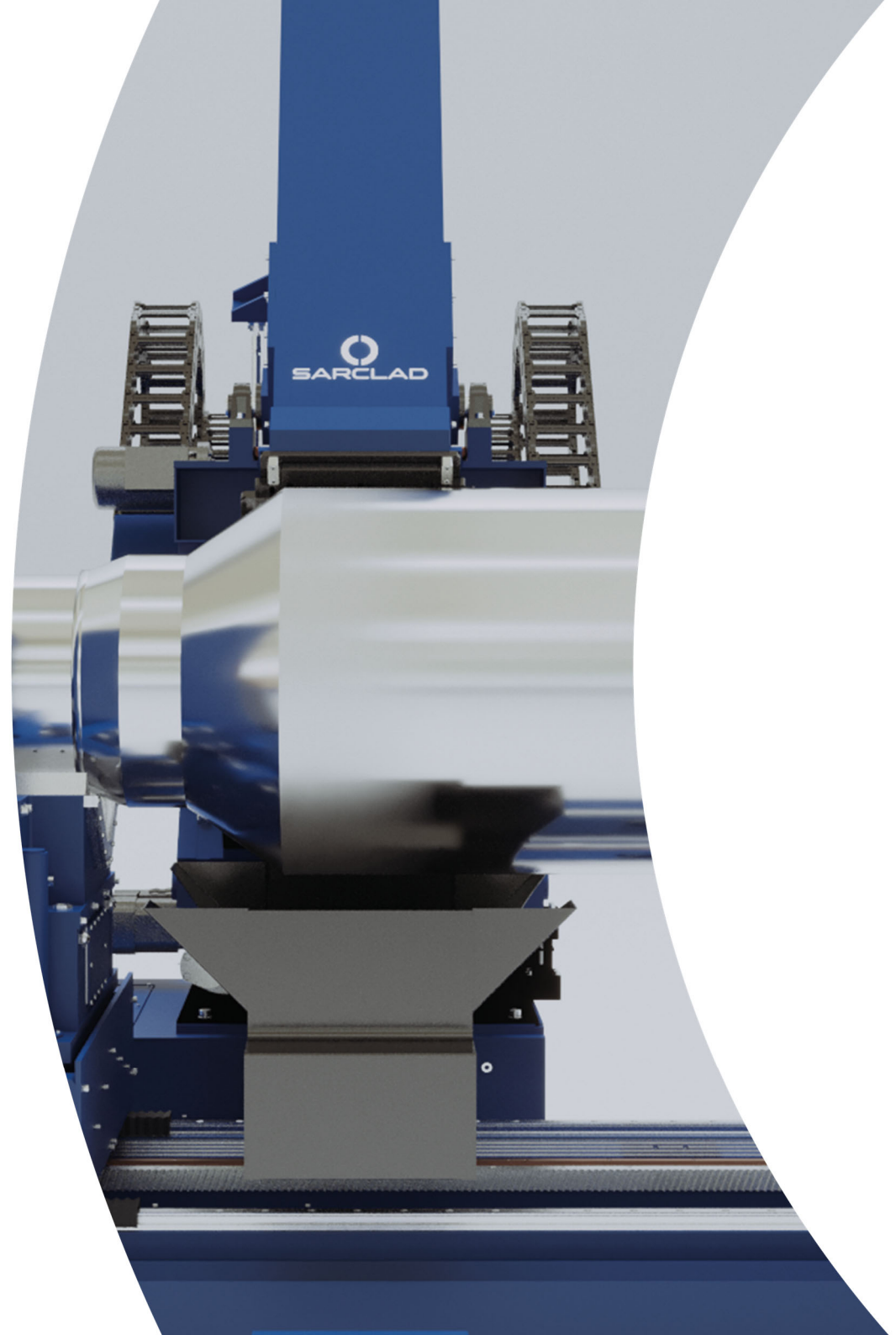
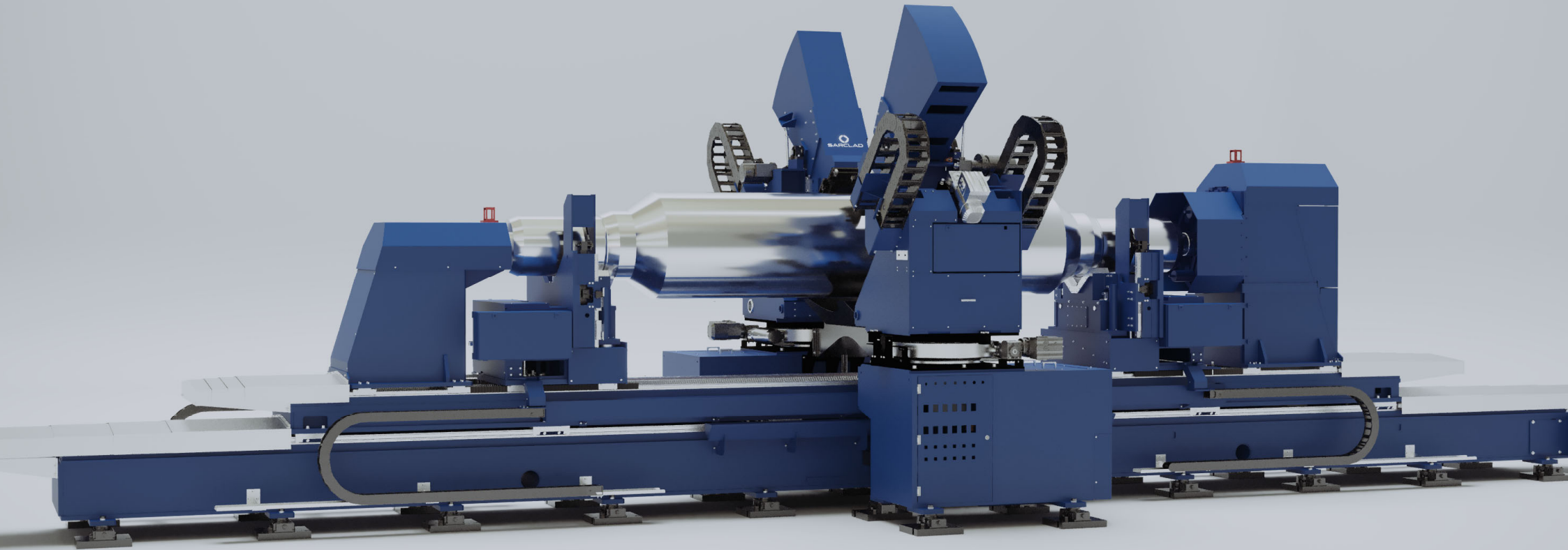


