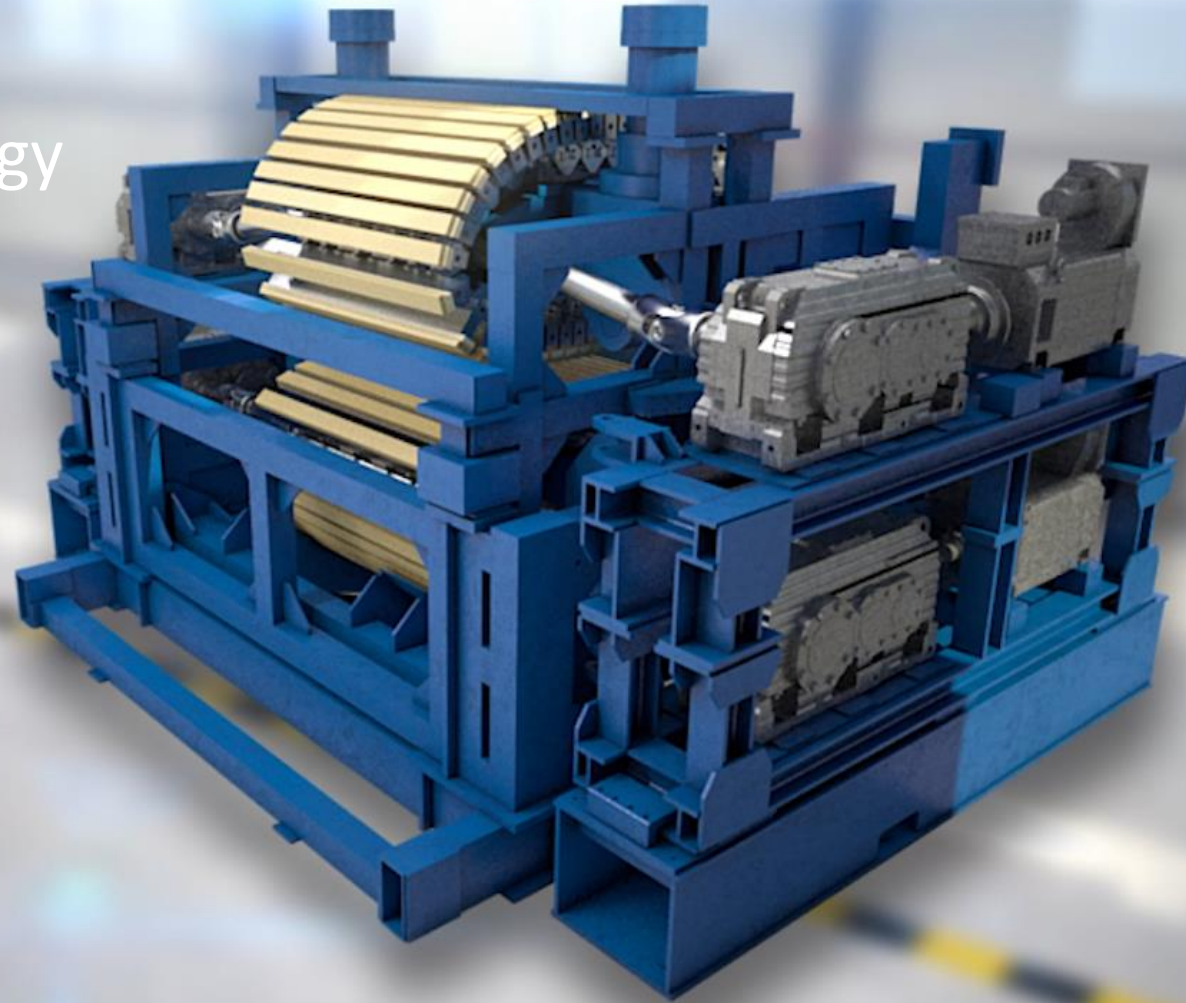


Welcome

Introducing
Umlauf-Bridle technology

The precision tool
for tension and strip-
guidance



BTU Bridle- Technology GmbH & Co. KG

- 42 Umlauf-Bridles are currently running.
- 2015: First levelling line with Sandvik (now IPCO).
- 2019: Collaboration with SES, Ohio, USA.
- 2019-2022: Three leveling lines in PPP-Lines in the USA.
- Today: BTU is a patent management entity

