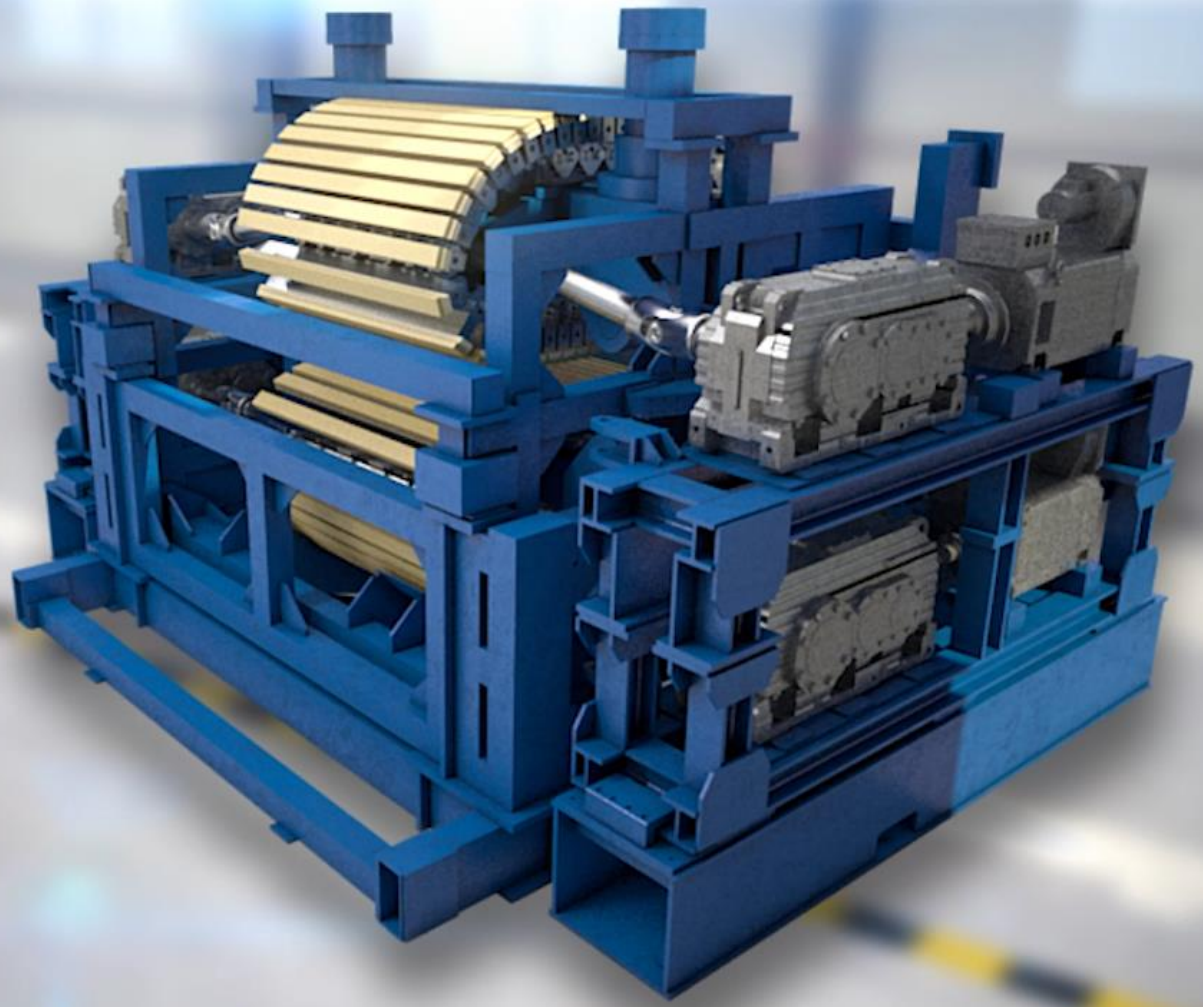
Welcome

Umlauf-Bridle-Technology



BTU Bridle-Technology GmbH & Co Kg

- 42 Umlauf-Bridles currently running
- 2015 first leveling with Sandvik
- 2019 Collaboration with SES, Ohio, USA
- 2019 - BTU as a patent management entity