Rolltex EDT

Multi Servo Array







Rolltex EDT Multi Servo Array

Featuring the very latest advance in Electrical Discharge Technology, delivering surface textures for mill rolls, which exceed the highest market requirements for texturing performance, quality and consistency.

Today's leading steel and aluminium rolling mills need to consistently produce high quality textured strip to satisfy increasing demand from market sectors such as Automotive, White goods and Packaging. Sarclad is the world-leading provider of roll texturing technology, having supplied over 120 Rolltex machines worldwide in its 45-year history. Sarclad launched the next generation of EDT technology in Spring 2022, featuring a Multi-Servo Array (MSA) texture head. Rolltex EDT-MSA will be targeted at applications that require the highest possible texture quality and consistency.

Electrical Discharge Texturing (EDT) is a well-established technology for producing textured strip. EDT produces a stochastic, isotropic surface texture on cold mill work rolls to high specific tolerances. These rolls then produce a textured surface on the strip that holds lubricant to aid forming during stamping procedures, while retaining excellent visual appearance after surface coating stages.

Precision Texturing Performance

Sarclad's EDT-MSA design is unique in the world for roll texturing, combining individual servo control for each electrode, with an innovative formed array. This is delivered within a single or double texture station design, which then traverses the full width of the roll barrel.

This industry first concept allows each electrode to be individually controlled both mechanically and electronically, to ensure optimal working performance, while still benefitting from the full and complete texture that the arrayed electrode design delivers. This combination provides the highest texturing consistency possible, combined with the highest possible sparking efficiency, to deliver world-class texturing speeds and quality.

The control system employs a novel closed-loop power delivery design, which ensures that the energy delivered by each spark is precisely controlled, ensuring greater consistency of the surface texture.

The texturing process is closely monitored in real-time by an advanced digital control system, designed to provide the highest levels of process control, while simultaneously communicating detailed feedback to the control system and machine operator.

A 3D CAD rendering of a complex industrial machine, specifically a texturing station. The machine is primarily light blue and white. A prominent feature is a large array of 36 electrodes, arranged in a 6x6 grid, mounted on a vertical structure. The electrodes have a metallic, cylindrical appearance with a slightly tapered end. To the left, there is a large, curved component that resembles a roller or a guide. The background is a plain, light grey. The overall design is clean and technical.

