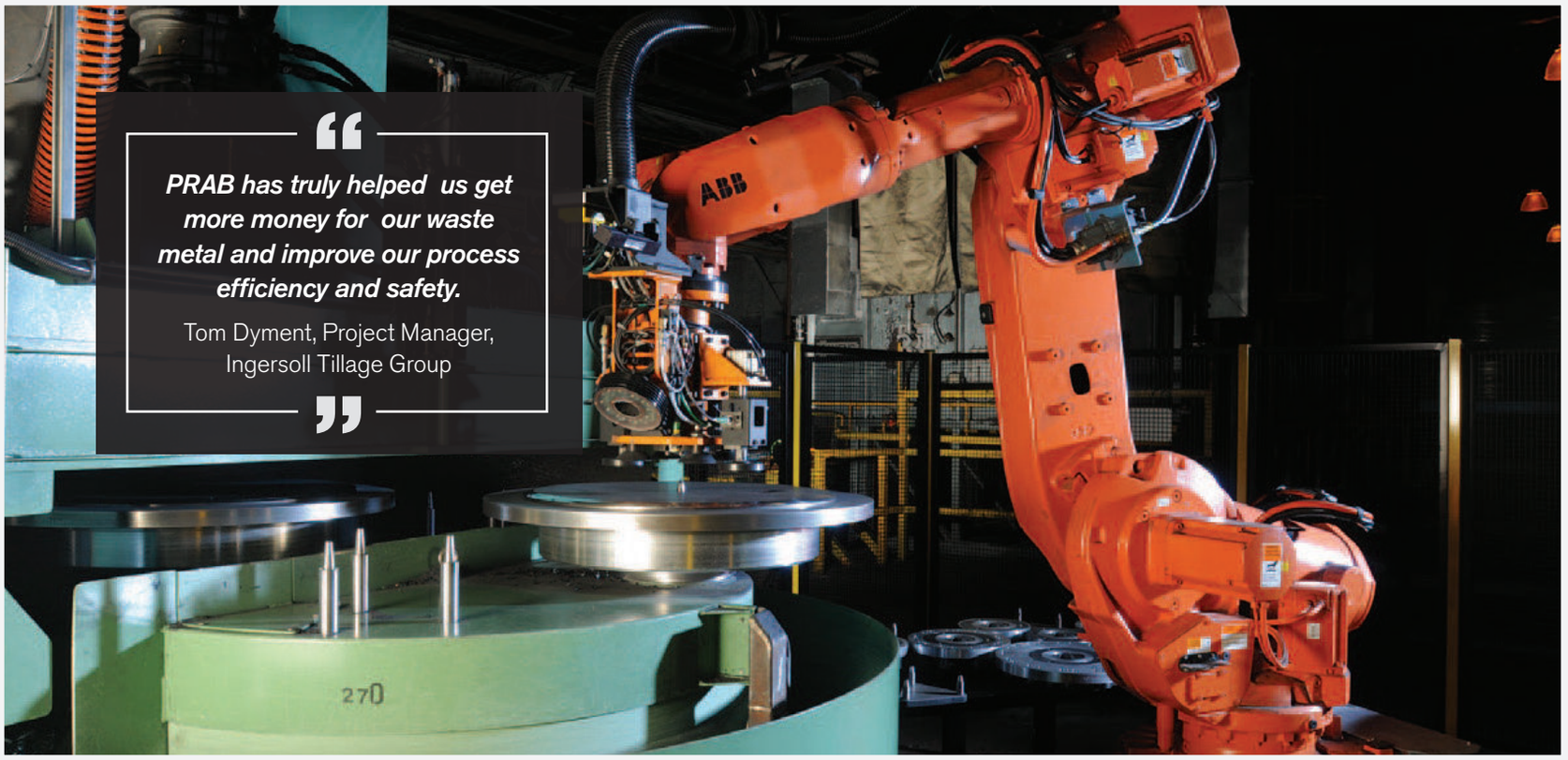
CASE STUDY

Ingersoll Tillage Enhances Workplace Safety and Increases Scrap Value with PRAB's Horizontal Axis Crusher



> ***PRAB has truly helped us get more money for our waste metal and improve our process efficiency and safety.***
>
> Tom Dyment, Project Manager, Ingersoll Tillage Group

ABOVE: Custom-built, three-station, PLC controlled lathe cell with integrated visually guided robotics.