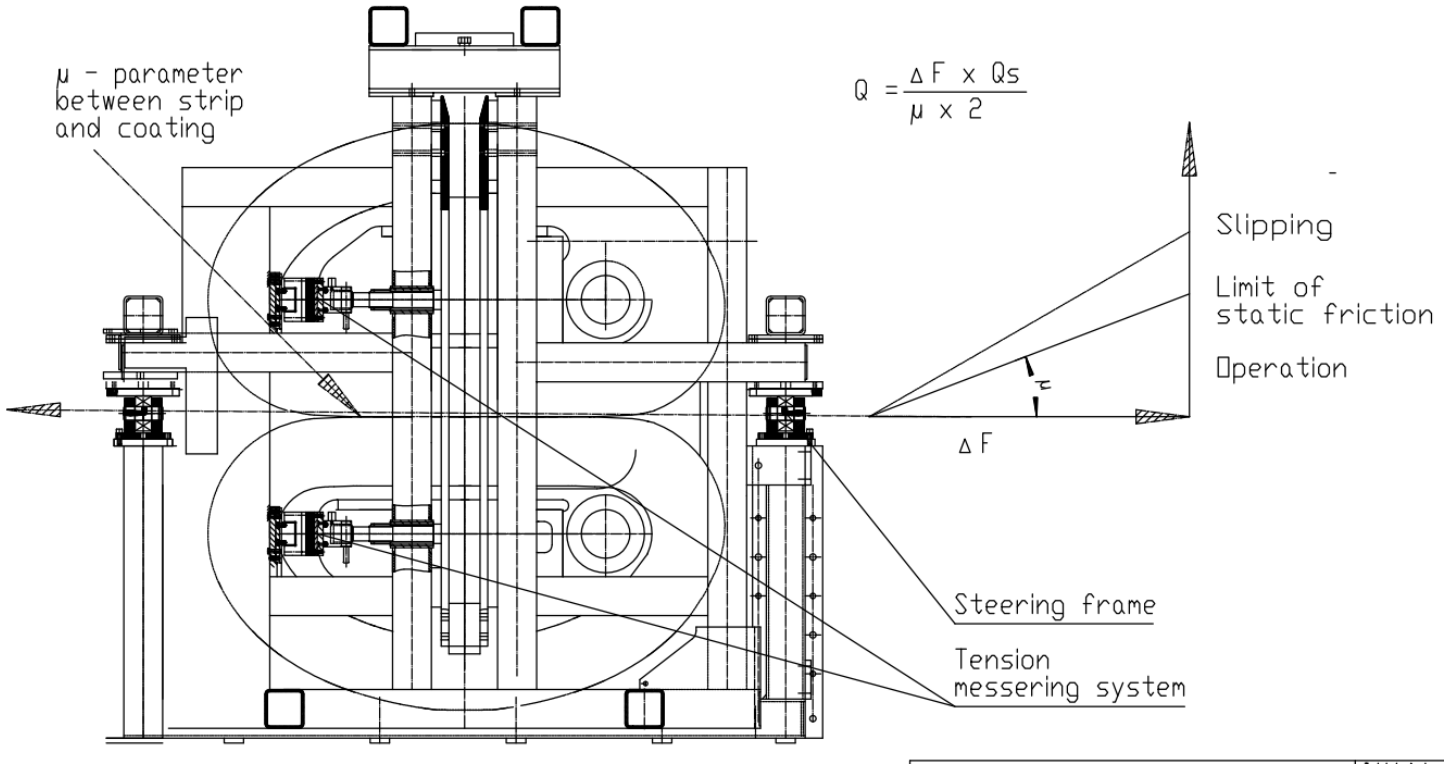
Tension Units Strip Guiding Devices

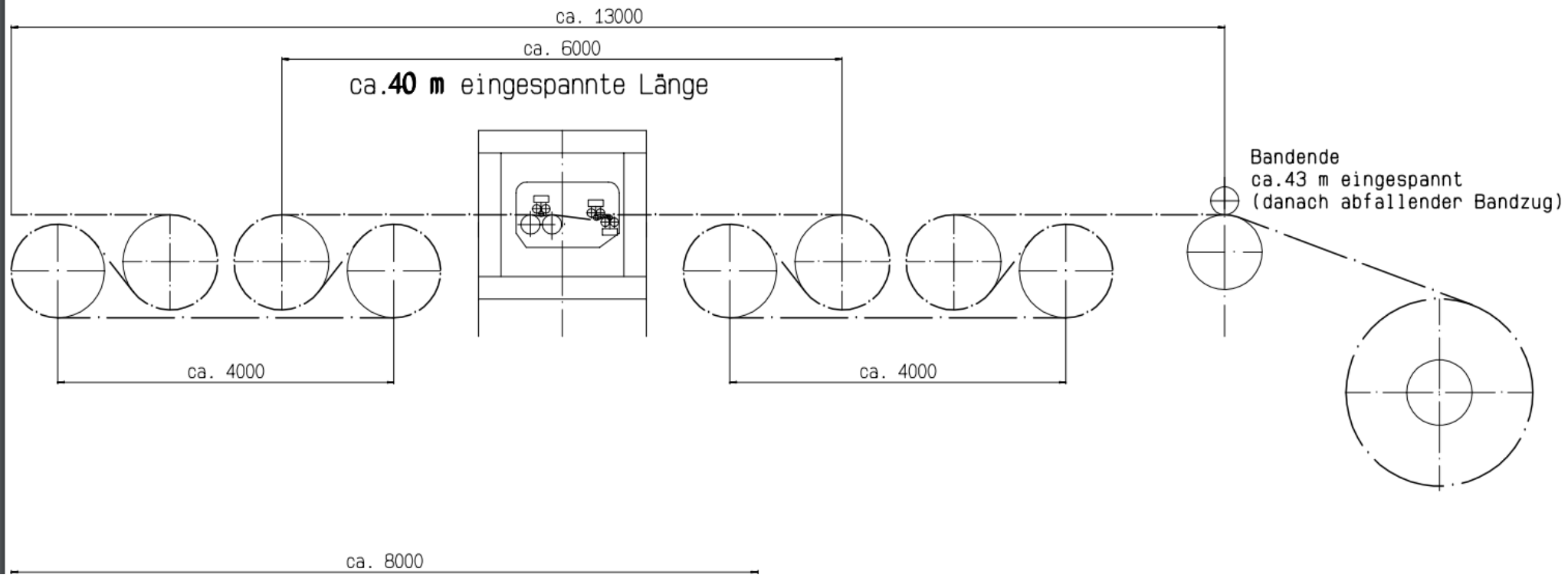
U-Bridles are used
where S-bridles and/or pinch-rolls are being used traditionally

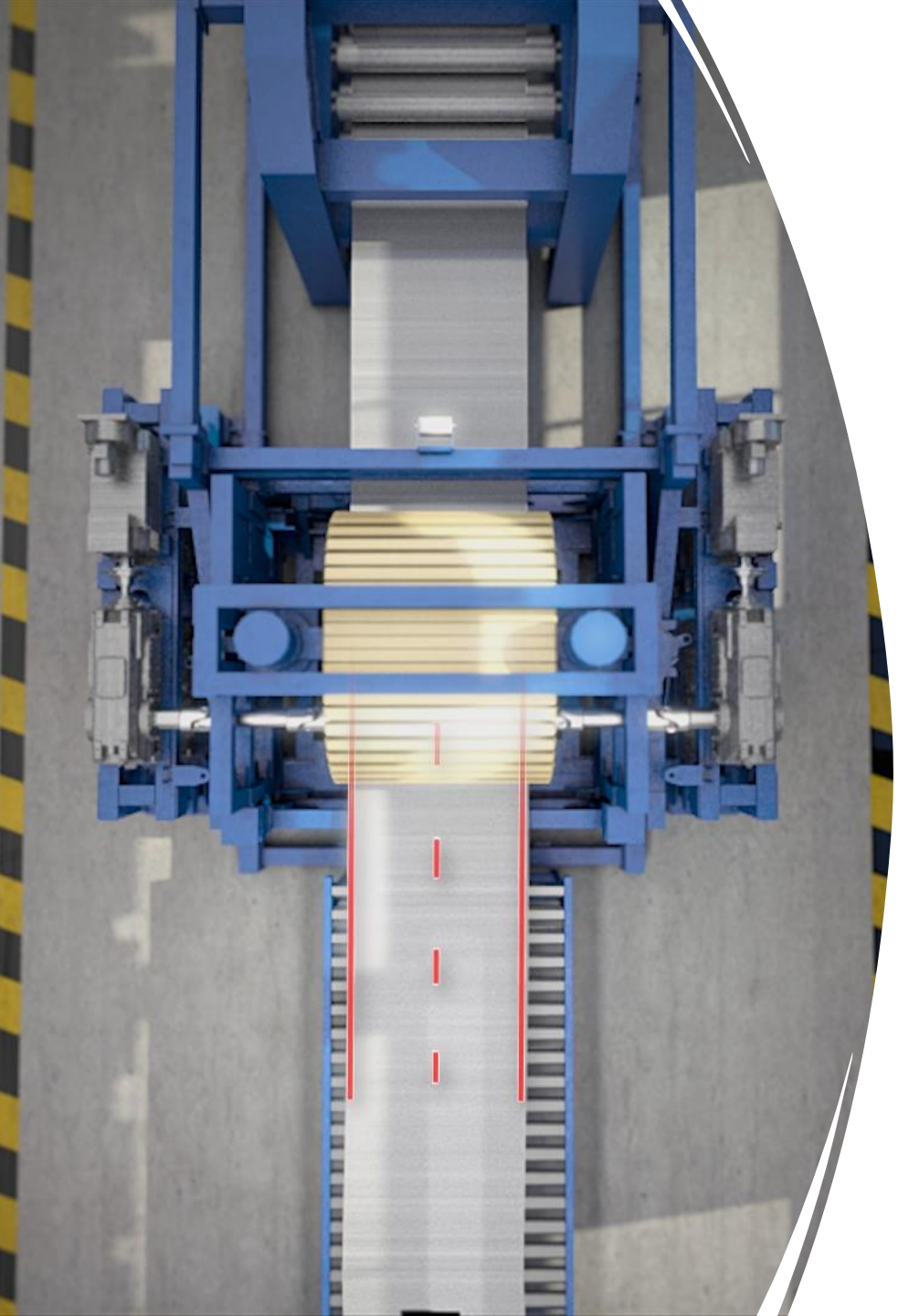
- Roller-Bridles need space and length to increase tension
- Roller bridles are not steering devices
- Pinch-rolls have a maximum tension of a few tons
- Pinch-rolls are strip-guiding devices
- In both solutions slippage / micro slippage occurs

