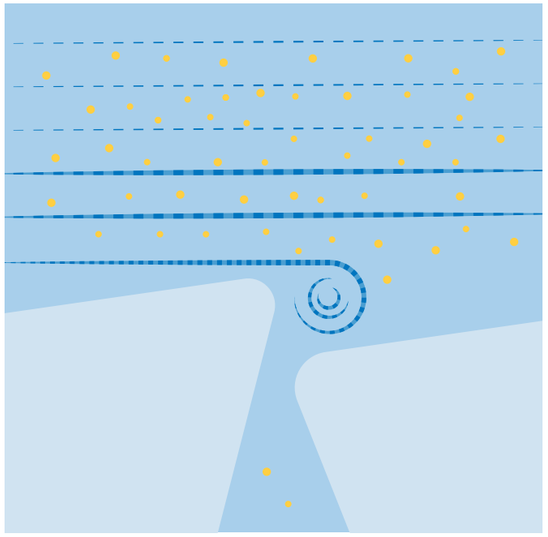
A further challenge is being able to operate with changing process conditions as we move from the feed to the reject zone of the screen basket. The ANDRITZ UTwist adaptable screening profile wire allows a mill to have it all.

Why profile height matters

The design of the wire in a slotted screen basket has a major effect on both screening capacity and accept quality. The profile height is determined by adjusting the angle of the wires, and this affects the turbulence on the basket surface.



High profile height: Turbulence causes reduced reject thickening, potential plugging and yield loss.



Low profile height: Maximum efficiency and good quality

CHANGING THE PROFILE HEIGHT IS THE KEY

The profile height is determined by adjusting the angle of the screen bars to one another. Turbulence has a crucial effect on the behavior of the fiber suspension.

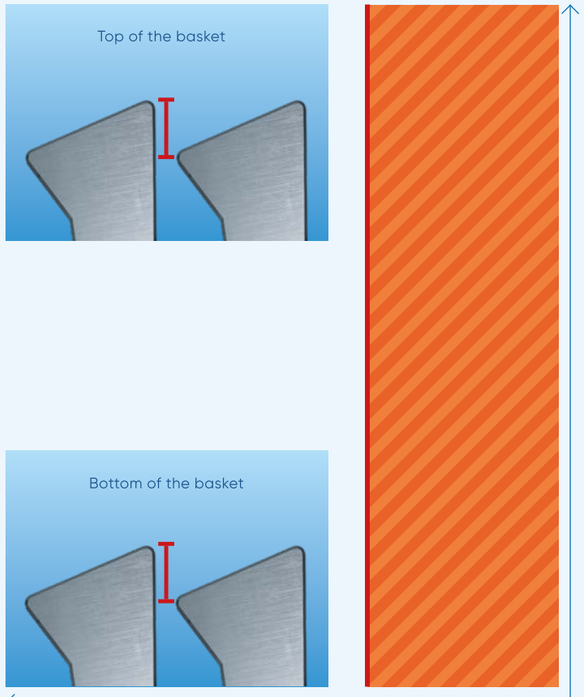
HIGH PROFILE HEIGHT

Raising the profile height increases turbulence on the basket surface, which is beneficial for stock fluidization and increased throughput. Higher turbulence also prevents too much fiber mat build-up on the basket surface, which could lead to plugging. However, if the turbulence is too strong, more contaminants will pass through the basket, thus reducing the accept quality.

