ROCK ENGINEERED MACHINERY CO. INC.

REMco NEWS

TIPS, TECHNIQUES, PRODUCTS AND INFORMATION TO HELP YOU GET THE MOST FROM YOUR REMCO CRUSHER

AUGUST 2009 ISSUE

WHEN TIMES GET TOUGH, TOUGH COMPANIES KEEP CRUSHING... EVEN AFTER 119 YEARS

by Dana Stephens
- REMco, Eastern Regional Manager

In today's tough economic environment everyone has revised their budgets to adjust for the decrease in aggregate demand. This often means delaying planned upgrades of processing equipment and making costly repairs to existing outdated systems. With the depletion of natural sand in many areas of the country, manufactured sand is the accepted alternative and the vertical shaft impact (VSI) crusher is the accepted superior tool to produce quality sand at the lowest possible cost. Rock Engineered Machinery Company Inc. (REMco) has raised the bar again by adding a REMco Top Hat Conversion for Barmac Crushers to their extensive product line, which provides producers with a cost-effective alternative to buying a new machine.

Nantahala Talc & Limestone, located in the beautiful mountains of Western North Carolina, has the distinction of being the oldest, continuously operated quarry in the state at 119 years and counting. Its continued success, apart from good management, is attributed to the quality of its stone which was formed by high temperatures and pressure on a sedimentary carbonate deposit. Jack R. Herbert was President of Nantahala Talc and Limestone Company for 36 years prior to selling to Bill McNeely of the McNeely Companies in 2006. Jack is still with the company in a consulting role. The McNeely Companies is comprised of a variety of entities mostly related to the aggregate industry. Their base of operations is in Topton, North Carolina. Bill's sons, Mack and Daniel, are active in all aspects of company operations.

Bill, Mack and Daniel visited REMco's booth at the Con Expo/Con Agg Show in Las Vegas, Nevada in March 2008. As with most modern day operations, the sand produced by their secondary and tertiary compression crushers was woefully inadequate - lacking sufficient 16s, 30s and 50s for low FM and good finishability. The McNeely's and REMco's Product Experts discussed how a REMco VSI crusher could increase their quantity and quality of manufactured sand in order to meet the demands of their concrete and asphalt customers. To be sure REMco had a complete understanding of Nantahala's situation, a site visit by REMco personnel would be required.

REMco's Eastern Regional Manager, Dana Stephens, traveled to the Nantahala quarry after the show to evaluate their processing operation from start to finish. As one might imagine, a quarry dating back 119 years has some history and a bit of ground to cover before Dana had a complete grasp of the plant's history, as well as the future goals of the new management. Mack McNeely had a lot of data compiled regarding the stone, its chemical composition and even gradings from an old Barmac VSI crusher that was no longer in use. Using AggFlow, Mack was able to convey his ideas to Dana for potential circuit flow and product breakdown. With this information, Dana was able to forego some of the normal test work that is used to determine how the rock breaks, the machine size needed and horsepower requirement. Over the course of several weeks the ideas were honed and finalized for a REMco Model 400-ST/AR VSI crusher complete with anvil crushing chamber and autogenous rotor. Just two words stood in the way of installation of a REMco crusher in Nantahala's new circuit….. ***THE ECONOMY.***

With the economic slowdown in 2008, Nantahala needed to revise its expansion schedule and reduce costs. McNeely Companies needed an alternative, economical solution for their size reduction requirements. *Maybe, a used VSI crusher that could get them through a few years before purchasing the right machine…?* When presented with this scenario, Dana remembered the old Barmac crusher that was sitting idle at the Nantahala plant site. With REMco's help, this old machine could be resurrected to run another day for less than a used machine of questionable history and reliability. The Barmac VSI was in rough shape, needing repairs to the drive tunnel, drive and crusher base. Its top hat section was completely useless, as REMco's recommendations included a semi-autogenous VSI crusher, which uses anvils; the Barmac was designed as an autogenous (rock-on-rock) machine, which has limited service access through a side service door. In contrast, the REMco Top Hat assembly is complete with hydraulic-opening lid for easy and safe access to the anvils or autogenous crushing chamber and rotor for routine maintenance. The original crusher base including the motor, v-belt drive, bearing cartridge and REMco rotor is retained with the original mounting system and installation envelope.

Continued on Next Page

At REMco's direction, Nantahala performed the required repairs to the crusher base on their own while REMco manufactured their new Top Hat Assembly.