NO SLIPPAGE

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

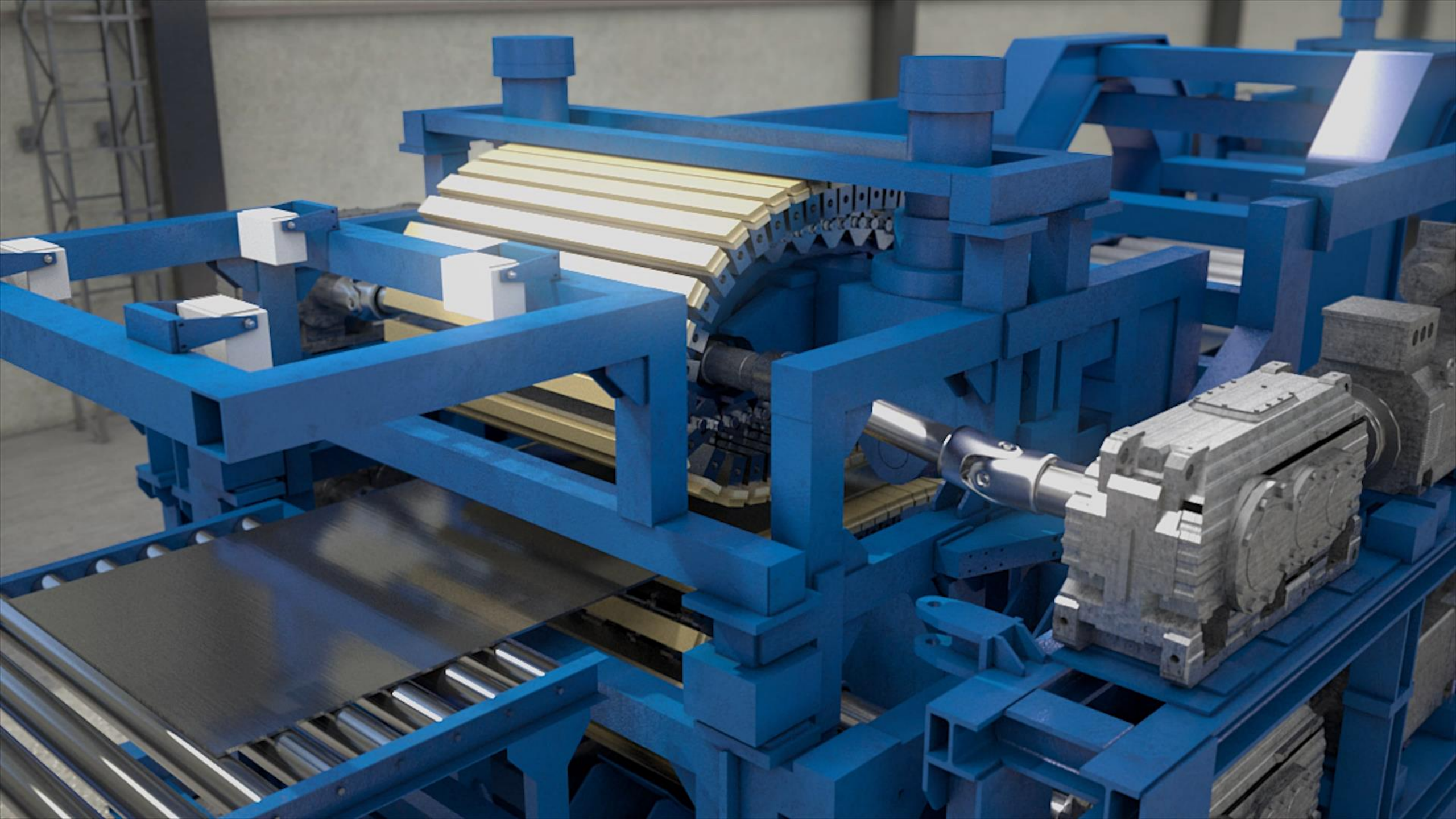



ca. 13000
ca. 6000
ca.40 m eingespannte Länge
Bandende
ca.43 m eingespannt
(danach abfallender Bandzug)
ca. 4000
ca. 4000
ca. 8000