36 Electrode Texturing Station

Single-sided 36 & Double-sided
72 Electrode options

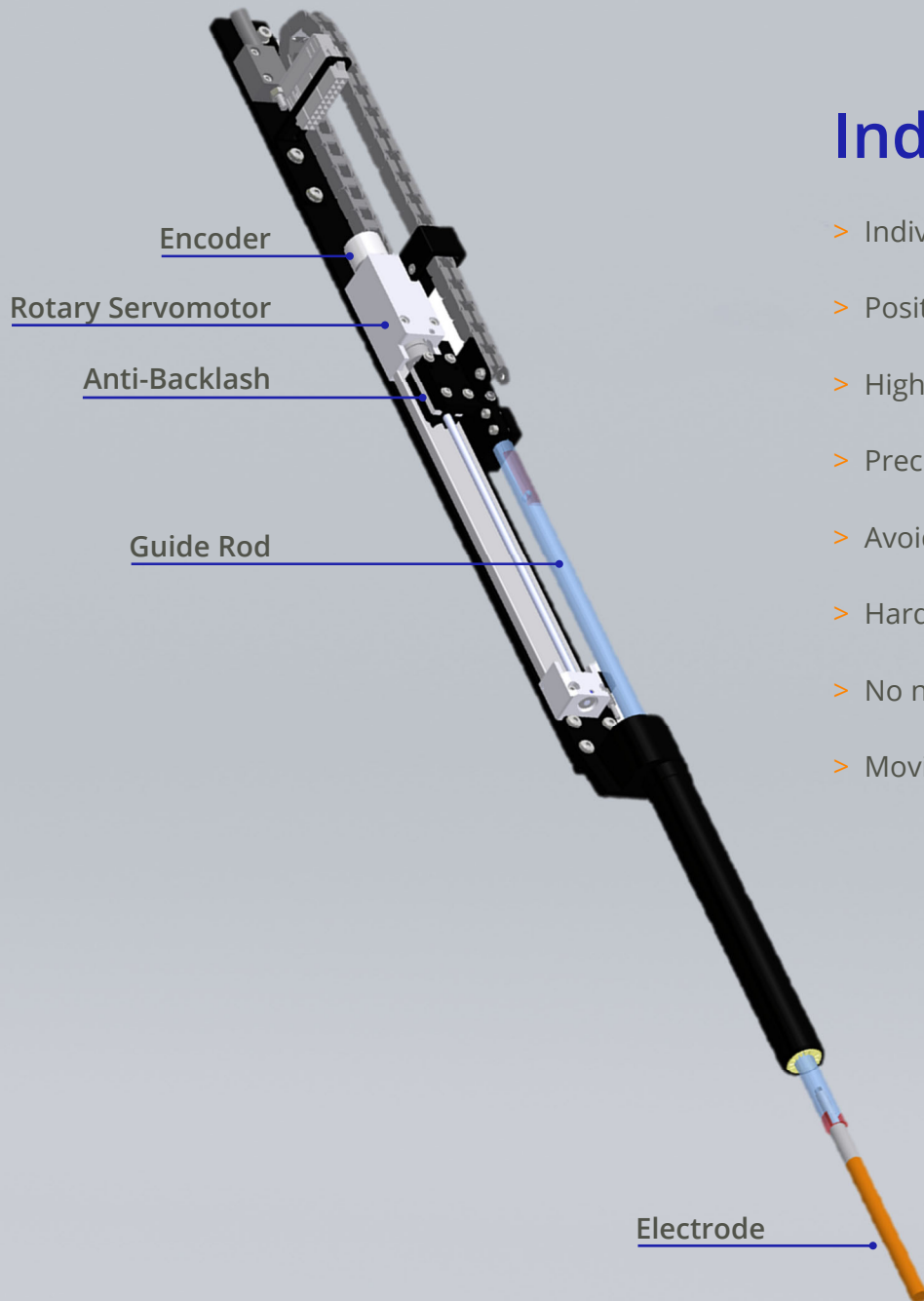
<36 electrode options may also be discussed

Improved Texture Head Design

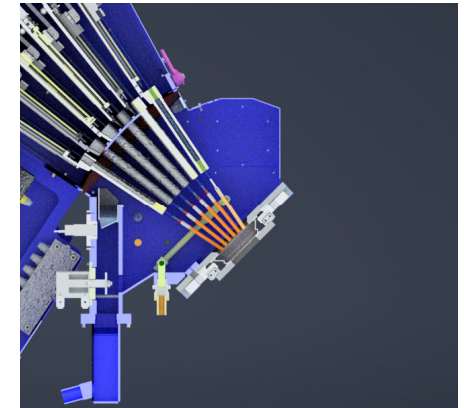
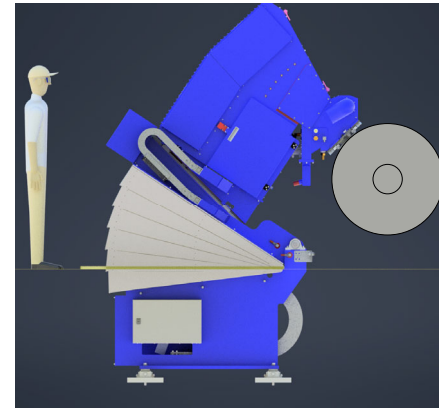
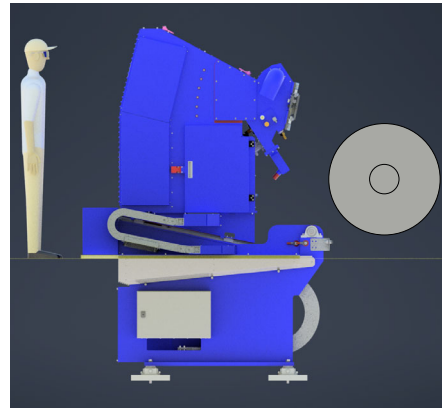
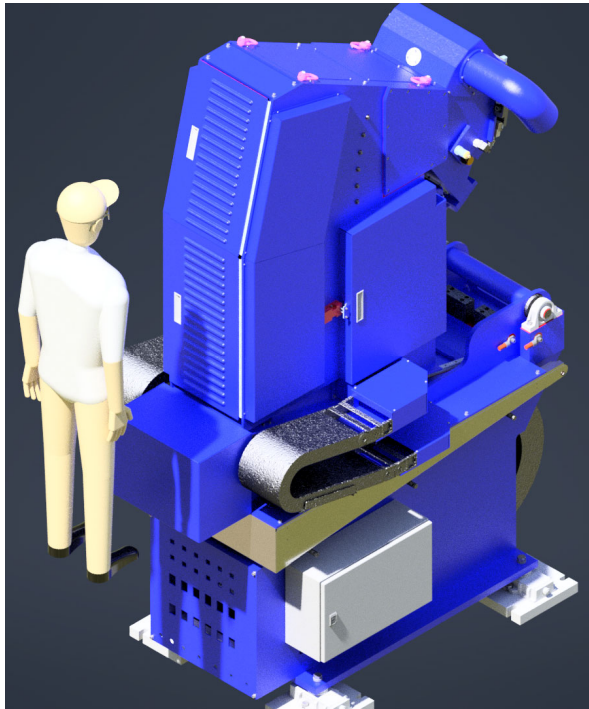
- > MSA texture station array in 6x6 matrix
- > MSA electrodes are individually positioned
- > Gap of each electrode from the roll precisely controlled
- > Engagement with roll commences with electrode 1, column 1
- > Ensures uniform working of the electrodes and maximum efficiency
- > Spacing between electrodes ensures excellent flushing