For Nantahala, deciding to upgrade their existing crusher with a REMco Top Hat Assembly and a few other accessories was easy. Not only was upgrading the crusher about ½ the price of a new machine, the crusher becomes more versatile with the ability to switch from rock-on-steel to rock-on-rock should it be necessary for a more aggressive application. Other note-worthy accessories are:

- 30" 4-port Rotor – a multi-port design that is more efficient and user-friendly than the 3-port rotor originally used in the Barmac VSI crusher
- REMco automatic lubrication system - which takes the guess work out of getting the correct amount of grease to the three major lubrication points on the bearing cartridge

Installation of the resurrected VSI crusher complete with REMco Top Hat, rotor and automatic greasing system occurred in late 2008. In conjunction with the updated VSI crusher, major plant modifications were also done, which provided more production flexibility and capability. On average, daily sand production increased by 250% over the old system easily keeping pace with their customer demand.

In addition to keeping up with demand, there are "no complaints" on the quality of the sand produced. Its fineness modulus has been a consistent 2.8 since commissioning of the REMco Top Hat conversion. The first set of anvils is still in service and the service life of rotor parts has substantially increased since installation of a metal detector on the feed belt to the VSI. By any measure, this has been a win, win, win scenario. REMco wins because they helped a customer with some of their advanced VSI technology. Nantahala wins because they were able to reduce costs and produce a quality product in a cost-effective manner and local customers win because they can get a consistent, quality sand product at a reasonable price.

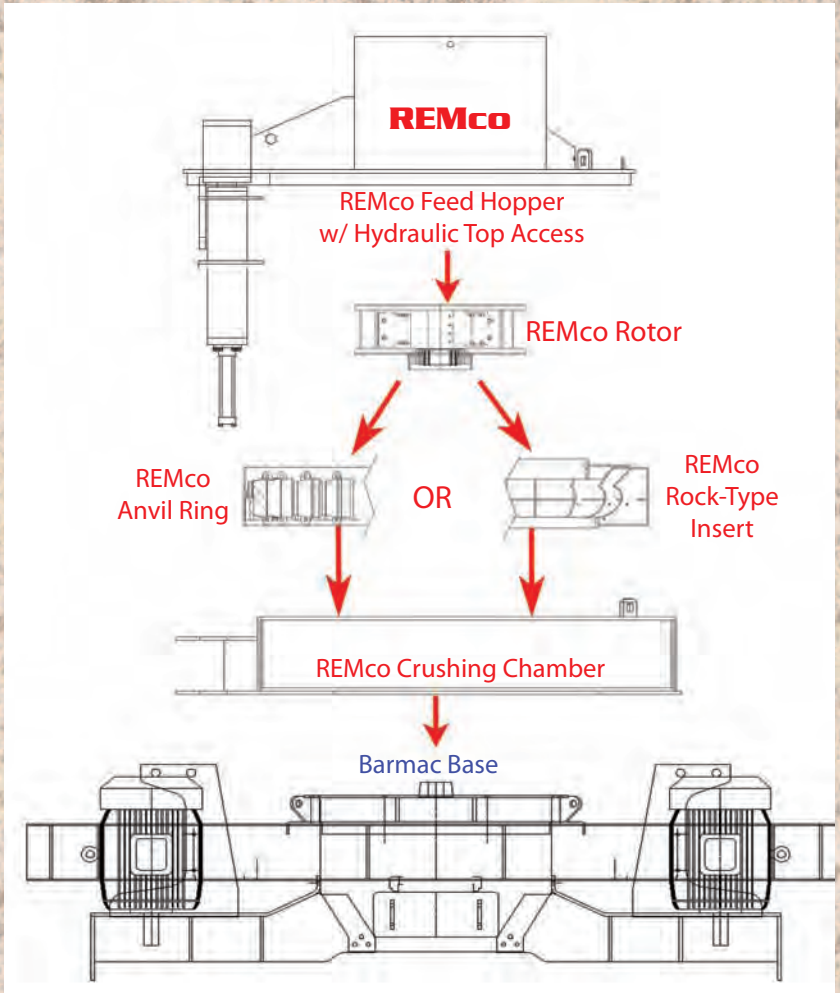
If you would like information on the REMco Top Hat Conversion or other REMco products, contact REMco at:

Tel (925) 447-0805
Email: rremco@aol.com
Website: www.remcovsi.com

REMco TOP HAT CONVERSIONS for Barmac Crushers

For those users who operate 9600 or 9100 Barmac Duopactors and older Rotopactor machines, REMco offers a field retrofit package to convert the Barmac to top service, REMco-style chamber that is convertible for rock-on-rock or rock-on-steel duty. These types of conversions are desirable for their increased crusher performance and flexibility, as well as ease of maintenance. In addition, the OEM components typically have long lead times and high costs. The crusher's installation envelope will remain the same and in many cases can be shorter than the Barmac Duopactor.