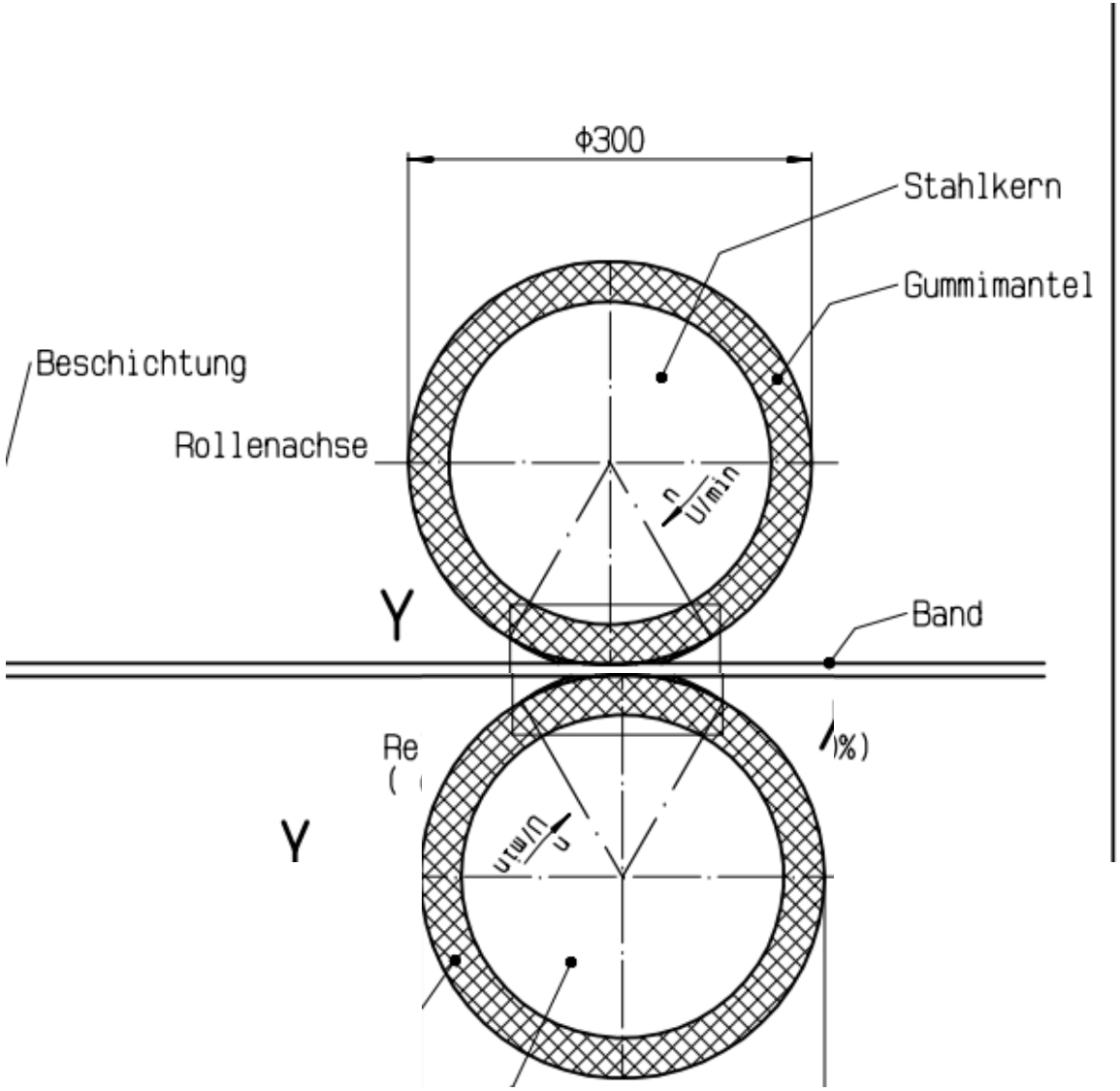
Precision tool

- No slippage
- One drive only
- Tension - high (100 t) and low (100g)
- and strip guidance