Located in Hamilton, Ontario, Canada, the Ingersoll Tillage Group factory uses state-of-the-art, automated processes to produce 1.5 million agriculture and landscaping disc blades annually for the OEM agricultural manufacturing industry.

Many of these are used by farmers to cut through last season's crop residue, which requires them to be tremendously strong and sharp.

"We use a patented boron alloy steel composition that is extremely tough and resistant to fatigue or fracture failure," said Tom Dyment, Project Manager with Ingersoll Tillage Group. "Our discs are known for maintaining their strength and sharpness because of their metal composition and how we manufacture them."

New Machining Center, New Scrap Handling Problem

In 2009, Ingersoll Tillage commissioned a new, custom-built, three-station, PLC-controlled lathe cell with integrated visually guided robotics. The lathe profiles cutting edges on one or both sides of a flat disc blank ranging between 2 and 10 mm (0.07 and 0.39 in) in thickness. Due to guarding requirements for the cell, direct access to the machining area to remove turnings was problematic.

"Our material has a tendency to create hairballs of turnings, which are air-quenched," said Dyment. "Because of the system configuration, it's extremely tough to remove and handle the

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turnings at the cell."

When Dyment knew he had to find a way to deal with the 100 to 150 pounds (45 to 68 kilograms) of scrap coming from each of the three stations per hour, he looked no further than PRAB.

"The PRAB name is well-known and respected by our tradesmen," said Dyment. "We often rely on the opinion of the people who have to maintain and repair equipment as a resource to measure product performance. PRAB met that measure."

Tough Turnings No More

PRAB's solution consisted of three horizontal axis crushers to reduce the particularly tough boron steel alloy turnings into flowable, shovel-grade chips that are conveyed out of the safety-gated machine zones using magnetic conveyors. From there, they are binned and removed to a central storage receptacle about once per shift.

"Applying the PRAB chip reduction solution allowed us to directly reduce the turnings at the source," said Dyment. "In addition, we saw an immediate increase in uptime of between 10 and 15 percent. We also eliminated a safety hazard, were able to secure a better price for recycled metal due to a higher density and reduced bin changes 60 percent per shift."

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Cutting More Than Earth

Although PRAB's horizontal axis crushers have been successful at reducing the unique turnings to shovel-grade chips, it hasn't come without a few lessons learned.

"We have learned a great deal from dealing with this ultra-hard boron steel alloy," said Mike Dayton, PRAB Product Engineer. "We've cut our teeth on a new metal composite and have had to make some modifications to the horizontal axis crusher to withstand the enormous fight the metal puts forth. In the end, the knowledge we've gained results in a better product."

Dyment agrees.

"We knew the boron steel alloy was going to be particularly abusive to any reducing equipment. PRAB has really worked hard to understand the issues and collaborate on modifications that would reinforce the efficiency and reliability of the process."

About PRAB

PRAB is a leading engineer and manufacturer of conveyors, chip and fluid management systems, and industrial water and wastewater treatment equipment. Our customized solutions automate metal handling, reduce labor costs, reclaim and recycle expensive cutting fluids/coolants and maximize return on recycling metals. With our expertise, honed by more than 4,500 installations for the world's leading OEMs and suppliers, PRAB continuously improves material handling, housekeeping and compliance to environmental rules and regulations within the automotive, aerospace, medical, electronics, defense, off-road and energy markets. For more information about PRAB, visit prab.com.

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