



ANDRITZ CellCal BATTERY CALENDER

INNOVATIVE ELECTRODE MANUFACTURING

ANDRITZ

ENGINEERED SUCCESS

Electrode manufacturing by innovative calendaring

ANDRITZ is a leading supplier for state-of-the-art deflection-controlled calenders within the paper, nonwoven, textile, and special application industries. With its vast expertise and more than 75 years of experience, ANDRITZ has now developed an innovative calender for electrode manufacturing for batteries: the ANDRITZ CellCal calender.

CURRENT PRODUCTION SET-UP

A calender is an essential part of the wet coating process for the production of electrodes for batteries. Within this process a uniform product thickness and stable quality are of utmost importance.

For coating and drying, a product width of 1,400 mm is state-of-the-art. However, a calender of this width cannot meet the technical product requirements yet. Thus, an acceptable thickness deviation cannot be reached with one calender only.

This is why a center slit and two calenders in small product widths are needed for the current process. In addition, conventional calenders, create a so-called W-profile, by activating roll bending in the second step. This profile is acceptable for narrow working widths. For larger widths, the product thickness deviation is out of tolerance.

NEW PRODUCTION SET-UP WITH ANDRITZ

ANDRITZ has developed a new calendaring concept to overcome the current process limitations. The new calender offers an even load distribution at the calender nip resulting in very good thickness evenness in the product at a width of up to 2,000 mm.

This can be achieved through adding an axial roll displacement. Both rolls are ground to get a special Double-S-shape, which influences the quarter points of the W-shaped profile, created by the roll bending and crowned grinding.

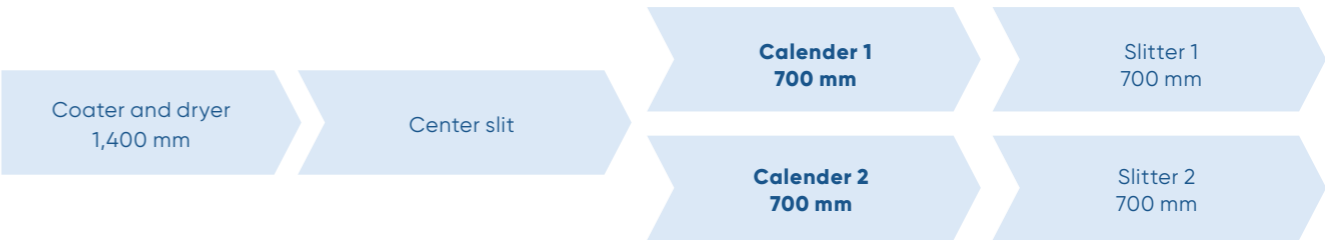
TECHNICAL FEATURES

- Product width up to 2,000 mm
- Speed up to 120 m/min
- Line force up to 3,500 N/min (higher on request)
- Roll surface temperature up to 160°C
- Thickness uniformity, length direction: $\pm 1,5 \mu\text{m}$
- Thickness uniformity, cross direction: $\pm 3,0 \mu\text{m}$

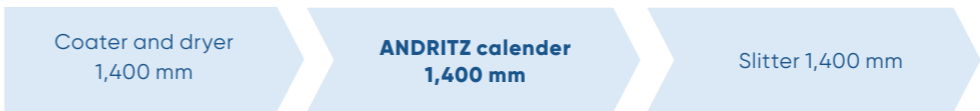
BENEFITS

- Even load distribution over the full width
- Stable product quality due to repeatable production conditions and product settings
- Implemented anti-wrinkling solutions
- Gap control by control loop with thickness scanner
- Easy and quick roll change for higher uptimes
- Self-aligning roll bending cylinder design
- Improved temperature distribution for higher product quality and thickness evenness