U-Bridles are tension units and guiding devices

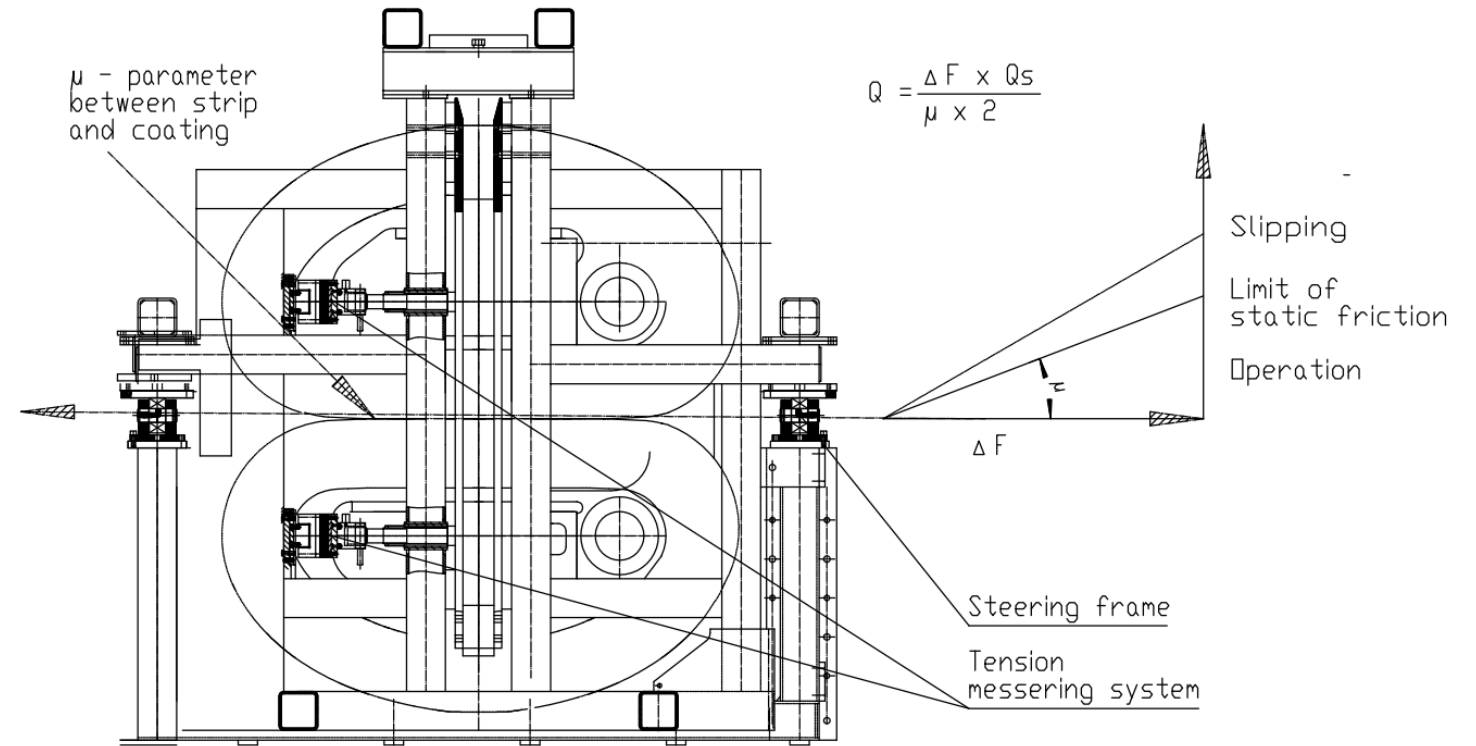
U-Bridles are used where S-Bridles and/or Pinch-Rolls are being used traditionally.

- S-Bridles need space and length to increase tension
- S-Bridles are not steering devices
- Pinch-Rolls have max tension of a few tons
- Pinch-Rolls are strip guiding devices
- In both solutions slippage occurs

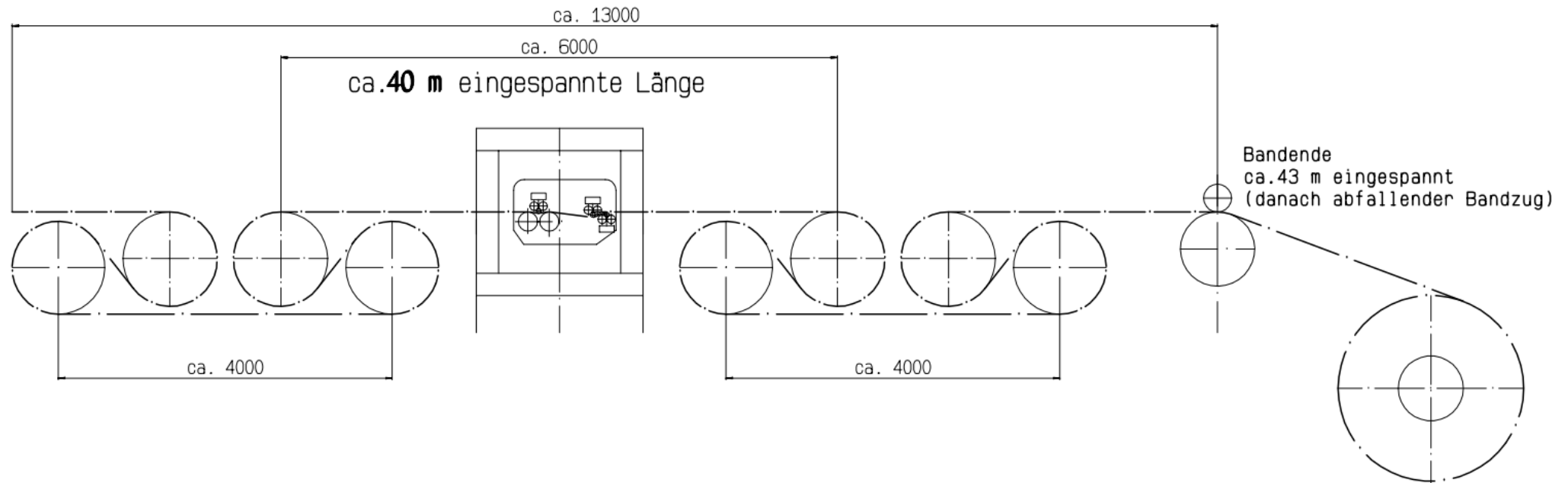
The strip gets grabbed by the crawlers. No bending! Horizontal forces only!

