



SUCCESS STORY

Eco Green Equipment and Hydraulic Pump & Power Systems (HPS) Collaborate on Hydraulic System for Mining Tire Recycling Equipment

CHALLENGE

Mining trucks encounter heavy, frequent loads throughout their lifecycle and replacing their large tires, which could be in the realm of 13 feet or even larger, can occur as much as 4 to 6 times per year.

Historically, these massive, worn-out mining tires have been stockpiled, buried and just abandoned at the mine site.

Mining companies face the challenge of what to do with all these old tires. Transporting each tire entirely in-tact is costly and cumbersome due to their scale. Simply leaving the old tires at the mine site, can release toxins into the environment and create a breeding ground for pests, such as mosquitoes.

SOLUTION

Eco Green Equipment, a tire recycling equipment manufacturer, identified that the disposal of old mining tires was a worldwide issue and discovered how taxing it was on mining companies and the environment.

As a result, Eco Green Equipment worked to develop the Eco Green Off The Road (OTR) Mining Tire Solution, consisting of three pieces of equipment that provide mining companies with the ability to more easily move and recycle their old truck tires. Now instead of old truck tires disintegrating and taxing the environment, the tires are now another revenue stream for the mining company.

Market
Mining

Customer
Eco Green, Industrial Tire Recycling Equipment & Shredder Manufacturer

Application
Off The Road (OTR) Debeading

Solution
P1 Series Pump,
PVplus Series Pump & F12



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The first piece of equipment in the OTR Mining Tire Solution is the Eco Razor 63, which removes the good rubber from the tire's tread and sidewalls and turns it into high-quality recycled rubber, or premium rubber mulch. Premium rubber mulch, used frequently in high-end landscaping and playgrounds, can be lucrative due to its high demand.

The Eco Extractor 63 is the second piece of equipment in the OTR Mining Tire Solution. The Eco Extractor 63 removes the steel bead from the large mining tires, which can then be sold and recycled into other steel products.

The third and final piece of equipment in the OTR Mining Tire Solution is the Eco Shear 63, which reduces the giant buffed and debanded tire into much smaller pieces. The result is a more transportable tire remnant that can be delivered to a rubber recycler or further grinded through a tire shredder, such as the Eco Green Giant.

During the development phase for the new OTR Mining Tire Solution, Eco Green reached out to their existing partners, including Parker Hannifin's Hydraulic Pump and Power Systems (HPS) and a distributor to help them develop robust hydraulic systems tailored to the Eco Razor and Eco Extractor.

Eco Green and HPS collaborated to develop a hydraulic system substantial enough to support each equipment's unique requirements, including:

- Eco Razor's shock load from the buffing head and saw, which remove the high-quality rubber.
- Eco Extractor 63's high pressure cylinders, unique reverse hook and auto bead ejector capabilities, which require enough force to cut through remaining layers of steel and rubber into smaller more manageable pieces.

The solution to adequately support Eco Razor's robust hydraulic system, was a combination of Parker pumps and motors including the PVplus Axial Piston Pump, which provides the flow for both F12 motors and a P1 Series 045 cc pump. The P1 Series 045 cc pump then provides flow to various cylinders used to position the Razor, as the machine works through different areas of the tire.

For the Eco Extractor, HPS recommended the PVplus Axial Piston Pump with variable displacement designed and optimized for demanding use in heavy duty industrial applications. In this case, the hydraulic system required an open loop pump that could handle a 4,000 PSI requirement. With pressure ratings of up to 420 bar and high-speed ratings, the PVplus Axial Piston Pump's swashplate principle provides high productivity and power density for this application.



Medium Pressure
Mobile Pumps -
P1 Series



Axial Piston Variable
Displacement Pumps -
Series PVplus



Axial Piston Fixed Motors
- Series Large Frame F12



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RESULT

By Eco Green selecting Parker F12 hydraulic motors for the Eco Razor, the equipment has the capability, efficiency, and longevity to cut through the mining tires' tough rubber layers on a consistent basis. Parker's P1 Series 045 cc pump and PVplus Axial Piston Pump also rounded out the offering for this demanding industrial application.

Eco Green currently has five OTR Mining Tire Solutions being manufactured that will be shipping to Canada, USA, Colombia and Chile over the next few months.

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The results have been a complete success for the OTR Mining Tire Solution that is not only green for the environment but green for the financial bottom line.

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Brad Swenson,
Eco Green Equipment Founder.