Individual Electrode Position Control

- > Individual digital servo control
- > Position control down to $0.1\mu\text{m}$
- > Higher spark efficiency per electrode
- > Precision texturing enables consistent finish end to end
- > Avoidance of texture induced defects by design
- > Harder texturing enables roll defect removal
- > No need for electrode seals
- > Moving mass 0.3kg only



Advanced Texture Head Design



- > Safer and quicker access to servo/electrode maintenance (ground level)
- > Improved performance and reliability

New Technologies

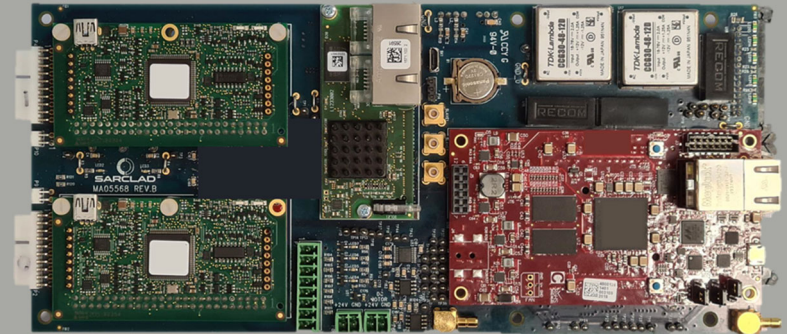
EDT-MSA Power Delivery Module

- > Closed-loop control of current – adapts to changing spark gap impedance
- > 63.0A capacity, 0.1A resolution – flexibility for wide range of textures
- > Fast and precise ramp up to voltage level requested
- > Enables higher control of surface roughness and range