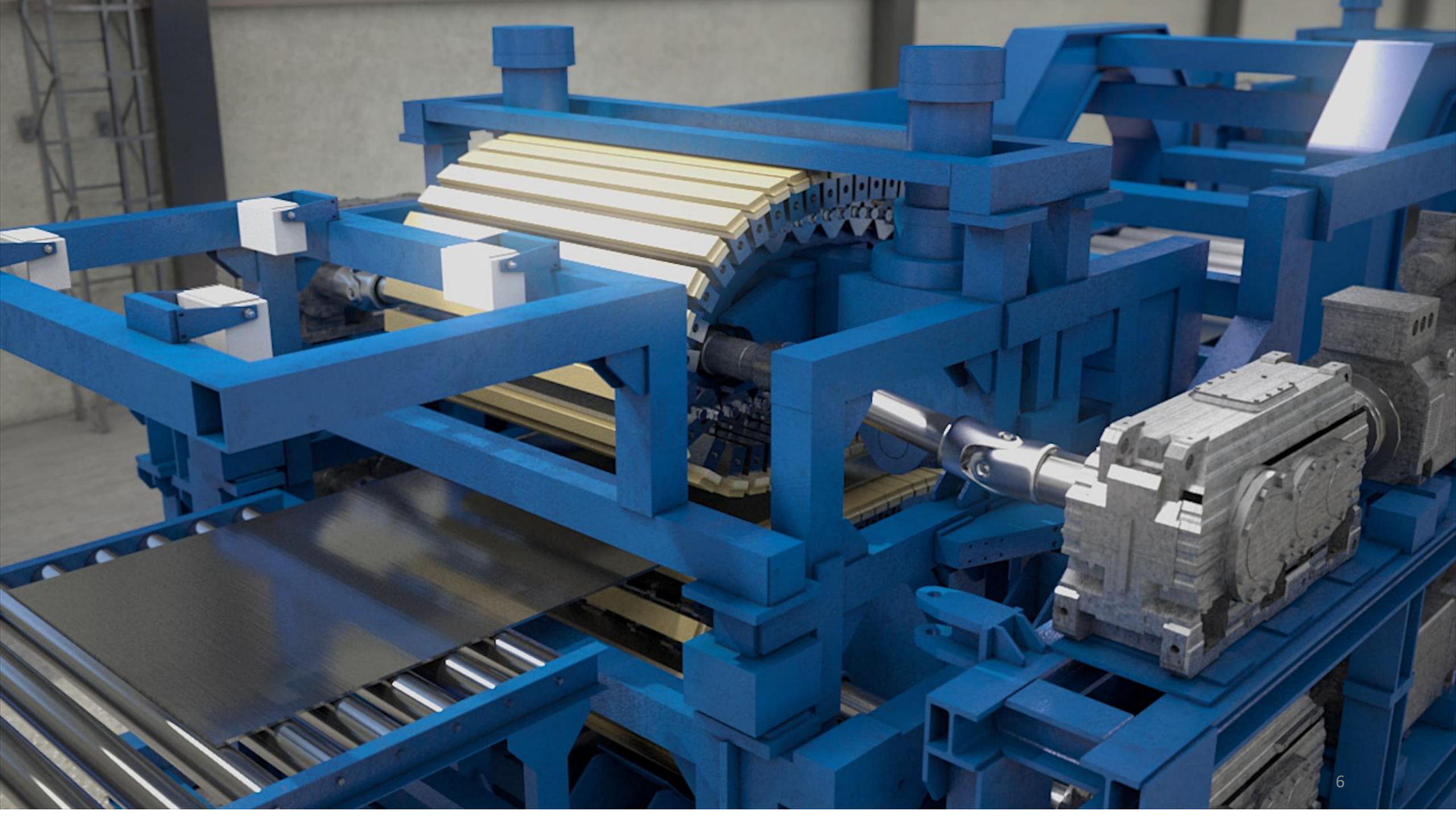
NO SLIPAGE

- Highly controlled guidance
- Highly controlled tension
- 100 tons and more
- 100 grams accuracy