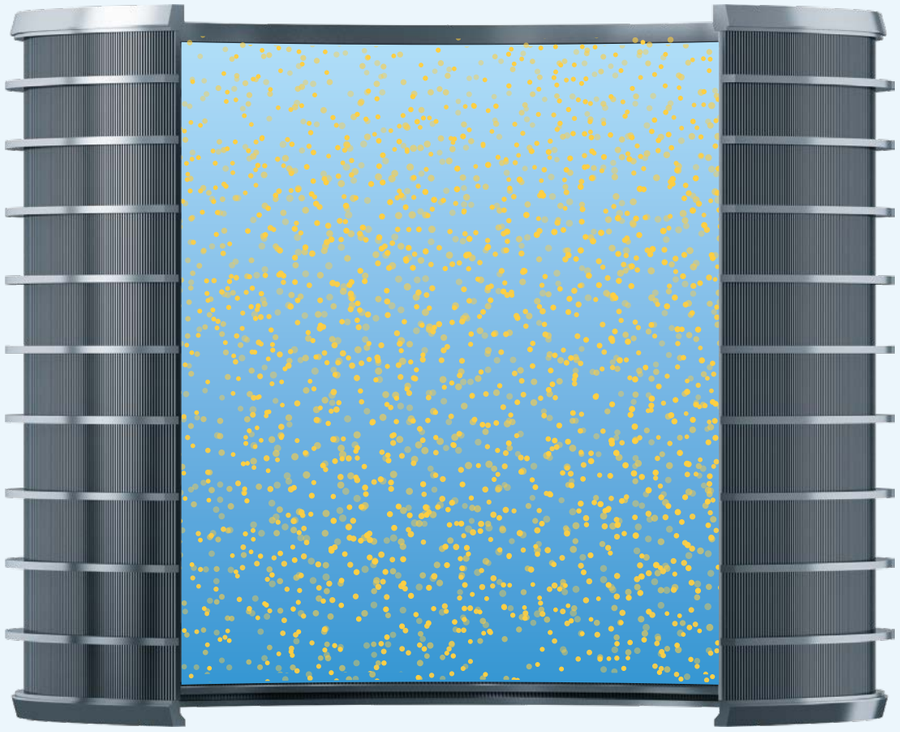
LOW PROFILE HEIGHT

On the other hand, a low profile height improves screening efficiency, but lowers the throughput of the screen. It also contributes towards greater reject thickening, especially at the reject end of the screen, which again may jeopardize runnability.

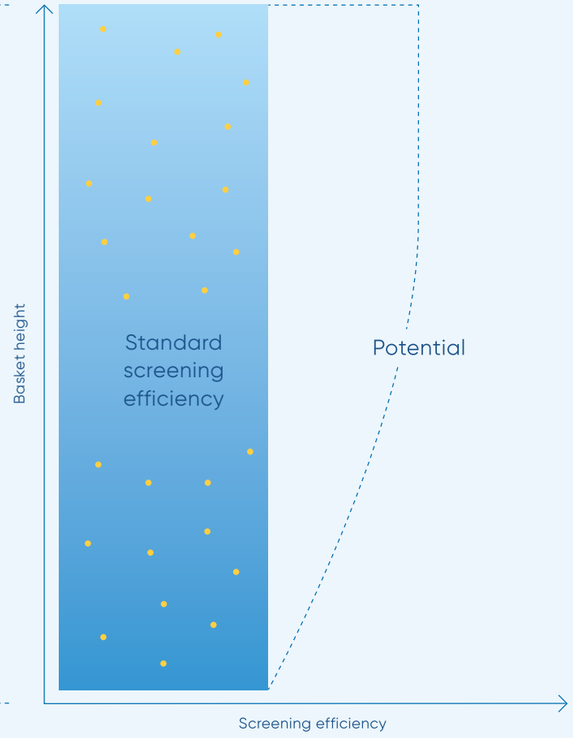
The standard solution leaves potential untapped



Standard bars with a constant profile height



Stickies retention inside the basket



Impact of standard bars on screening efficiency

LOWEST POSSIBLE PROFILE HEIGHT WITHOUT CRITICAL THICKENING

A standard screen basket has a fixed wire profile from top to bottom. This is the norm even though the stock thickens as it flows from the feed end to the reject end – increasing the risk of plugging at the reject end, where thickening reaches its peak. What is becoming more of a challenge is being able to operate the screen under changing process conditions, with inconsistencies in incoming raw materials, excessive amounts of contaminants, shutdowns, and other process disruptions.

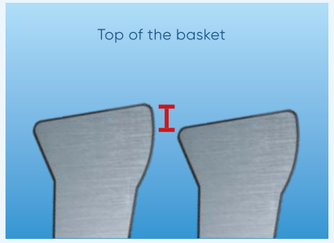
> "Constant profile height throughout the basket leaves potential untapped."

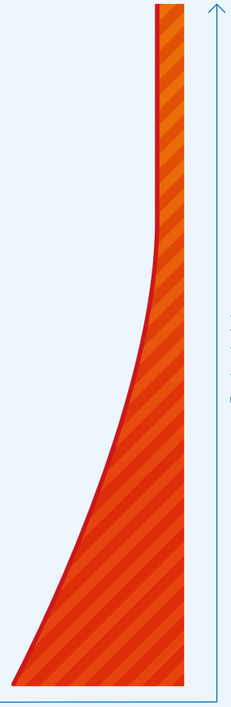
MICHAEL REINSTEIN
Head of Design & Engineering

