

The Challenge: Maintain the proven advantages of the existing VSC Ripper line, while expanding the capacity of the VSC Cutting Chamber and increasing the input horsepower to 500.



SCS's VSC Ripper Cutting Chamber with Orbital Action...

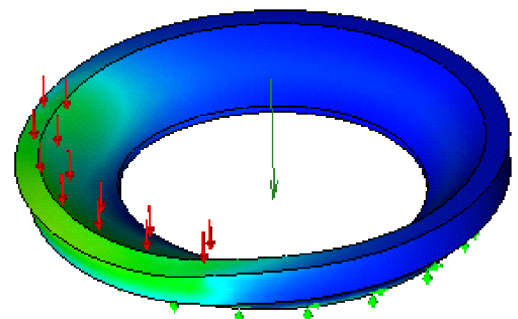
The Solution: Screening and Crushing Systems (SCS) already had a winner in the VSC (Vertical Shaft Cutter) Ripper line, and some of the Key Performance Criteria included Ripper Tip Speed and the patented Orbital Action of the VSC Cutting Chamber. In developing the VSC line SCS had always looked ahead, providing a Cutting Chamber from the beginning of sufficient dimensions to support expanding needs.

The expansion from the first 200 Hp plant, into the 250, 350 and 400 Hp units had been provided for by good engineering and clear thinking from the start. With the desire to increase the capacity to 500 Hp, the original constraints were being pushed hard, and to insure the level of performance & reliability required of an SCS product, they turned to their suppliers to help expand the boundaries.

The Tip Speed and Orbit Diameter had been highlighted through extensive testing as Key Performance Criteria (KPC). These KPC's needed to be maintained, to ensure the consistently high performance of the VSC product range. While perfect for the lower hp versions, expanding the flexible chain drive to support the increased Hp was proving difficult. SCS's GM Peter Suckling brought their suppliers into a round table discussion, requiring innovative solutions.

Duralloy Gears Ltd. confirmed one of SCS's solutions in the form of a gear train concept to replace the chain drive, while Motovated Design & Analysis Ltd. and SAECO Bearings analysed the shafts and bearings, to insure they could take the increased loads within the space provided by the existing Orbit Diameter. Motovated was also employed to help with the modelling, to maintain the tight timelines as well as to insure best practice CAD standards were maintained. An additional advantage provided to Motovated by SCS was the option of a clear sheet concepting approach. This provided the flexibility to use Motovated's extensive experience in stress minimisation to design the shafts and gear train with advanced analysis.

The End Result: SCS has once again managed to maintain the KPC's which allow the VCS Ripper line to perform Best-In-Class, while increasing the Rotor Diameter and input horsepower as required to support market demands. They managed this all while minimising their required development and prototype time, by including suppliers up-front in the concepting stages, as well as engaging them in the ongoing design. This allowed SCS to expand and augment their already significant engineering capacity as needed.



The end result, success!

A larger Cutting Chamber, with significantly increased input horsepower capacity, all within the confines of an existing proven Orbital Diameter and Critical Tip Speed!