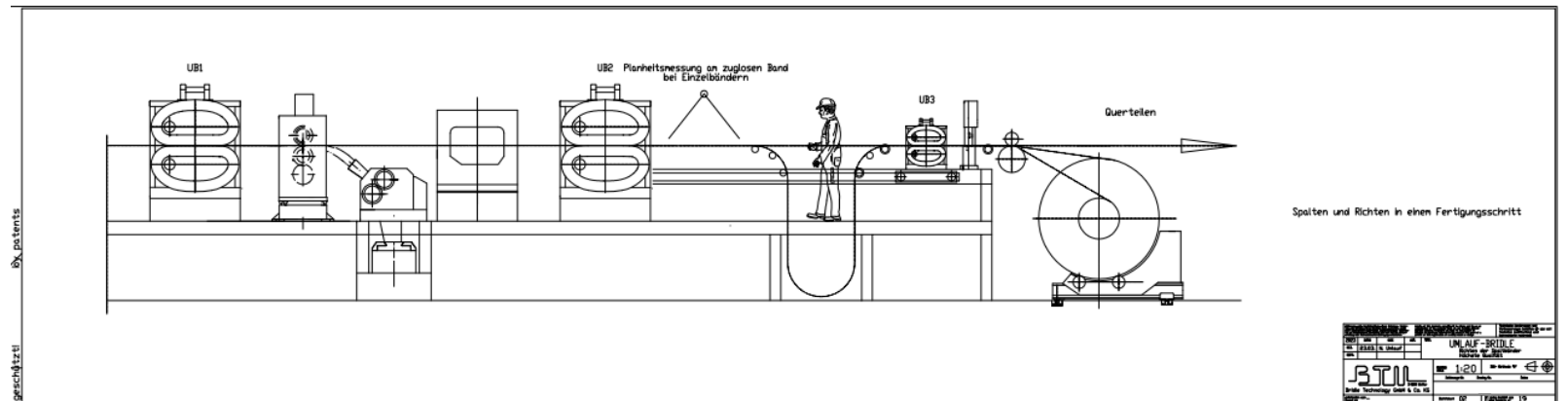
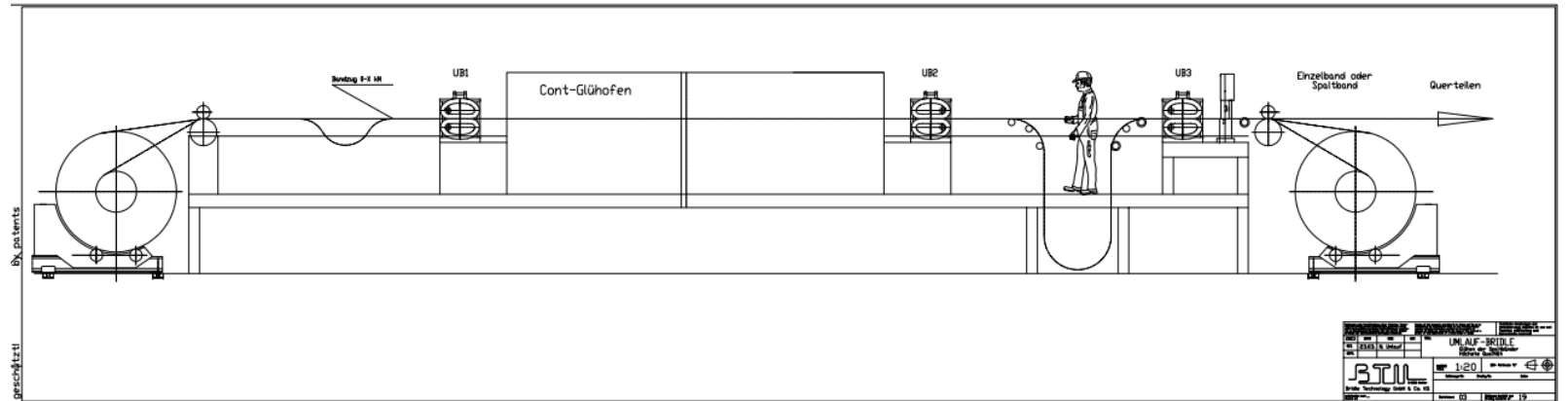
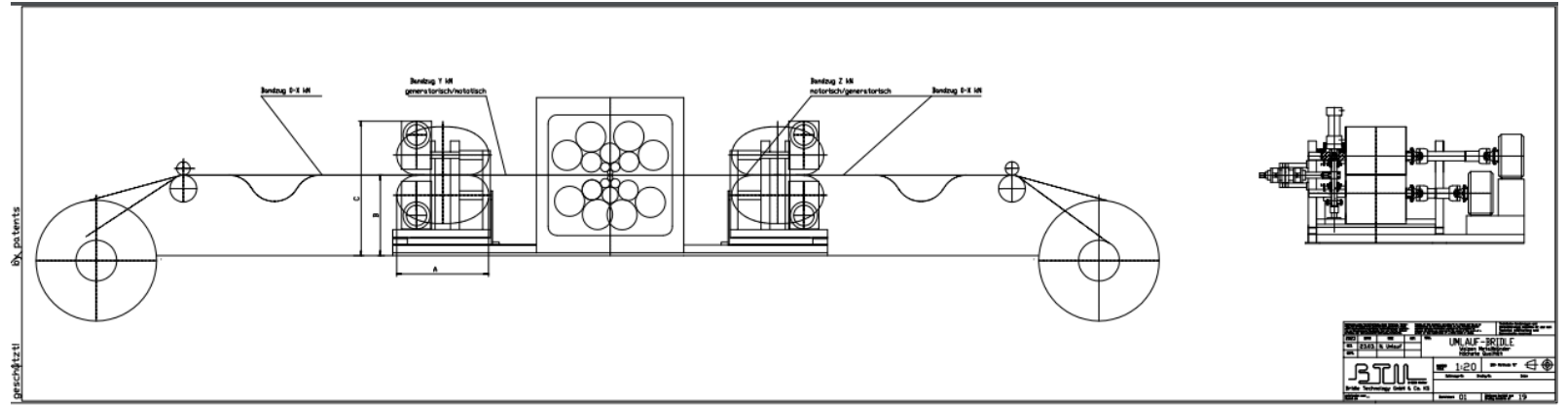
- S-Rolls have elastic coating.
- Tension goes into the coating.
- Slippage occurs.
- Limited control over tension and position.
- No effective camber reduction.