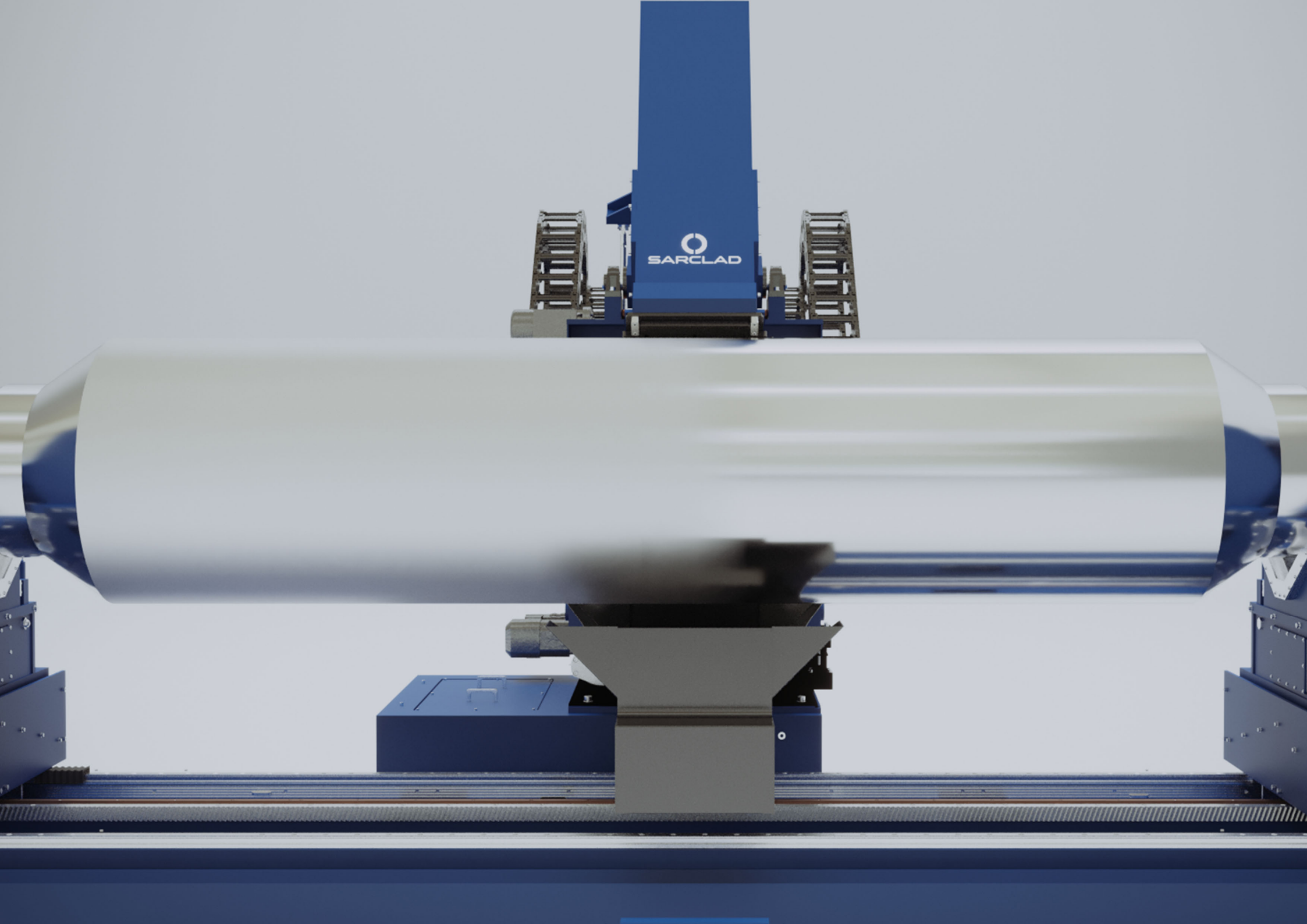


Digital Servo Control

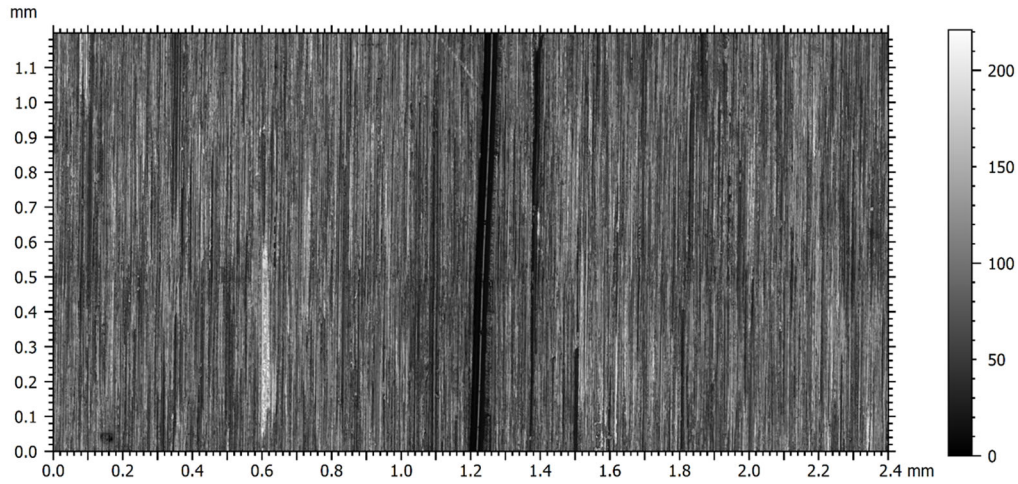
- > Profinet interface to machine control PLC
- > Direct feedback of electrode texturing efficiency
- > Servo drives tightly integrated with control electronics



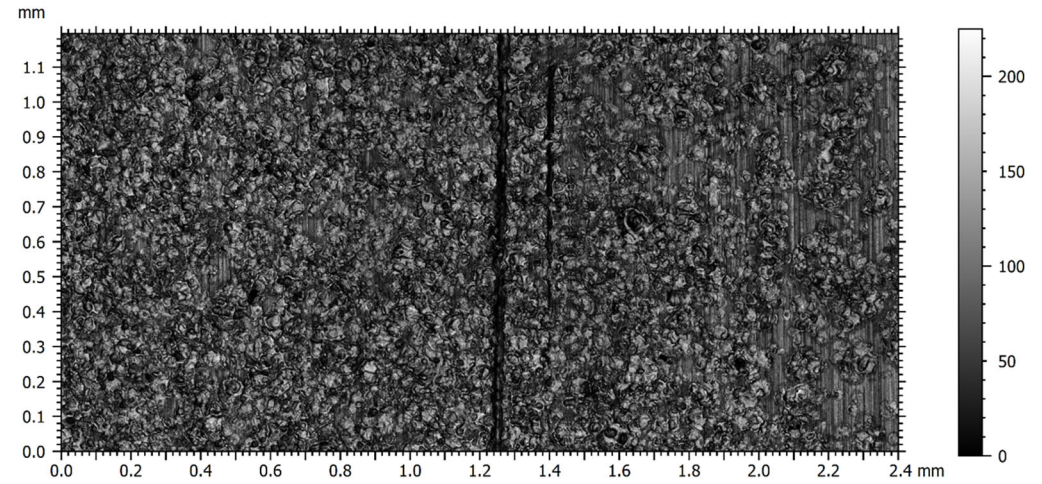
- > Real time operator feedback display
- > Ensures optimised texturing parameters maintained