POTENTIAL

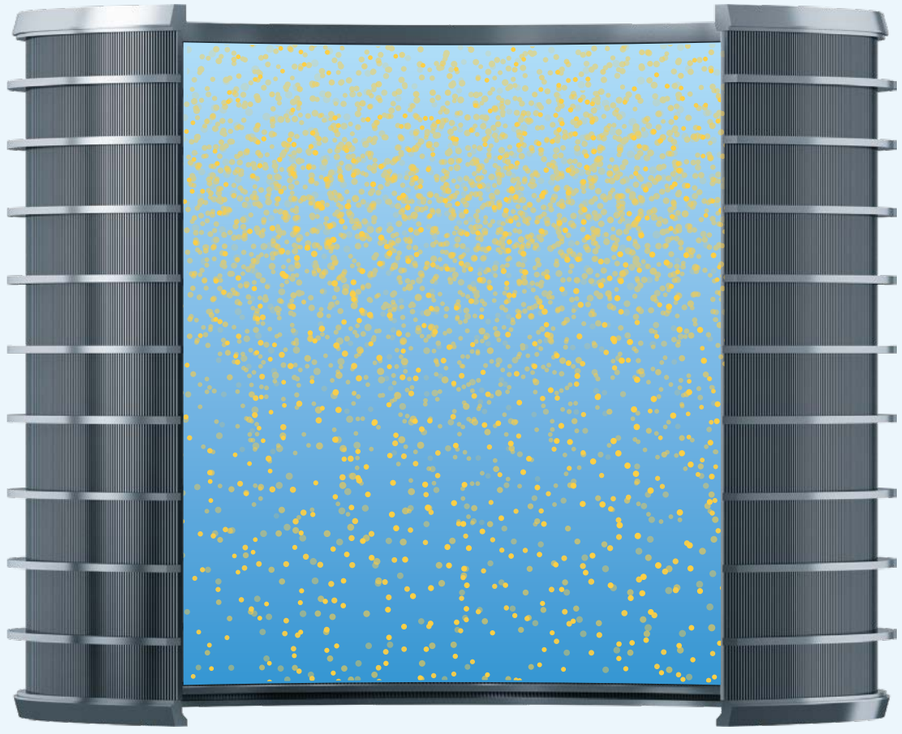
In a traditional basket design with a given slot width, the manufacturer must accommodate the compromise between screening efficiency and capacity with a profile height that is uniform from the top of the basket to the bottom. Prioritizing runnability when selecting the profile (i.e., no critical thickening, no plugging and no unexpected shutdowns) means that optimum screening efficiency is never achieved. How could we have it all?

Realizing the full potential with Bar-Tec UTwist

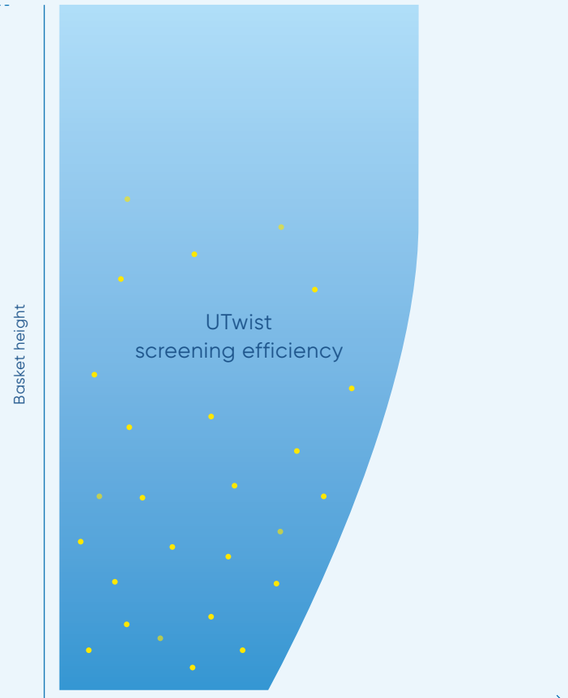




UTwist bars with adaptive profile



Stickies retention inside the basket



Impact of UTwist bars on screening efficiency

GEOMETRY AND ADAPTIVITY

Bar-Tec UTwist offers a wire with adaptable profile that ensures the lowest possible profile height at any vertical position of the basket. The ability to adjust the profile height along the basket is unique, enabling low profiles close to the feeding zone to increase screening efficiency and then a higher profile in the subsequent zone to avoid critical thickening.
The patented profile geometry allows tilting of the wire without this having an impact on the slot width. This is not possible with any other profile wire.

FEATURES

- **Twisted profile wires for optimum profile height**
- **Constant slot width**
- **Lowest possible profile height throughout the basket**
- **Increasing profile height at the reject end to reduce thickening and avoid plugging**

“Having the perfect profile height throughout the basket will raise performance to a new level.”

KEITH MEYER
Global Product Manager Screening

BENEFITS

- **Realization of full screening potential**
- **Greater reduction of impurities → Improved quality**
- **Higher capacity**
- **Reduced thickening**
- **Wear-resistant surface → longer lifetime**
- **Tailor-made solutions**

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