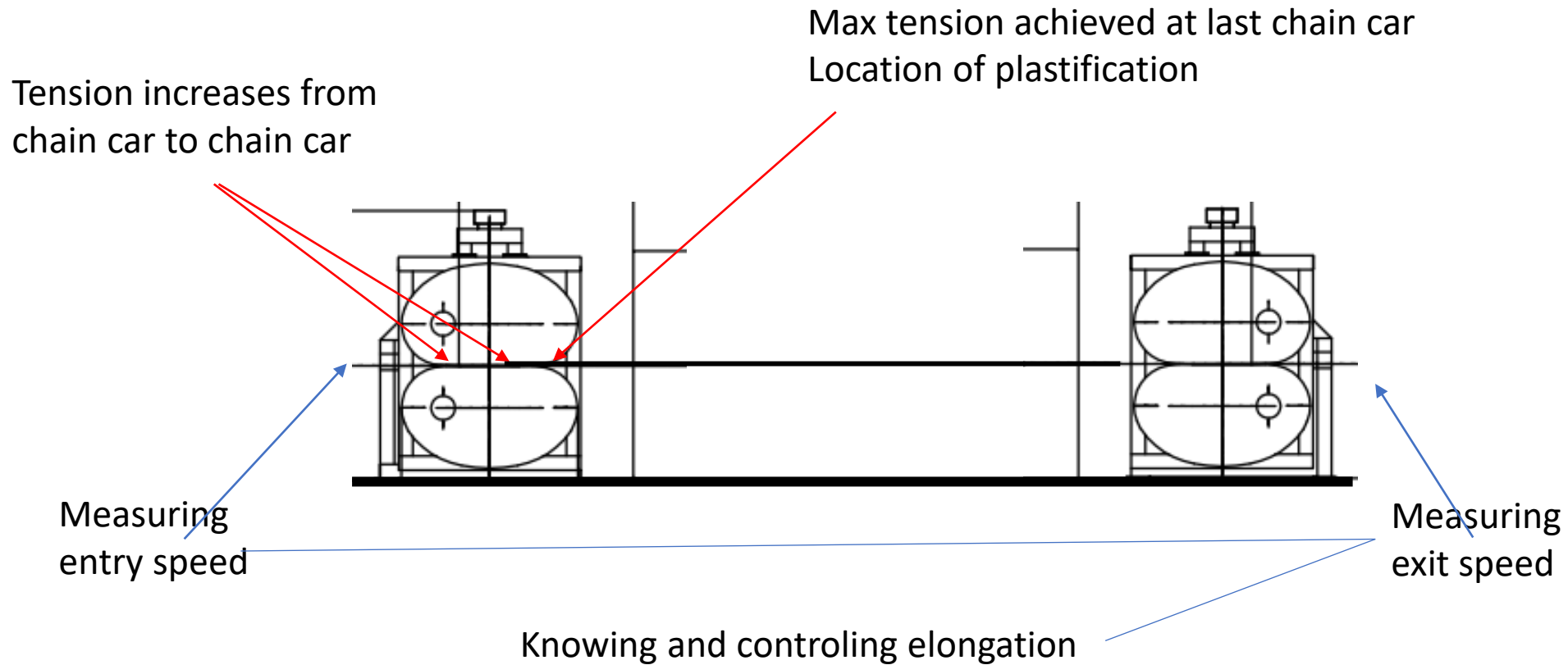
Applications

- Decoiling
- Recoiling
- Feeding shears
- Slitting
- Annealing
- Leveling
- Rolling