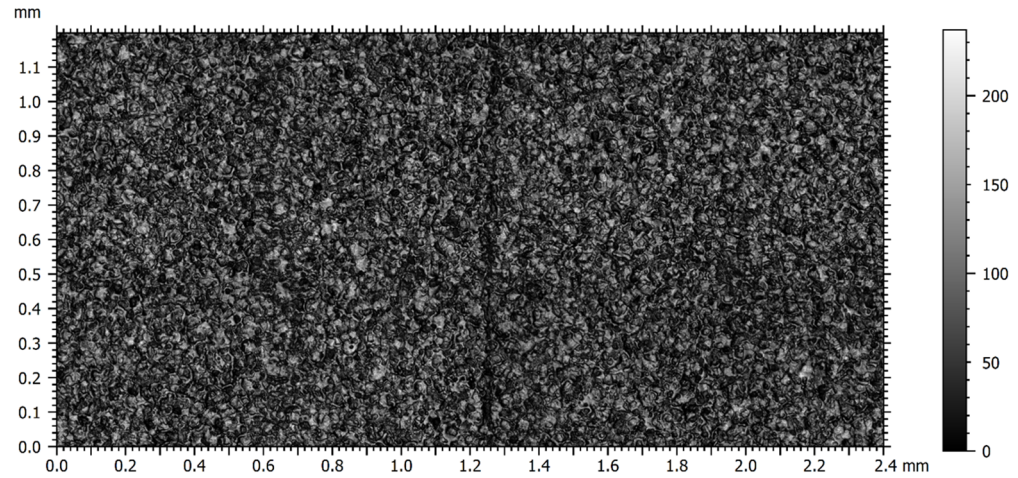
Grinding Scratch Removal



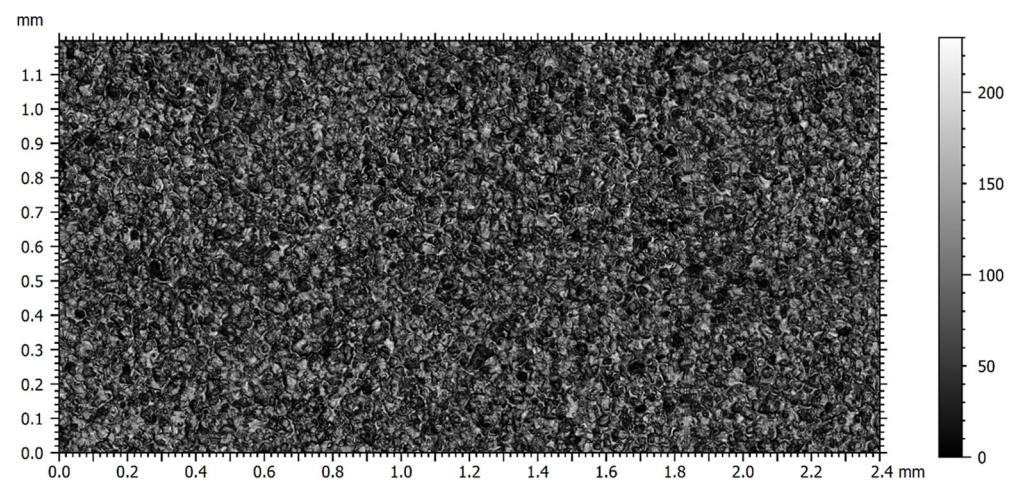
Texture Progress: 0%



Texture Progress: 15%

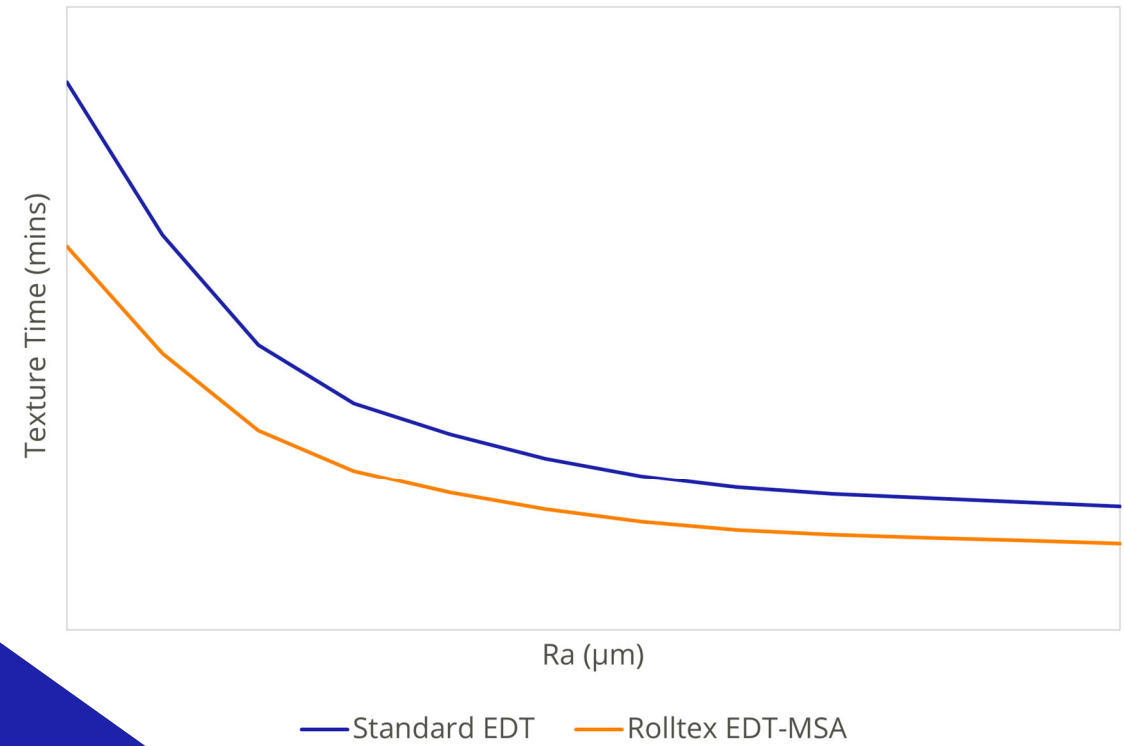


Texture Progress: 70%



Texture Progress: 100%

Texture Time



Greater Speed & Capacity

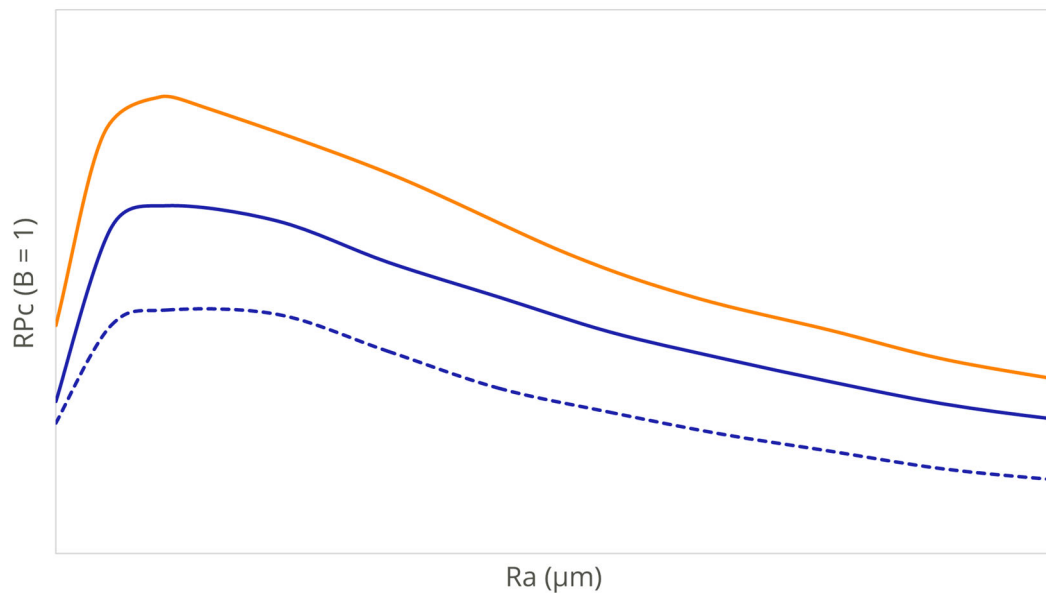
30% increase in speed versus standard