Which conversion package is right for you, is dependent on your specific application as the machine will now be fully convertible to RockMax, SandMax or ST/AR configurations. Installation of the REMco Top Hat Assembly is easily done in the field, typically in one day. Simply remove and discard the Barmac top hat assembly and rotor and replace it with REMco components. This provides the Barmac user with much improved machine performance. The maximum 57 mm feed size limit is increased up to 75 mm depending on the stone and the final product. REMco components provide superior capacity without overloading screens while maintaining the best cubical shaped product, and are competitively priced. If you are interested in more information on REMco's Top Hat Conversion for Barmac Crushers, contact your REMco representative.



REMco TECH CENTER

This month's question is from Charles C., Plant Operations – Stockton, UT

HOW DO I KNOW IF THE DRIVE BELTS ARE TIGHT ENOUGH?

Some operators run their drive belts so tight that they can play a tune on them. While others like to hear the squeal of the belts "just so they know it's running." Neither thought process is correct. As a matter of fact, each drive arrangement has an optimum belt tension for best all around performance. This month we will dispel the myths and provide a proper explanation of belt and sheave maintenance.

"RUN THEM TOO TIGHT AND BEARINGS IN THE MOTOR OR CRUSHER WILL BE DAMAGED. RUN THEM TOO LOOSE AND THE BELTS CAN SLIP AND IN SEVERE CASES, BE DESTROYED."

All REMco Crushers use narrow section V-belt drives over conventional V-belts. Per the T.B. Woods product catalog, the narrow geometry of 5V and 8V belts result in cross sections that are up to 50% smaller than conventional cross sections. These compact sections allow for smaller diameter sheaves that are lighter in weight and have higher operating speeds for reduced bearing loads and shaft stresses. Special care must be taken to inspect the belt tension and sheaves for maximum life and performance.

REMco provides some general guidelines for belt tension in our operations manual, however, it doesn't tell the whole story. Frankly, the best way to determine the proper belt tension is to download a free program from *www.tbwoods.com* and let the program do the work for you. It will be necessary for you to know the following data points to have the program run your drive. These are (See Exhibit A):

- Belt section (5V or 8V)
- Service Factor – REMco calculates its drives with a 1.15 service factor (15% greater horsepower capability)
- DriveR Horsepower (motor hp size)
- DriveR RPM – loaded motor speed per the motor name plate
- Center Distance - distance in inches from the center of the crusher shaft to the center of the motor shaft (best determined by measuring your specific machine)
- DriveR Sheave (in inches) – motor pulley diameter
- DriveN Sheave (in inches) – crusher pulley diameter
- Number of belts on your crusher (best determined by counting the grooves on your sheaves)

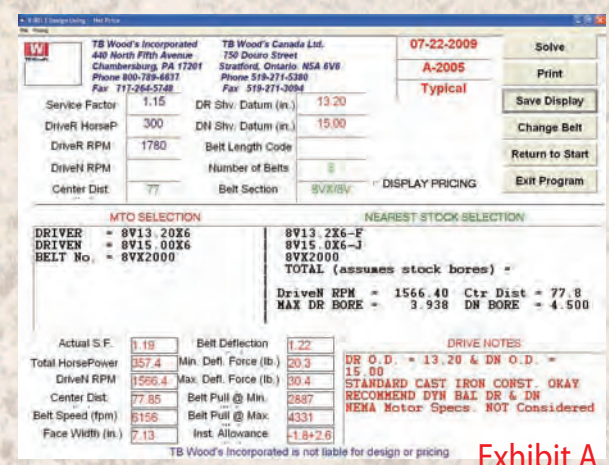


Exhibit A

With this information the program will calculate the actual service factor, the belt deflection and the amount of pressure required to achieve this measure of deflection. From here, all you have to do is tighten the belts to at least the mid point of the target tension range. To get the proper belt tension every time, use a spring loaded belt tension device, as seen in Exhibit B, for best results. The belt tension device is available from most belt and power transmission suppliers for little or no cost, and it removes the guesswork out of the belt tensioning equation. Proper use of this device is best determined by following the step-by-step instructions that are typically included.