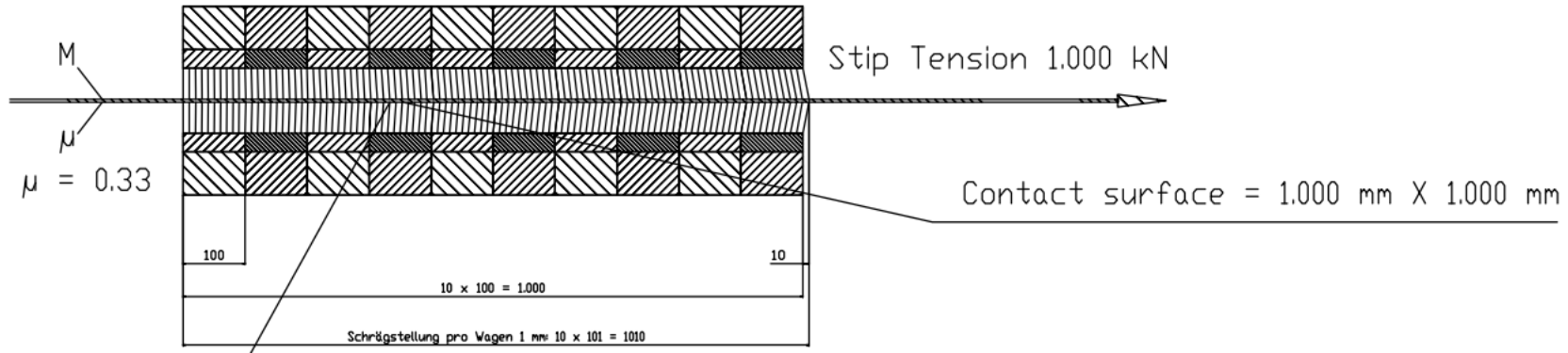
stretch-leveling

- Horizontal forces only
- Plastification happens within a few centimeters
- Close to the theoretical ideal



The elastic coating moves with the elongating sheet

Q = contact pressure 1.520 kN
 cuntact pressure specivic 1.520.000 N / (1.000 mm X 1.000) = 1.5 N / mm²

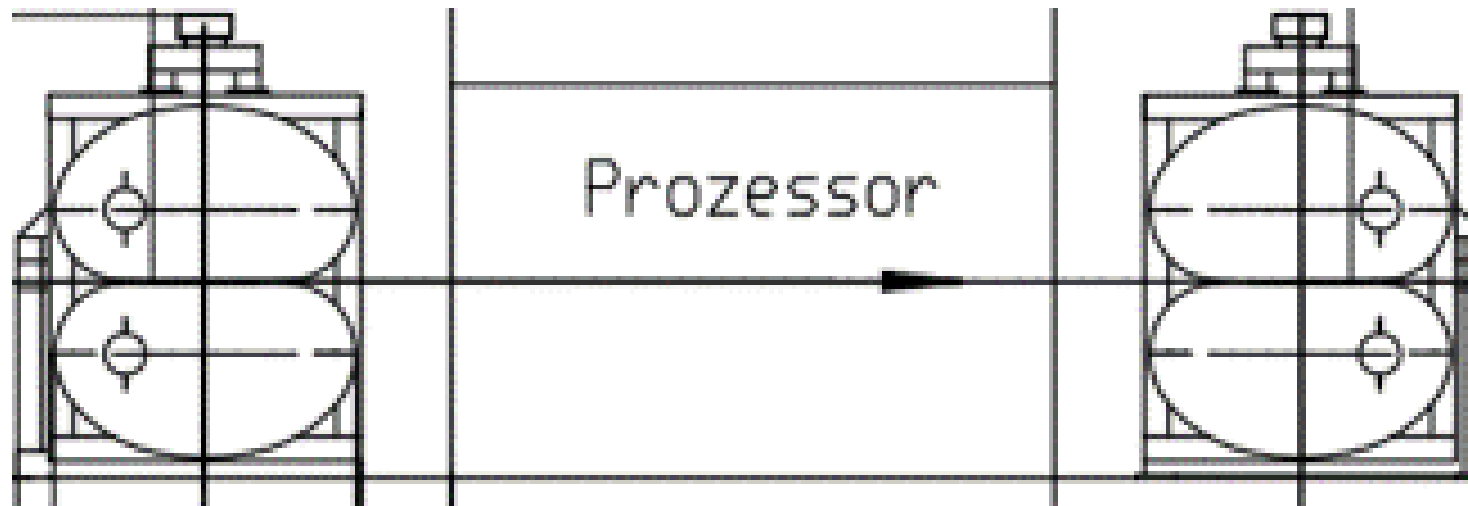


no slipping
 The compensation takes plastic in the elastic covering

80% - 90% of the energy is fed back into the system.

