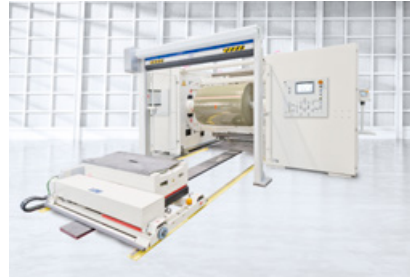




# Winding Technology

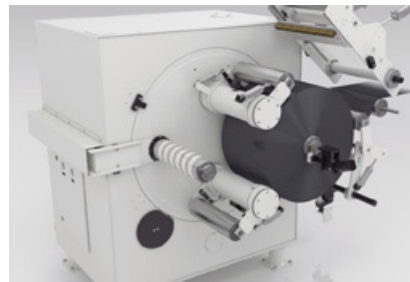
## Turret Winder

Flying splice at full speed  
 Shaftless or expanding shaft – 3"/6"  
 Material width up to 1,500 mm  
 Material weight up to 2,500 kg  
 Material diameter up to 1,500 mm  
 Optional fully automated reel handling



## Turret Winder Cantilever

Flying splice at full speed  
 Air expanding shaft – 3"/6"  
 Material width up to 1,000 mm  
 Material weight up to 1,000 kg  
 Material diameter up to 1,000 mm  
 Optional fully automated reel handling



## Shaftless Winder

Shaftless 3"/6"  
 Material width up to 1,500 mm  
 Material weight up to 2,500 kg  
 Material diameter up to 1,500 mm  
 Optional fully automated reel handling  
 Optional reel lifting device (loading/unloading)  
 Optional splice table



## Center Winder

Air expanding shaft – 3"/6"  
 Material width up to 2,500 mm  
 Material weight up to 2,500 kg  
 Material diameter up to 1,500 mm  
 Optional splice table



## Applicable for all Winder

Unwinder/Rewinder  
 Clockwise/anticlockwise winding direction  
 Speed up to 500 m/min  
 Integrated edge control system  
 Integrated edge trim unit with suction nozzle  
 Integrated tension control system  
 Optional remote control



# Energy Storage

Turn-key solutions for the battery and capacitor industry

## Calender Line for LI-ION-Batteries

Designed for continuous coated electrodes

Accuracy of  $\pm 1 \mu\text{m}$

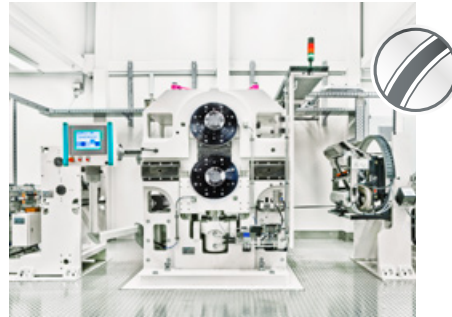
Loads up to 300 tons

For electrode width up to 1,000 mm

Speed up to 80 m/min

Integrated thickness measurement

Suited for dry rooms



## Calender Line for LI-ION-Batteries

Designed for intermittent coated electrodes

Automated, patented gap control system

Accuracy of  $\pm 1 \mu\text{m}$

Loads up to 200 tons

For electrode width up to 1,000 mm

Speed up to 80 m/min

Integrated thickness measurement

Suited for dry rooms



## Calender Line for DRY-BLEND Films

Designed for dry-blend films

Automated gap control system

Accuracy of  $\pm 1 \mu\text{m}$

Loads up to 150 tons

For electrode width up to 1,000 mm

Speed up to 80 m/min

Integrated thickness measurement

Suited for dry rooms



## Energy Storage in Laboratory Scale

Multifunctional laboratory calendersystem

Compressing/embossing/laminating/dry-film

Horizontal/vertical usable

Gap accuracy:  $\pm 1 \mu\text{m}$

Gap force: 15 tons

Roller width: 300 mm

Calender speed: 5 m/min

Roll temperature: up to  $+150 \text{ }^\circ\text{C}$  (electrical system)

Multi-roll design available

Moveable with a trolley

