

THE AUTHORITY ON EQUIPMENT & TECHNOLOGY

PIT & QUARRY

TAILGATE TRIUMPH

How Caldwell Stone's preferred hauling vehicle got a significant productivity boost



+++

**CONEXPO-CON/AGG
TECH PREVIEW**

**SURVIVING THE NEW
DRONE PRIVACY LAW**

FEBRUARY 2020
VOL. 112 NO. 8

PitandQuarry.com

CONTENTS

VOLUME 112 FEBRUARY 2020 NO. 8



36 CONVEYING & MATERIAL HANDLING

Reduce maintenance by improving access

Conveyor systems should have access points along the belt that allow for better inspections and produce more efficient, safer maintenance

40 TIRES

Tire maintenance done right

Suppliers reflect on the key characteristics of the most successful maintenance programs among aggregate producers

42 SCALES & WEIGHING

How tech is changing the nature of scales

Embracing data analytics can improve efficiency and decrease downtime

BY BRYAN SNYDER

CRUSHING & HYDRAULIC BREAKING

Anchor Stone's Tulsa Rock Quarry installed a cone crusher in Oklahoma with an innovative design **PAGE 24**

24 CRUSHING & HYDRAULIC BREAKING

Up and crushing

How an automated cone crusher is boosting efficiency and plant uptime for an Oklahoma producer

BY CAROL WASSON

UP FRONT

6 AN INSIDE LOOK

Election-year confidence

BY KEVIN YANIK

8 UP TO SPEED

Pit & Quarry Roundtable recap, manufacturer updates and more

CONEXPO-CON/AGG COUNTDOWN

13 Behind the curtain

A sneak peek at the latest crushing, screening and washing equipment producers can expect to find at ConExpo-Con/Agg 2020

P&Q TECH

20 CUTTING EDGE

The latest equipment and technology developments

ON THE COVER

30 HAULING

Tailgate triumph

Caldwell Stone's preferred hauling vehicle experienced a significant productivity boost once the operator and a longtime partner came to a custom-engineered solution

BY ARIELLE WINDHAM



P&Q BUSINESS

48 PRODUCERS

Work shortage solutions

As the industry's struggle to find good people continues, a representative from one of the nation's largest producers shares the company's strategy for success

BY ZACH MENTZ

56 OPERATIONS

Venturing out

How a longtime aggregate-producing company got into the dimensional stone business

BY KEVIN YANIK

Cover photo: Philippi-Hagenbuch;
Top: Superior Industries;
Background: Loops7/E+/Getty Images

“Access” can mean observation points, entry doors and workspace for service.

REDUCE MAINTENANCE BY IMPROVING ACCESS

Conveyor systems should have access points along the belt that allow for better inspections and produce more efficient, safer maintenance

EDITED BY **KEVIN YANIK**

Virtually every vehicle on the road today is designed with a hood that can be easily opened for access to the engine.

The hood design means mechanics can more easily perform routine service and diagnose and address problems that arise during the vehicle’s lifespan.

Conveyor systems should be designed in much the same way, with convenient points along the length of the belt to allow technicians to inspect belt condition, perform service as needed and help prevent catastrophic failure.

Unfortunately, this type of access is often overlooked when engineering conveyor systems – until a pressing need arises, increasing the difficulty of an ongoing inspection that could have allowed technicians to observe and service critical components before a crisis develops. As a result, costs go up and productivity goes down.

RESPONDING TO THE MARKET

Conveyor manufacturers have responded to the need for increased accessibility to system components by developing components and accessories specially designed to reduce labor time while improving safety during service. Innovative equipment designs such as slide-out cradle frames, belt cleaner assemblies and idler assemblies – as well as sealed heavy-duty inspection doors – offer improved access for safer and more efficient maintenance, resulting in fewer injuries, reduced labor and a lower total cost of operation.

“This is a cascading issue,” says Daniel Marshall, product engineer at Martin Engineering. “Insufficient access leads to poor maintenance practices, resulting in emergency outages and diminishing the operation’s productivity and safety. From an ownership and management perspective, downtime and injuries affect profitability through loss of production, capital expenditures for new equipment and ongoing insurance implications.”

In the past, managers often decided against the expense of adding safer and easier access points to a conveyor system beyond what is required by code. Over the conveyor’s lifetime, however, safety professionals estimate that poor access adds as much as 65 percent to maintenance and cleaning costs.

When designing proper access into a bulk material handling system, there are three easily achieved goals:

- **Easy to see.** If equipment cannot be seen, neither can the problems.



Inspection doors and track-mounted components facilitate maintenance for extended equipment life.

▪ **Easy to reach.** Equipment maintenance is likely to be postponed if it is awkward or dangerous to access.

▪ **Easy to replace.** Broken equipment is likely to remain that way if it is complicated and time-consuming to service.

LOADING ZONE INNOVATIONS

Many conveyor transfer points still have an antiquated roller system tasked with absorbing impact and centering the cargo, according to Marshall.

“These components often break and seize, causing friction and a potential fire hazard,” he says. “To replace them, several workers must remove the skirtboard and break the plane of the conveyor to reach across the stringer with heavy tools to assess and repair equipment.”

To reduce maintenance time and labor, improve safety and extend equipment life,

Rockability. We've got it.

Rock Solid Solutions
Built on Experience
Since 1979...



Experience
Knowledge
Service



Aggregate Material
Handling Systems
323 Energy Way • Bridgeport, TX
800.315.0871
www.crispindustries.com



March 10-14, 2020
Las Vegas, NV
Come See Us at
Booth # C-32167

Proud Distributor of

operators should consider track-mounted impact cradles and belt support cradles. Located under the skirtboard and mounted with rugged steel assemblies, the cradles feature large impact-absorbing UHMW polymer “box bars” engineered with smooth surfaces that the belt can slide across with little friction or belt wear. These assemblies can be pulled out by a single worker and – working safely from outside the conveyor and using only a single tool – the box bars can be simply removed and flipped in a matter of minutes to double the service life.

Along the cargo path in the settling zone and beyond, retractable idlers support the belt and maintain the trough angle. Rollers, exposed to a punishing environment, gritty dust and extreme weather, can seize over time. Often set closely together in the loading zone to avoid belt sag, slide-out/slide-in roller frames permit workers to perform idler service outside of the belt plane without the need to raise the belt or remove adjacent idlers.

DISCHARGE ZONE MAINTENANCE

Wear parts like belt cleaner blades should be monitored, serviced or changed regularly to prevent carryback from causing dust and spillage along the belt path.

“Blade adjustments and changes can require several hours of downtime,” Marshall says.

Primary cleaners, located on the underside of the head pulley, are mounted on rotating assemblies designed to retain the proper tension between the blade and the belt. Secondary cleaners are located behind the head pulley and raised slightly above the belt line for tension.

Specially-designed units can slide in and out by simply pulling a lever and releasing a pin. This can allow blade maintenance to be performed outside the system by a single worker in under an hour.

INSPECTION DOORS

A tight seal is key to preventing fugitive dust from leaving any chute. Many current

setups require workers to crouch or crawl under the system or even enter a confined space to inspect it or perform maintenance. This can result in serious injuries.

Inspection of the system needs to be fast, easy and safe. Small inspection doors

– either solid or grated – can allow several observation points. Larger doors can offer access points with ample space for service of specific wear parts. **P&Q**

Information for this article courtesy of Martin Engineering.



Custom Engineered Solutions

No two customers are alike. By designing a system to custom fit your application, we save you time and money, both during installation and for the duration.



800-325-6377
www.rapat.com

See us at ConExpo
Booth B92003