Generator

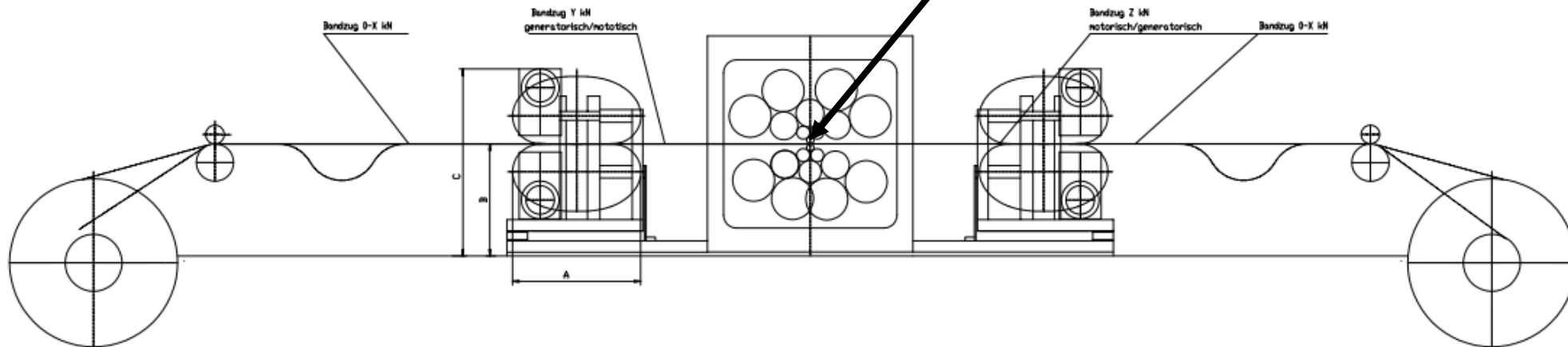
Motor



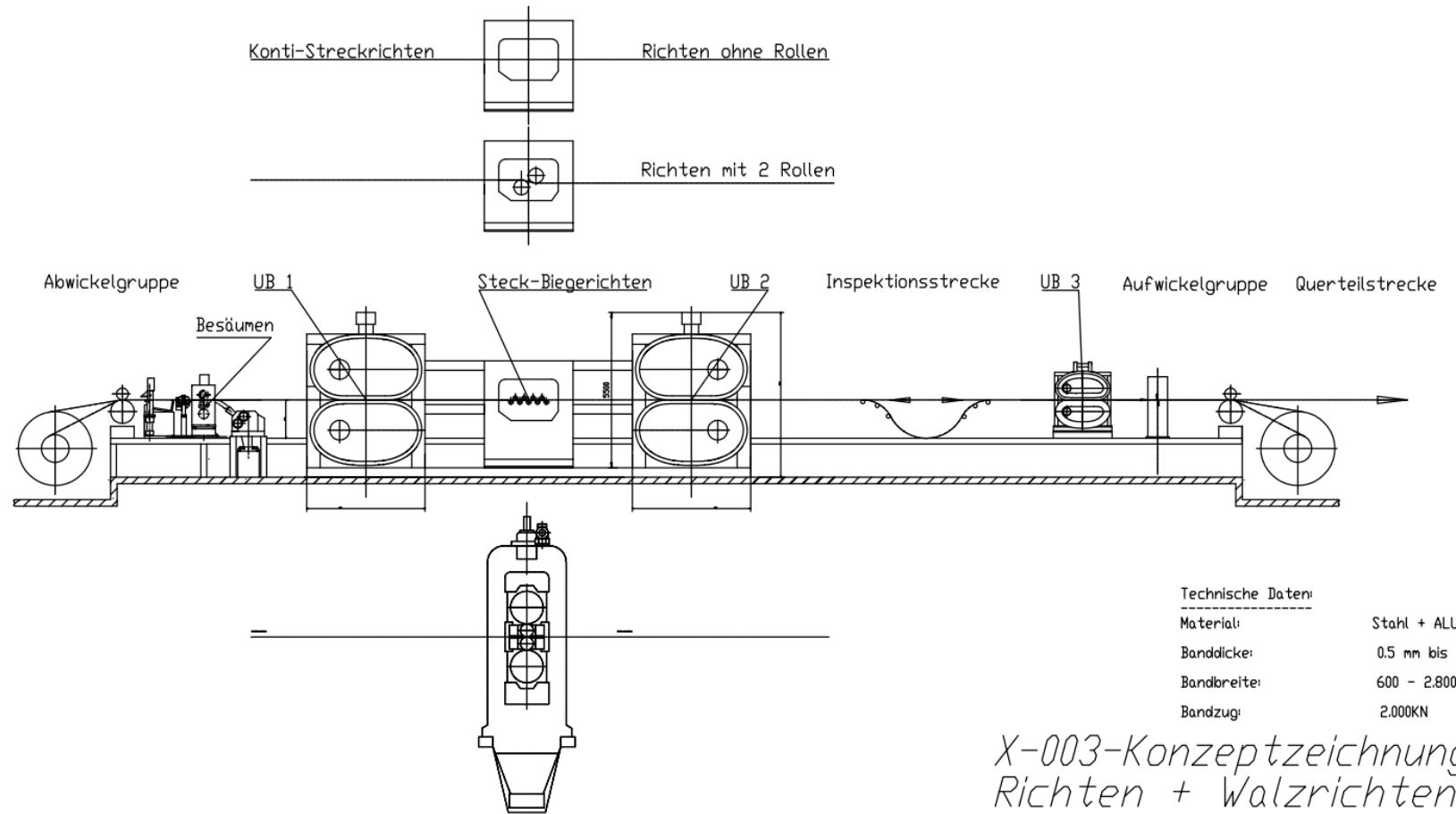
Rolling with Umlauf-Bridles

- Precise tension control
- Left and right tension control for reducing camber.
- Precise strip guidance
- Control range from 100 grams to 100 tons