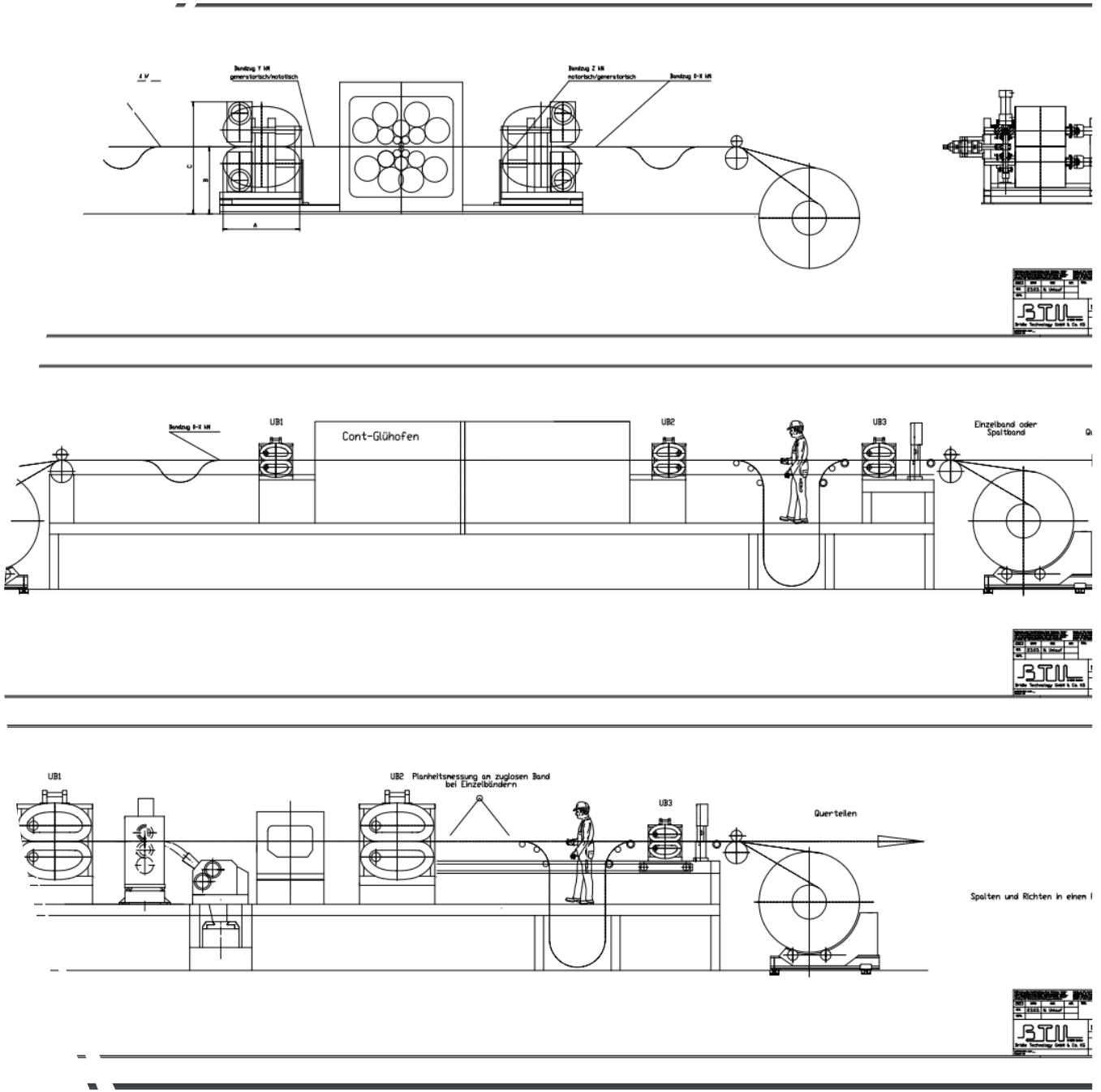
Pinch roll

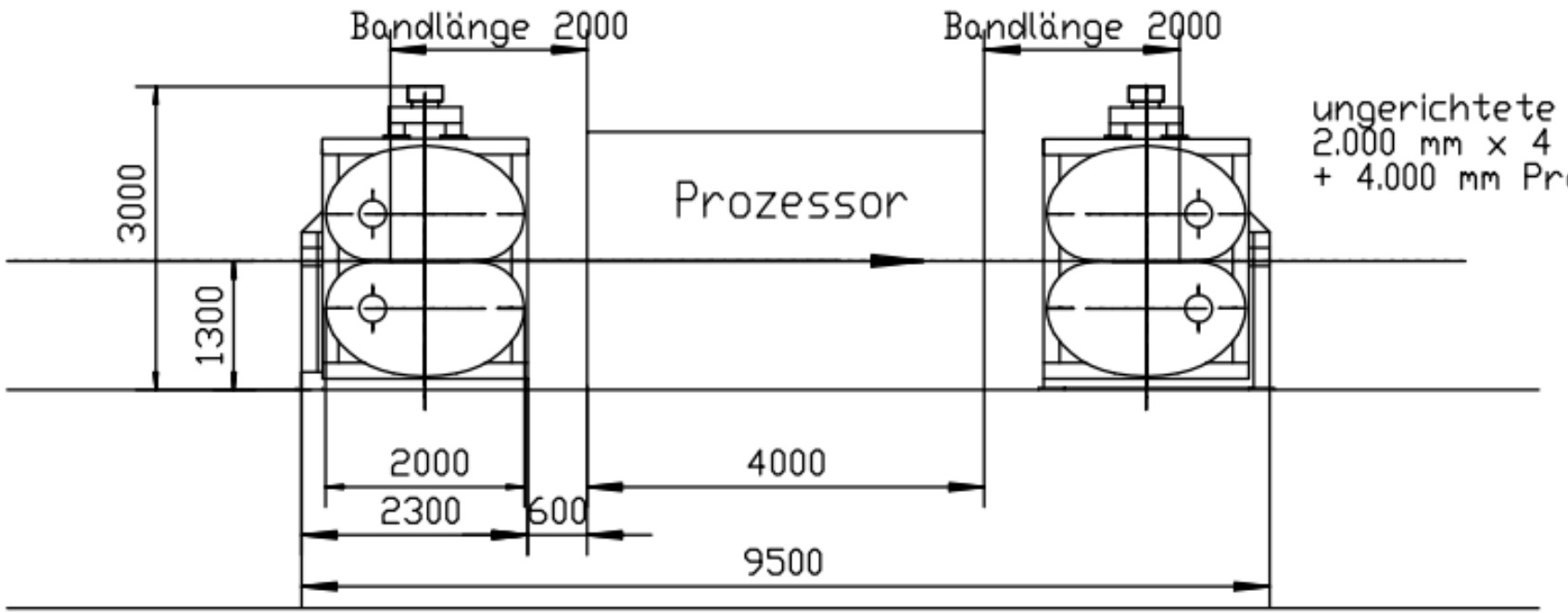
- limited tension
- Guiding device



Applications

- Decoiling
- Recoiling
- Feeding shears
- Cut to length
- Slitting
- Annealing
- Levelling
- Rolling

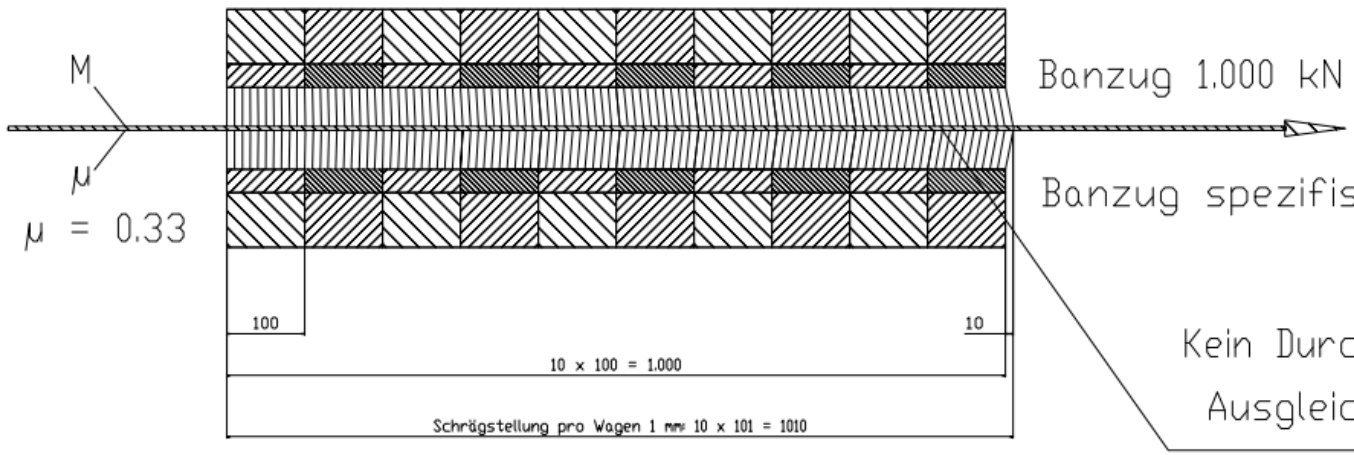




ungerichtete Banlänge pro Coil
2.000 mm x 4 = 8.000 mm
+ 4.000 mm Prozessorbereich

Anpressdruck spezifisch: 2.000.000 N / 1000 mm x 1.000 mm = 2 N/mm2 (unkritisch)

Q = Anpressdruck 2.000 KN



Banzug 1.000 kN

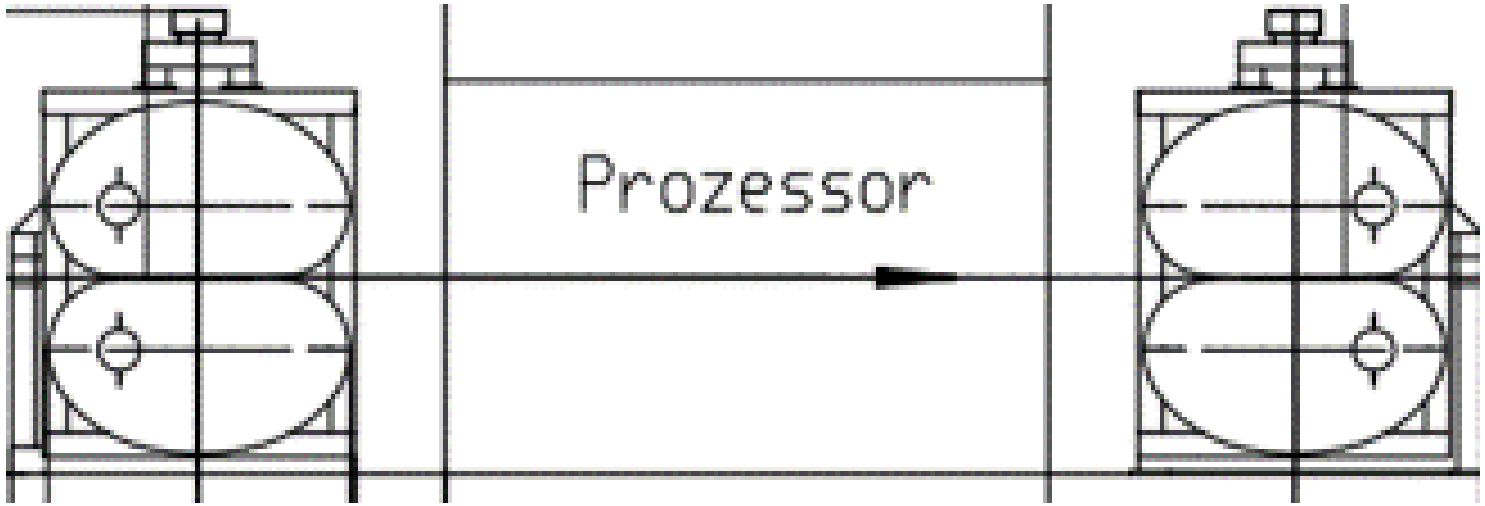
Banzug spezifisch: 1.000.000 N / 1.000 mm2 = 1.000 N/mm2