However, we understand that some rock plant guys require instant gratification. In which case, we have provided the following steps to assist you:

1. **Set body "O-ring" the correct deflection measurement**, in the case of our example 1 ¼".
2. **Push the stem "O-ring" to zero**. Only push on one belt at the midpoint between the two sheaves until the body "O-ring" is aligned with the belt above it. Check the "O-ring" on the stem to determine the pressure it took to reach the deflection measurement.

EXAMPLE:
Per our example, Exhibit A, if the pressure is about 25 pounds but less than 30 pounds, your belts are good to go, lock the bolts back down and close the guard. Be sure to set your belt tension at or above the midrange to allow for some belt stretch and wear between belt tension checks.

V-Belt Tension Tester

Exhibit B

During the break-in period *(the first 16 hours of operation)*, be sure to check the V-belts frequently to ensure the V-belts are properly tensioned. Allowing the V-belts to squeal and slip can cause premature failure of the belts. After the break-in period, checking the V-belt tension once per week should be sufficient in most applications.

What if the belts are tight but they still squeal?

First thing to check is that the sheaves are not worn open which would allow the belts to bottom out on the sheave (pulley). Narrow section belts transmit the horsepower to the sheave on the sides of the belt. If the sheave grooves are worn wide and the belts bottom out, the sides of the belts will not contact the sides of the grooves, and it will squeal no matter how tight they may be (see Exhibit C).

Exhibit C

That covers it for this month's tech question. Keep them coming....
Who knows, your question may appear next month...

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UPCOMING EVENTS

Come And See What's Happening

WORLD OF CONCRETE®
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION
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February 2 - 5, 2010

We'll Be There!!!
See Us At Booth # C4257

The World Of Concrete is the industry's only annual international event dedicated to the commercial concrete and masonry construction industries showcasing leading industry suppliers featuring innovative products, technologies, tools and equipment and unlimited networking opportunities to give you new ways to sustain and grow your business in today's changing economy.

Come and see the REMco Rock Guys, as we display REMco size reduction technology for the production of Specification Concrete Sand. Want to **Learn How To Make More $$$Money$$$** with the rock you already have mined??? Come to REMco's booth and we'll show you... Hope to see you there!!!

April 2010

REMco
ROCK ENGINEERED MACHINERY CO. INC.

IT'S BACK !!!
Service & Maintenance School

NOW BACK BY POPULAR DEMAND!!! A buzz has started up about REMco's Service & Maintenance School... So we're bringing it back for all those who were unable to attend this year.

This Service & Maintenance School is specifically designed for the folks that work on and with REMco VSI crushers. We will discuss in depth how the crusher works, how to make it perform at optimum levels, how to reduce maintenance time, reduce costs through proper parts selection and more. We'll get down into the nuts, bolts, grease and oil of the machine, from the feed distributor in the hopper to the discharge hopper at the base, everything in between and much more.

For More Information Contact Kevin Cadwalader or Rachelle Enriquez:
Tel(925) 447-0805 · Fax(925) 447-7038
Email: kcadwalader@remcovsi.com OR renriquez@remcovsi.com

Just A Friendly Reminder

WE WANT TO HEAR FROM YOU!!! WE WANT TO HEAR YOUR …
TECHNICAL QUESTIONS, JOB STORIES or CRUSHER CHALLENGES!!!

This newsletter is produced for REMco users and its intent is to make your life easier! Our success depends on your success. We want to hear what's been happening with the REMco crusher in your plant. Send us your questions, comments and job stories to the email addresses below. If you don't use email, drop us a line by snail mail or give us a call. Who knows? Maybe you'll see your question or story in print…

PRINT vs. EMAIL – We Want to Know!!!

In today's fast paced world, it's difficult to balance tradition and technology. Traditionally, newsletters are done in print and mailed to the recipient. However, technology makes it possible for you to receive your newsletter electronically and skip the trip to the mail box. So the question is simple… ***Print or Email? How would you like to receive your newsletter?*** If you would like to receive your monthly newsletter in a format other than the way you are reading this information right now, or if you would like to NOT receive a newsletter at all, please contact:

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