Combined plastification from stretching and leveling
Defined location for plastification



Combining processes in one line only

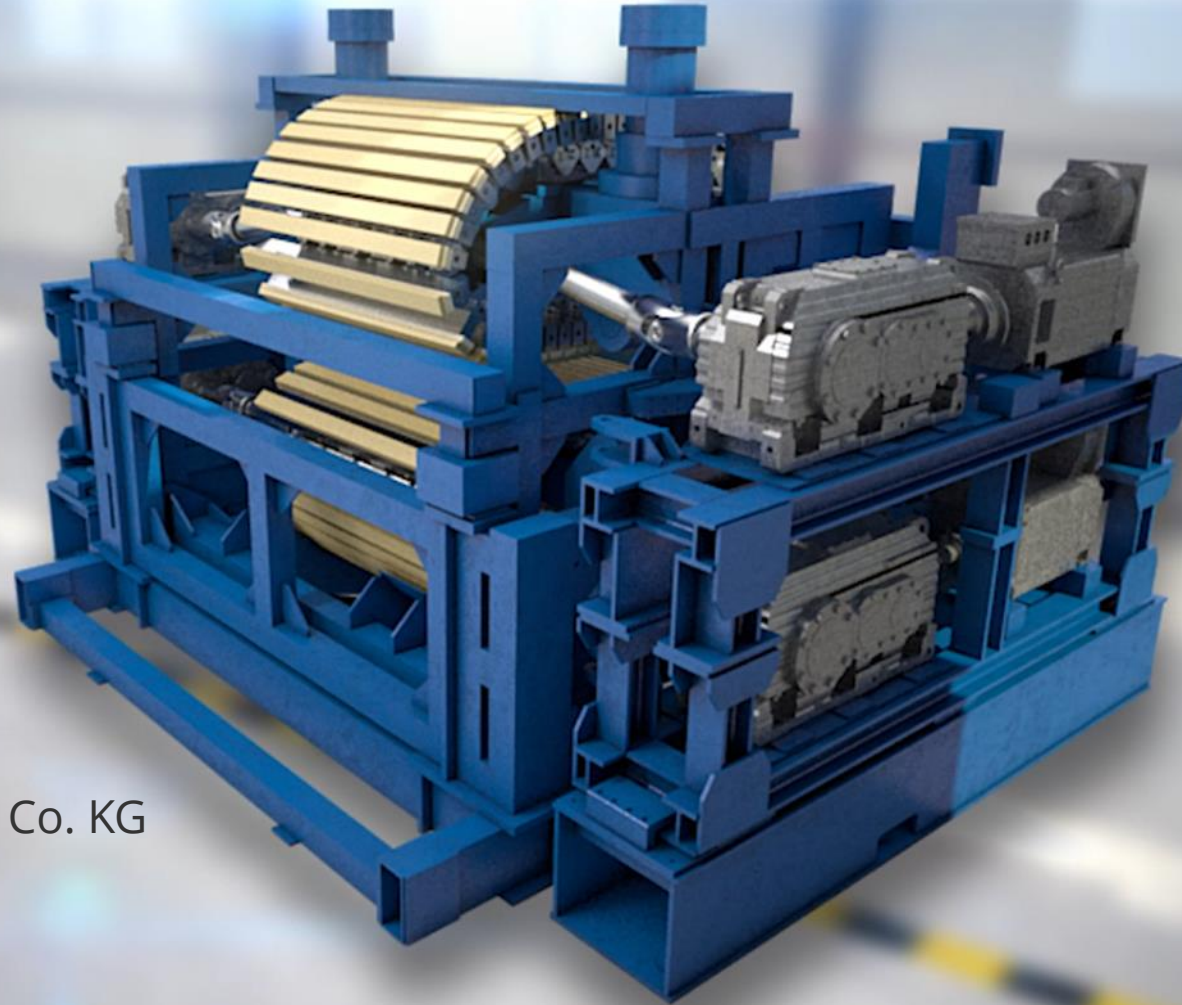


Eddy current Bridle

Contactless strip guidance and tension unit



Umlauf-Bridle technology



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