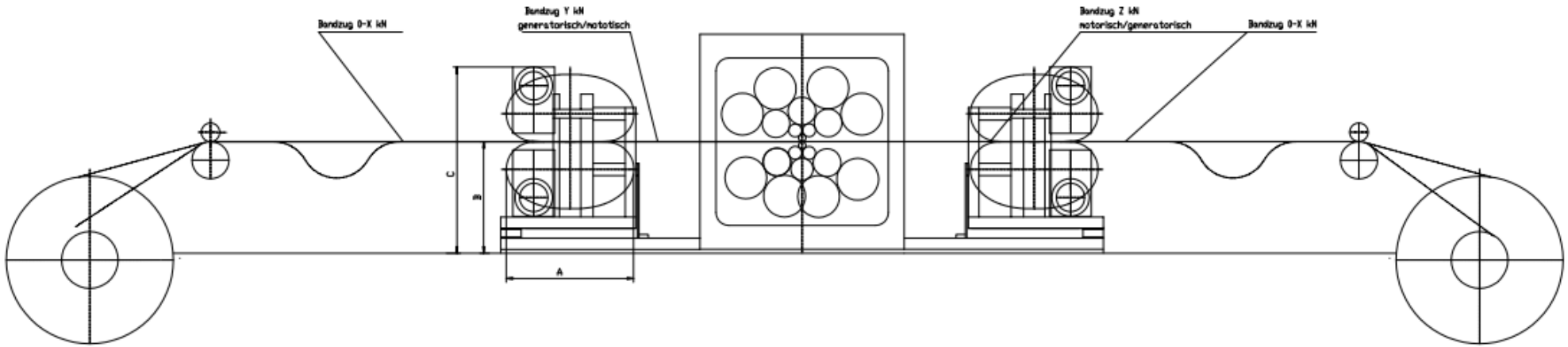
Kein Durchrutschen da Haftreibung
Ausgleich findet im elastischem Belag statt

80 % - 90% of the energy gets fed back into the system

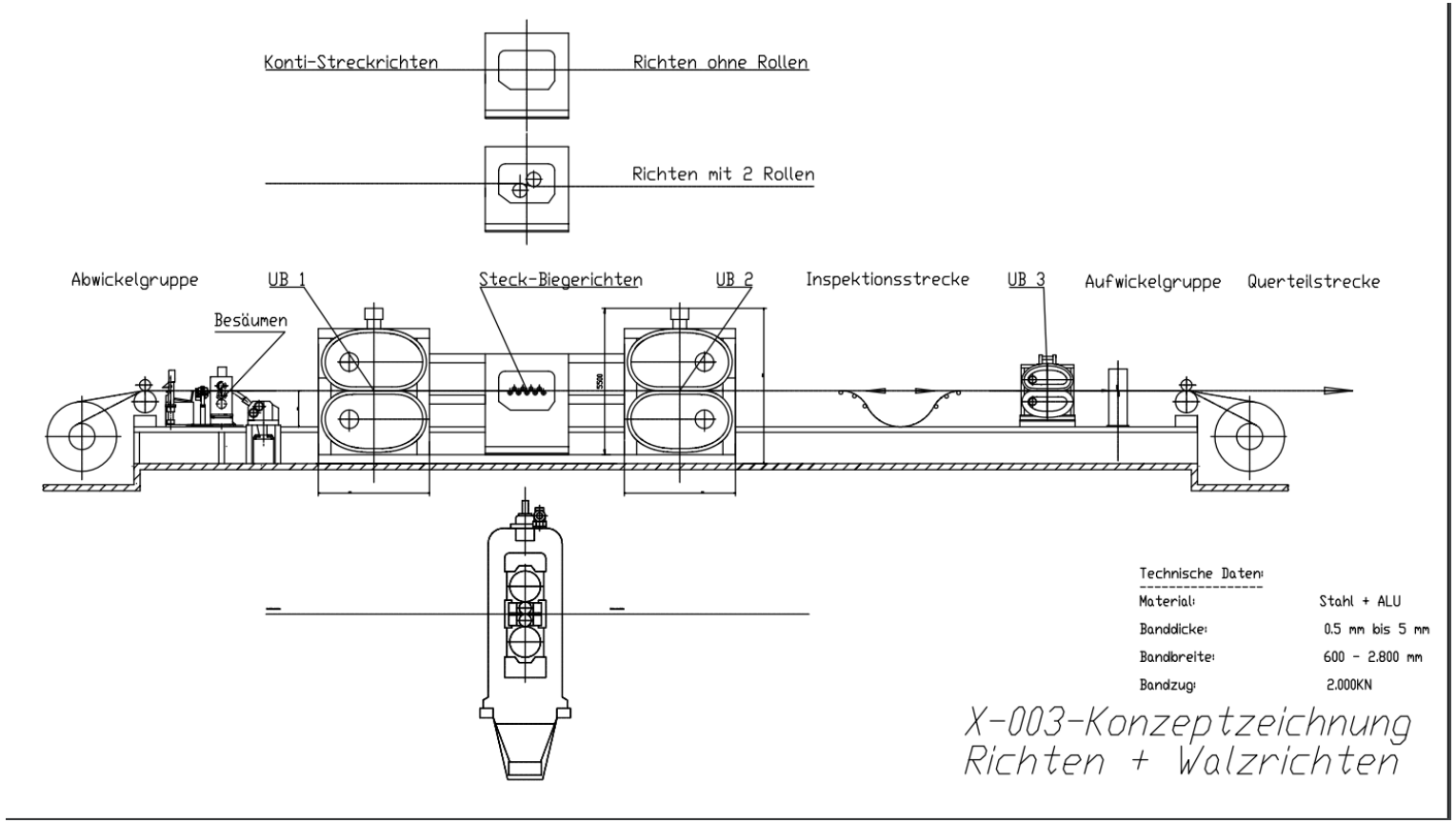
Generator

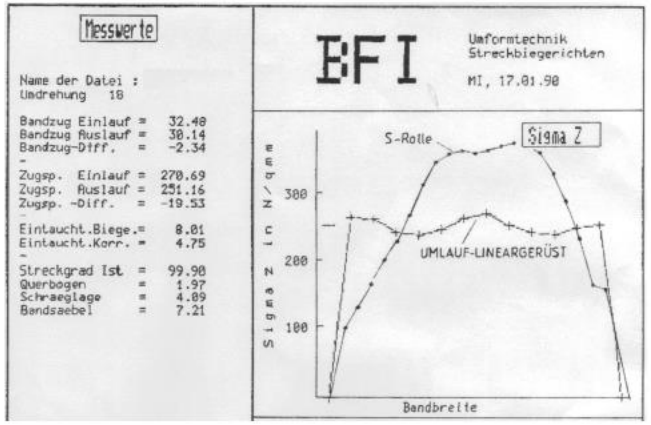
Motor

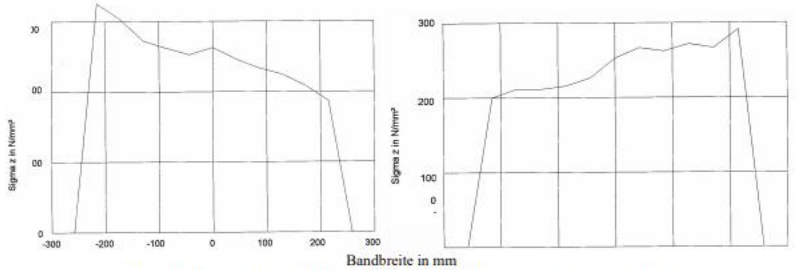



Bandzug 0-X kN
Bandzug Y kN
generatorisch/motorisch
Bandzug Z kN
motorisch/generatorisch
Bandzug 0-X kN
C
B
A