(basis : 72 electrode machine)

Higher Peak Count Performance

RPC increased by **60%** at 1 Ra; **30%** in typical 2 to 3 Ra range for auto strip.

RPC vs Ra

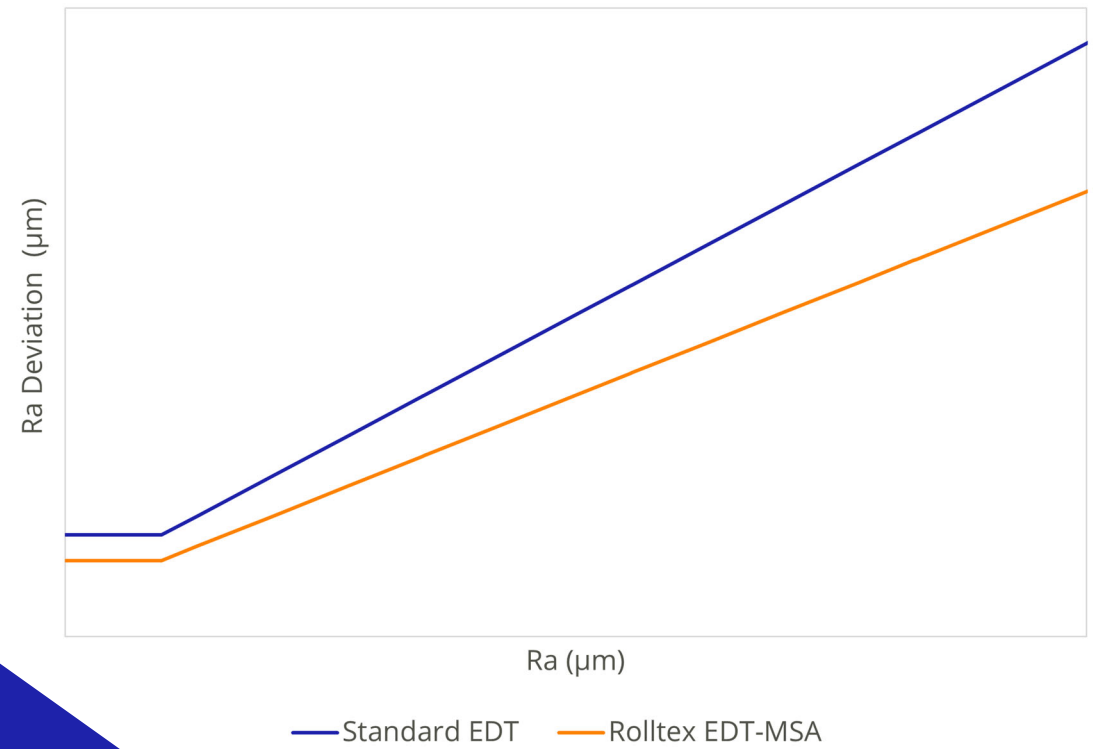


--- Standard EDT - Lower

— Standard EDT - Upper

— Rolltex EDT-MSA - Upper

Consistency



Better Consistency

Standard deviation of Ra reduced by **>25%** in typical auto strip range.

