INNOVATIVE WINDER SOLUTIONS FOR INCREASED TENSION CONTROL AND SCRAP REDUCTION

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AIMCAL R2R Conference
• Products, Process Conditions and Winder Selection
• Case study I: Standard Turret Winders
• Case study II: Orbital Winders
• Case study III: Enveloping Winders
• Conclusion
OLBRICH GmbH

- Custom designed Coating, Drying, Laminating, Embossing, Unwinding and Rewinding Equipment
- Made in Germany
- German Engineering and Manufacturing
- Founded in 1949
COMMON TYPES OF WINDERS

- Single Station Winders
- Dual Station Winders
- Turret Winders
- Orbital Winders
- Custom Designed Winders
WINDERS - CLASSIFICATION

• For discontinuous operation
• For continuous operation
• For winding of all kind of substrate materials even for surface-sensitive and tension-sensitive films, papers, foam films and other materials
• For shafted or shaftless design
THE MOST IMPORTANT REQUIREMENTS OF A WINDER:

- Repeatable Transfers
- Continuous production
- Reliable tension control
- No influence on the products
- Shafted or shaftless
- Apropriate cutting system
- Straight roll edges
THE MOST IMPORTANT REQUIREMENTS OF A WINDER (CONTINUED):

- Cycle time between transfers
- Roll diameter
- Roll weight
- Roll unloading systems
- Core loading systems
Tension

- Reduced linear or hyperbolic (option) rewind tension by increasing reel diameter
- Adjustable range from 0% to 80%
- Perfect Rewound
- Smooth reel even with difficult and slippery materials

![Graph showing tension profile with different hyperbolic settings](image)
FAMILY I:

STANDARD TURRET WINDERS

THE MOST IMPORTANT REQUIREMENTS:

Standard Turret Winder for Product for continuous operation with automatic roll change
Example: typical layout of a standard turret winder
TURRET WINDERS FOR CONTINUOUS OPERATION WITH AUTOMATIC ROLL CHANGES

**BENEFITS:**
- For winding of all kind of substrate materials
- Holding two reels on inflatable shafts or at shaftless moveable mandrels with max. diameter
- Flying transfer at full production speed with transfer device dependent on the product requirement
- Transfer device: Dependent on the product requirements

**ACCESSORIES:**
- Automatic roll loading and unloading by lifting table cart or by crane
- Side adjustment (web edge control)
The winder consists of two turret winding positions from which material rolls can be unwound or resp. wound.

The transfer function can be done automatically at max. production speed.

High transfer reliability > 99.5% ensures material savings.

Perfect winding accuracy by optimized web path.
TURRET WINDERS

STANDARD TURRET WINDER FOR CONTINUOUS OPERATION WITH AUTOMATIC ROLL CHANGE

Working width adjustment by adjustable supporting arms with mechanical chucks
STANDARD TURRET WINDER FOR CONTINUOUS OPERATION WITH AUTOMATIC ROLL CHANGE

Working width adjustment by adjustable supporting arms with mechanical chucks
TURRET WINDERS

Case study: video of standard winder
FAMILY II

AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION

Example: Automatic Turret winder for continuous operation with automatic roll change

*With orbital function*
Example:
Automatic Turret winder for continuous operation with automatic roll change

*With orbital function*
Case study II:
video of orbital winder
WINDING SYSTEMS –
TURRET WINDER WITH ORBITAL FUNCTION

AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION

For continuous operation to minimize wrinkles at the finished product during splice process and changeover to the second winding position
1. Winding position A / Insertion position core B

2. Turning of winding position A / Turning of core B

3. Cross cutting with hammer shear and winding on core B

4. Winding position B / Removal position A
AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION

Rider Roller in Contact – Roll Device for both winding directions
Contact roll winding
Roll diameter: 200 mm, 8 in.
Winding direction: From bottom

Rider roller support in stand-by
WINDING SYSTEMS –
TURRET WINDER WITH ORBITAL FUNCTION

AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION

Engage of rider roller
Reel diameter: 200 mm, 8 in.
Winding direction: From bottom

Mandrel pivoting in cutting position
AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION FOR PRODUCT

Cutting & Transfering
Roll diameter: 200 mm, 8 in.
Winding direction: From bottom
Contact winding
Roll diameter: 1,000 mm, 39 in.
Winding direction: From bottom

Rider roller support in stand-by
Engage of rider roll
Reel diameter: 1,000 mm, 39 in.
Winding direction: From bottom

Mandrel pivoting in cutting position
WINDING SYSTEMS – TURRET WINDER WITH ORBITAL FUNCTION

AUTOMATIC TURRET WINDER WITH SPECIAL ORBITAL FUNCTION

Cutting & Transfering
Roll diameter: 1,000 mm, 39 in
Winding direction: from bottom

Roll unloading system
FAMILY III

THE MOST IMPORTANT REQUIREMENTS OF AN ENVELOPING WINDER:

- Automatic Turret Winder for Product for continuous operation with automatic roll change
- Enveloping system for winding start, without core preparation
Benefits:

- for winding of all kind of substrate materials even for surface-sensitive and tension-sensitive films, papers, foam, and other materials
- Operation: With and without core if necessary, with automatic core feeding and roll end fixing with downstream roll packaging
- Transfering device: Dependent on the product requirements rotary crosscutting for continuous operation, vertical hammer shears, circulating knife chain, rotary knife, feeding without wrapping by roll cradle or feeding device (belts)
Case study III: video of enveloping winder
Conclusion

- Products and their properties determine selection of Winder, tension control and cutting system
- Tension control is of the essence and adaptable to product characteristics
- Standard Turret Winders for wider products, Shafted and Shaftless
- Orbital Winder for narrower and midsize webs, Shafted and Shaftless
- Enveloping Winder for glue-less, tapeless roll start, even for semi-rigid products
- Level of automation is customer’s choice – from manual to fully automatic discharge