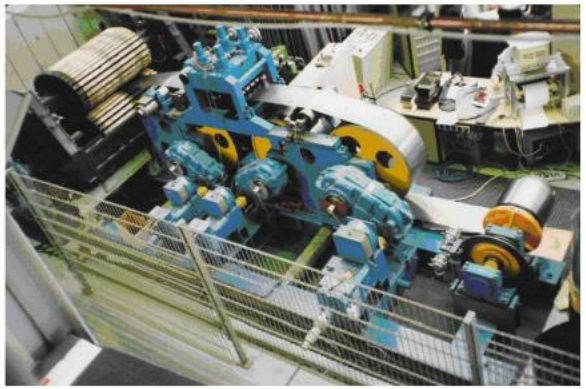
Combining processes in one line only





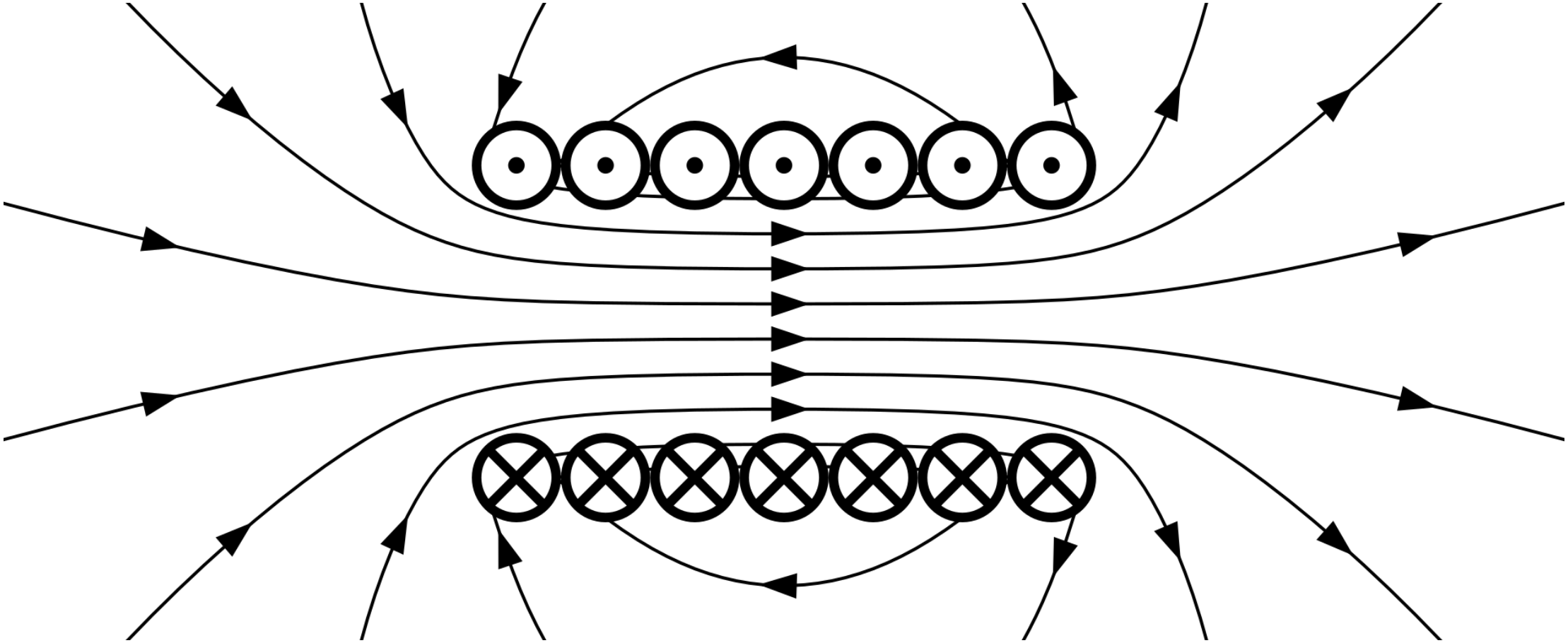


spezifische Bandzugverteilung, reguliert mittels Bandmittenregelung des UMLAUF-LINEARANTRIEBES



