

# Hoyt Hi-Rise™ Aggregate Case Study

Production of (-1/2") increased over 100 tons per hour



The plant manager maintained that the Hi-Rise paid for itself in six minutes of production.

## PROJECT DETAILS

**Customer:** One of the nation's largest producers of construction aggregates (crushed stone, sand, and gravel) and a major producer of aggregates-based construction materials (asphalt and ready-mixed concrete)

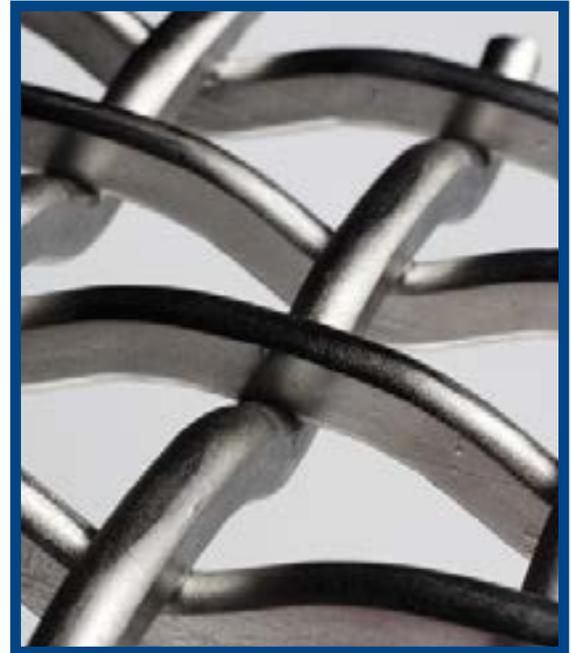
**Location:** Southern Mid-Atlantic (Virginia)

**Material:** Crushed Granite

**Equipment:** Triple Deck 8' x 20' Shaker 18° Incline, Throw Downhill

### Initial Screen Media:

- Top Deck: 1" .250 Standard Wire Cloth (Supplied by Hoyt)
- Middle Deck: 1/2" .192 Standard Wire Cloth (Supplied by Hoyt) 52.2% Open
- Bottom Deck: 3/16" Opening Modular Polyurethane supplied by others



## PROBLEM

The aggregate producer needed as much (-1/2") material as possible to supply to local asphalt companies for several DOT paving jobs. The middle deck was already over capacity, sending prime size material back into the crushing circuit, creating unacceptable recirculating loads. To increase retention time and throughput, the producer first tried changing the shaker throw to run uphill instead of downhill. Unfortunately, this only made the deck load heavier, causing material to spill out the back of the shaker.

## SOLUTION

Hoyt engineers evaluated the issue and recommended the use of 1/2" .192 Hi-Rise which utilizes wire shaped so that the width is .145 and the height is .215, increasing the open area from 52.2% to 60.1%, an increase of 15.1%. Shaping of the recommended wire also yields an increase in height of 12% (.192 - .215), thus offering a significant wear life increase in addition to sizeable gains in open area.

## RESULTS

The aggregate producer noticed immediate improvements in deck load after installing Hi-Rise. They observed greater material stratification taking place much earlier on the deck. Hoyt engineers attribute this phenomenon to increased material tumbling or damming caused by the flat sides of the shaped wire. They refer to it as the "Wall Effect". As a result of the increased open area and stratification, the aggregate producer was subsequently able to reverse the shaker throw to uphill while still maintaining acceptable bed depth.

Production of (-1/2") increased over 100 tons per hour. As an added benefit, recirculating load on the crusher was reduced as well.

A common error in calculating can occur if you merely subtract the percentages.

To find the accurate increase in yield, use the following formula as a guide:

$$(60.1\% - 52.2\%) \div 52.2\% = 15.1\% \text{ increase}$$

*It is not uncommon to make the mistake of merely subtracting 52.1% from 60.1% thus yielding only a 7.9% increase*

For more information on Hoyt Hi-Rise, visit

<https://hoytwirecloth.com/products/shaped-wire-screens/>



US and Canada 1-800-243-3374  
Latin America 1-717-665-2421  
Europe, Asia, Australia and Africa +44 0 870 757 7007

[www.fennerdrives.com](http://www.fennerdrives.com)



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