COMPARISON: CURRENT AND ANDRITZ PRODUCTION SET-UPS

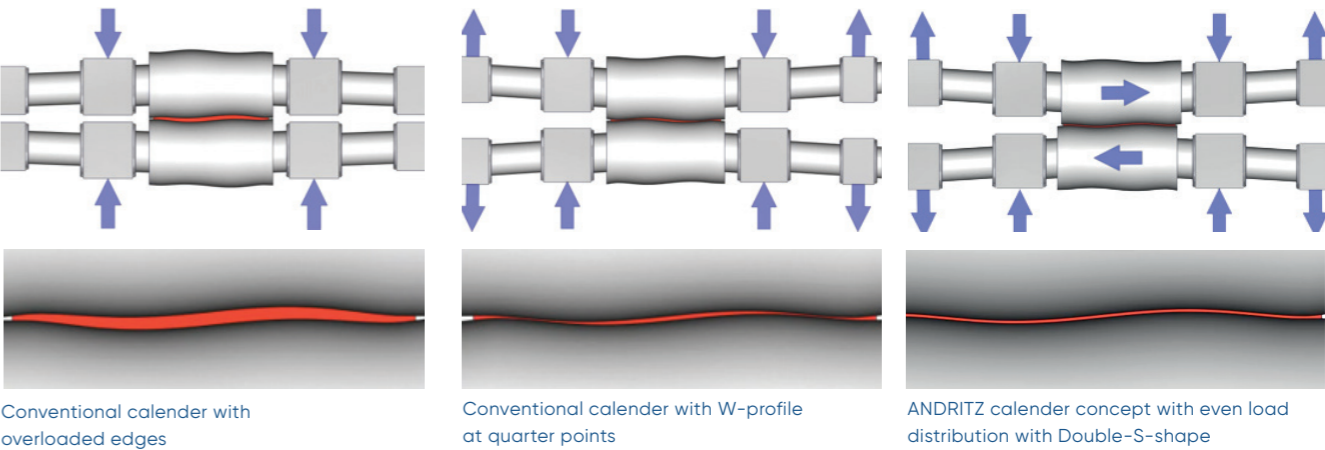


Example of current production set-up



Example of ANDRITZ production set-up

COMPARISON: CONVENTIONAL AND ANDRITZ CALENDER CONCEPTS



CONCLUSION

	Conventional calender (700 mm)	Conventional calender (1,400 mm)	ANDRITZ calender (up to 2,000 mm)
CAPEX/GWh Results in lower CAPEX due to reduced equipment	↓	↑	↑
OPEX/GWh Reduced energy/consumption and less operators	↓	↑	↑
Footprint flow Decreases the footprint due to reduced required equipment.	↓	↑	↑
Process flow Beneficial due to reduced downtimes (e.g. less roll changes, etc.)	↓	↑	↑
Process maturity Higher process maturity due to process control.	↑	↓	↑



ANDRITZ CellCal calender



PASSION FOR INNOVATIVE TECHNOLOGIES THAT SHAPE THE WORLD

International technology group ANDRITZ offers a broad portfolio of innovative plants, equipment, systems, services and digital solutions for a wide range of industries and end markets. Sustainability is an integral part of the company's business strategy and corporate culture. With its extensive portfolio of sustainable products and solutions, ANDRITZ aims to make the greatest possible contribution to a sustainable future and help its customers achieve their sustainability goals. ANDRITZ is a global market leader in all four of its business areas – Pulp & Paper, Metals, Hydropower and Environment & Energy.

CALENDER TECHNOLOGY

ANDRITZ Küsters GmbH
Krefeld, Germany
p: +49 2151 34 0
kuesters@andritz.com

ANDRITZ.COM



All data, information, statements, photographs and graphic illustrations in this leaflet are without any obligation and raise no liabilities to or form part of any sales contracts of ANDRITZ AG or any affiliates for equipment and/or systems referred to herein. © ANDRITZ AG 2024. All rights reserved. No part of this copyrighted work may be reproduced, modified or distributed in any form or by any means, or stored in any database or retrieval system, without the prior written permission of ANDRITZ AG or its affiliates. Any such unauthorized use for any purpose is a violation of the relevant copyright laws. ANDRITZ AG, Stattegger Strasse 18, 8045 Graz, Austria. ANDRITZ CellCal calender_leaflet_06.2024