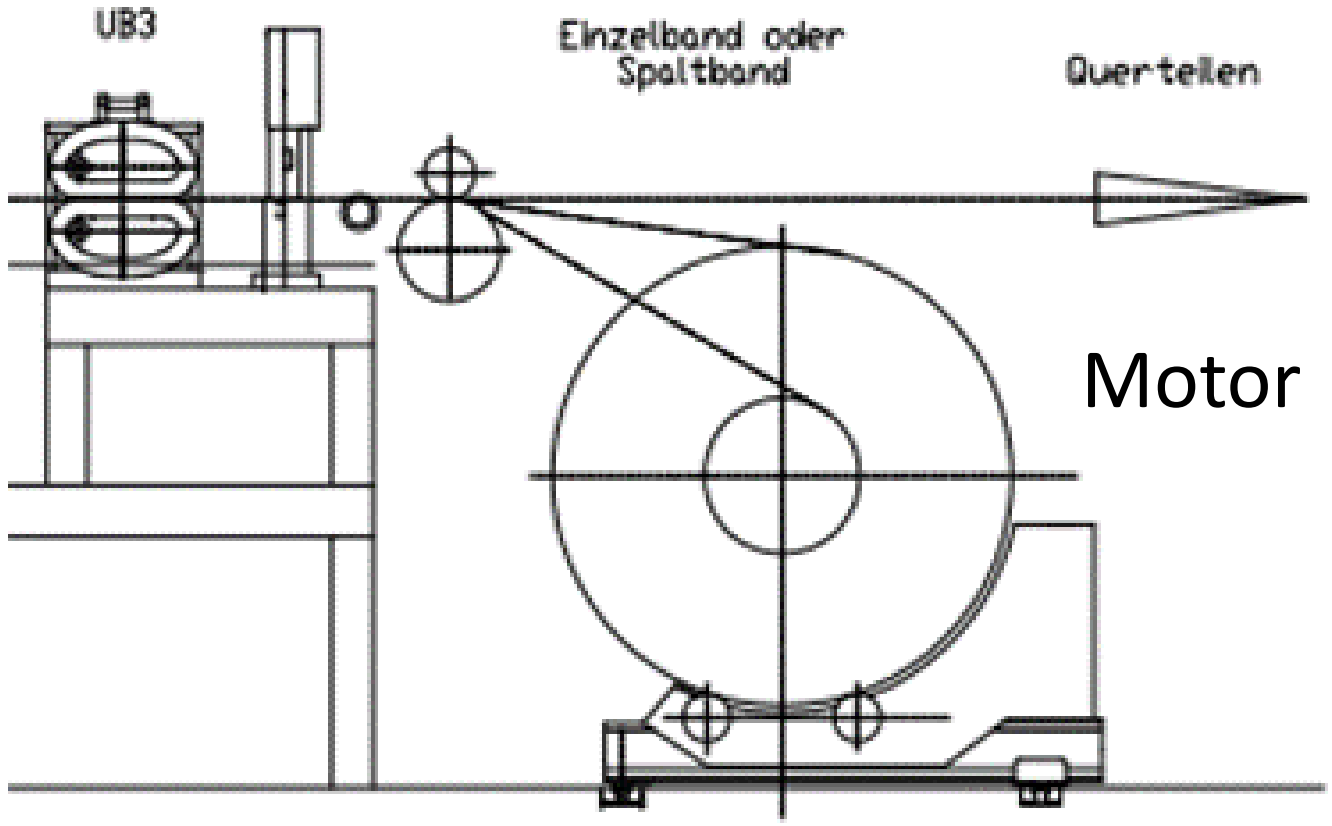
Eddy Current Bridle

Eddy Current



Recoiling

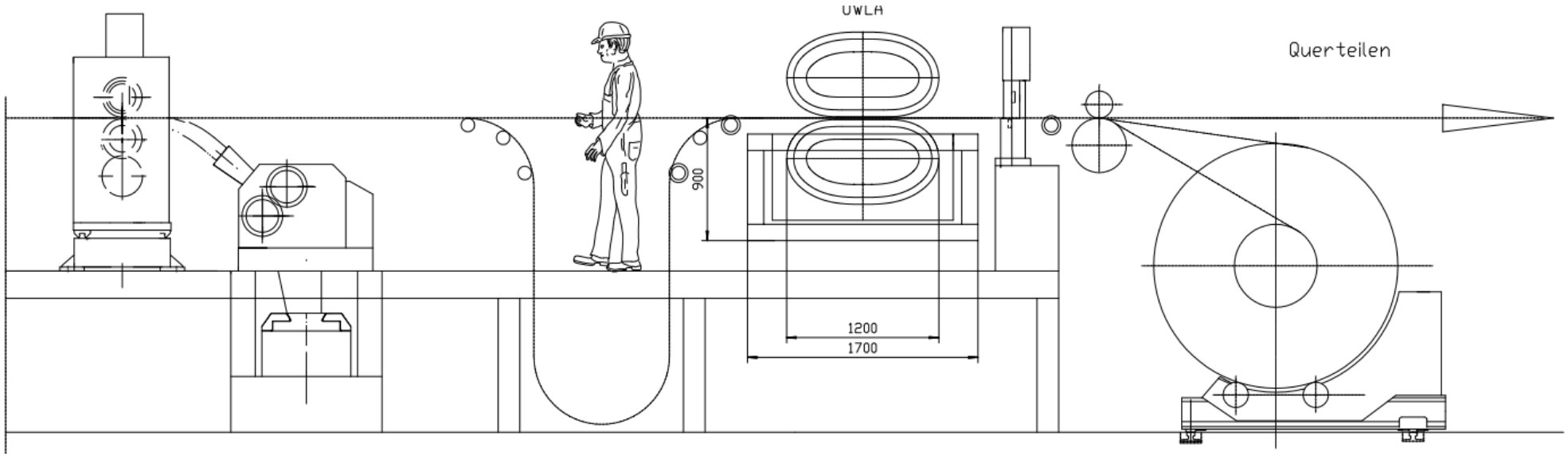
Generator



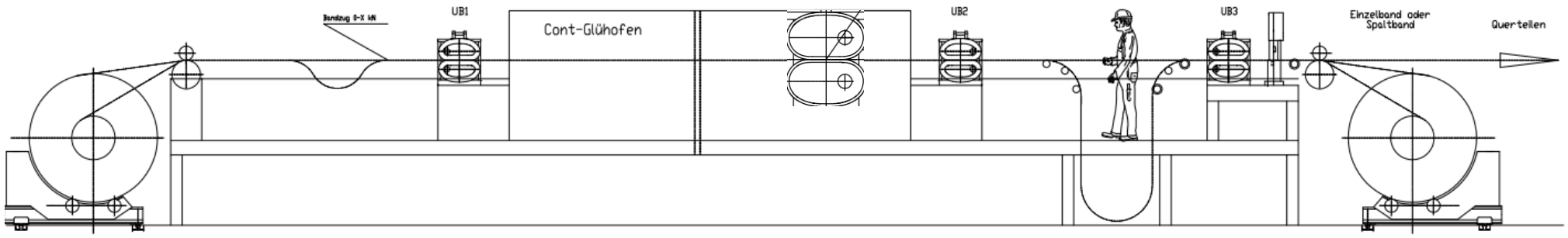
Recoiling materials with sensitive surfaces in slitting lines

- Vacuum Roll is the traditional use
  - High energy consumption
  - Almost no friction

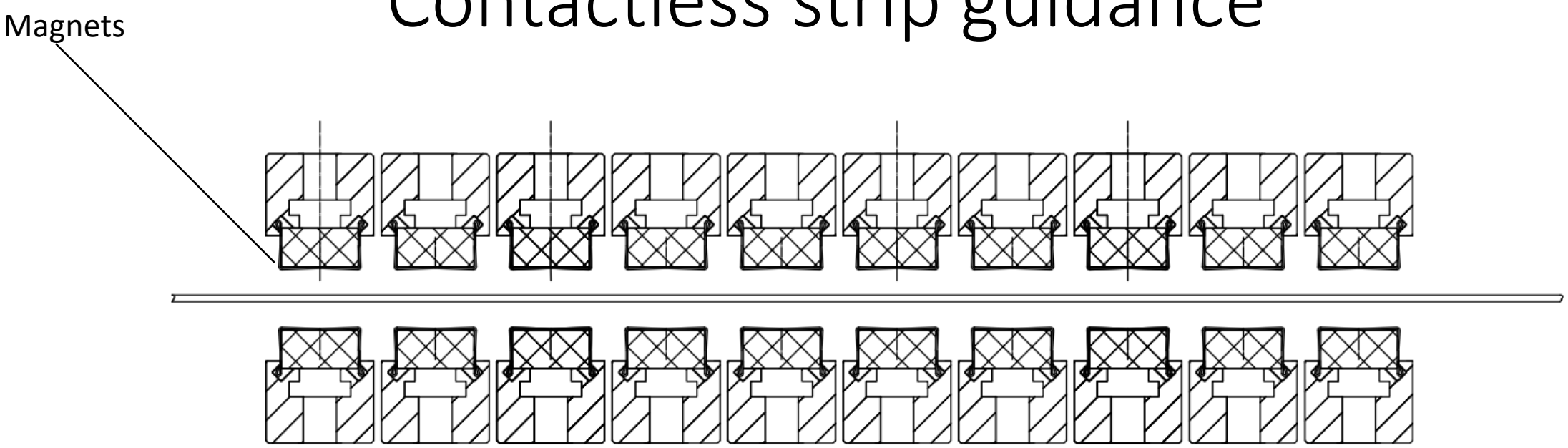
- Eddy current bridle
  - Similar investment
  - Fraction of energy consumption
  - No friction



Contactless through an annealing furnace



Contactless strip guidance



Slitting lines

- No
- Warum ist Aluminium interessant?
- Wie erfasst ein UWLA das Band? Wie sind die µ-Werte?
- Gibt es Bandzug-Limits? Wenn ja, warum?
- Geschwindigkeits-Limits?

Wirbelstrom kann in

- Bandzug
- Geschwindigkeit oder
- Wärme

umgesetzt werden