Rolltex EDT-MSA | Key Points

- > New Power Delivery System – closed-loop current control
- > Individual electrode position control
- > Digital Servo Controller

Together these deliver:

- > Higher **RPc** – up to 60% at 1 Ra, and 30% in auto body range 2.5-3.0 Ra
- > Tighter **consistency** – at least 25% lower deviation in Ra measurements
- > Higher **roll surface quality** – avoidance of texture induced defects. Removal of grinding defects
- > Increase in **speed** and **roll texturing capacity** – 30% on a 72 electrode comparison
- > Right First Time textured rolls (RFT)

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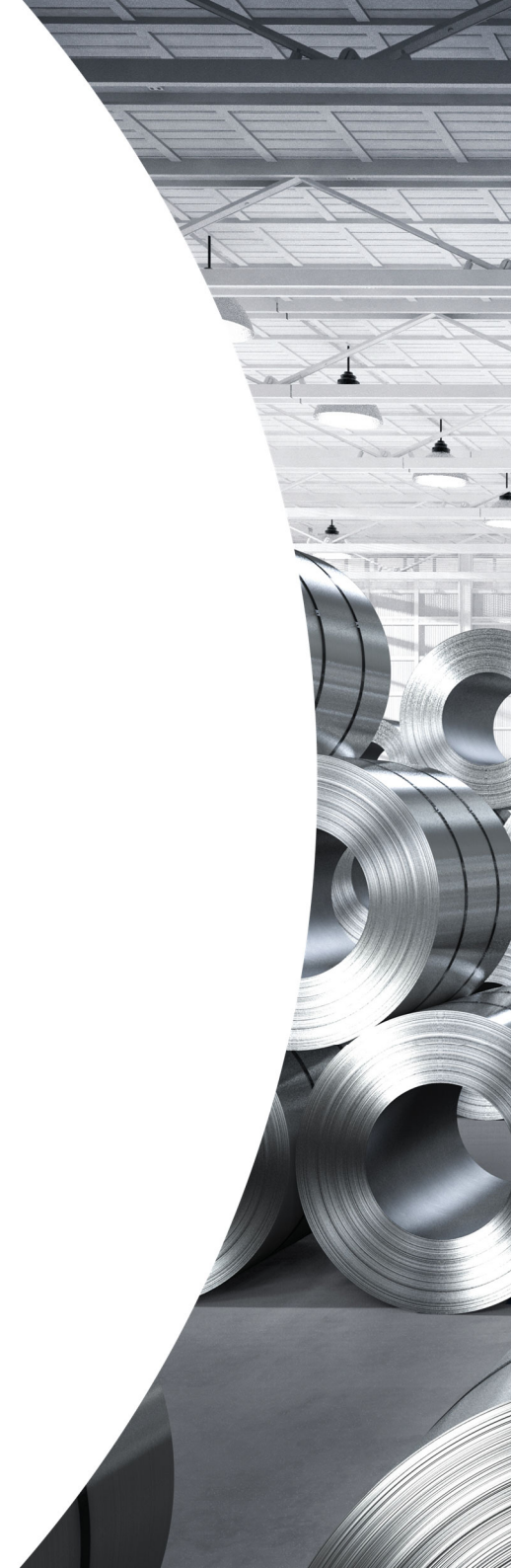
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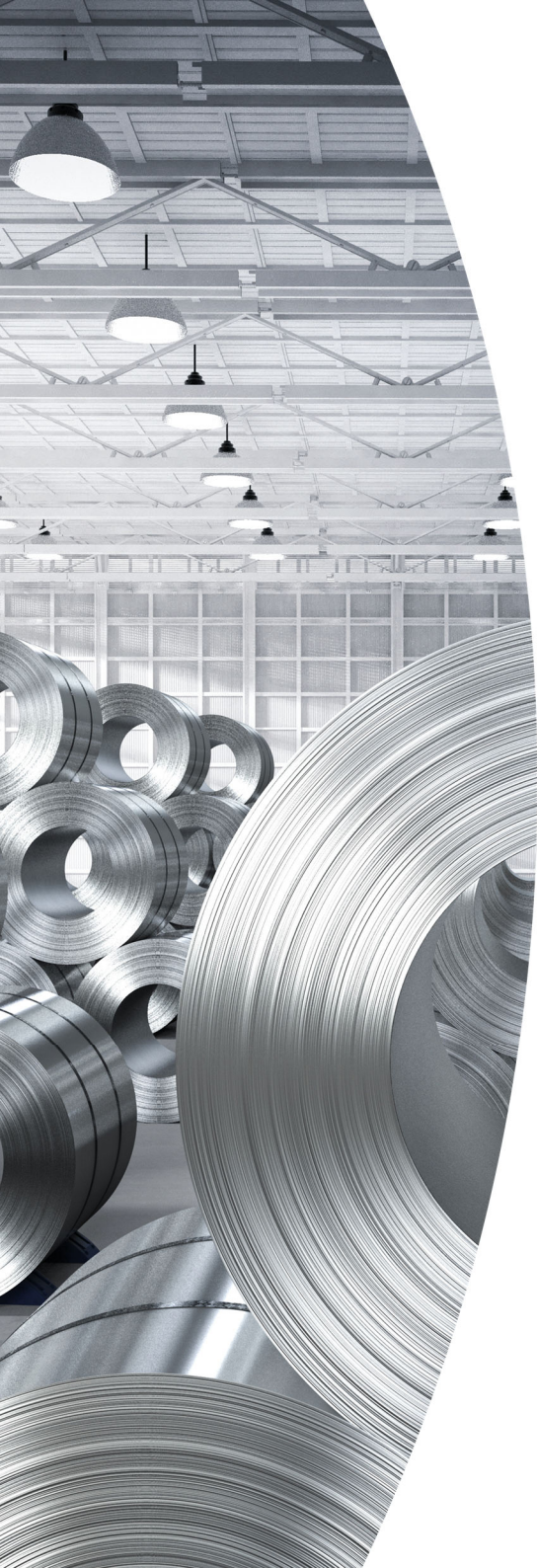
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