**Welcome to the VDMA Webtalk**
Topic: *"Most versatile and efficient denim weaving“*

24.09.2020

Lars Oeller – Lindauer DORNIER GmbH

# About Me


***Lars Oeller***
**Lindauer DORNIER GmbH**
Head of Technology Center Weaving Technique
Product Application Technology Rapier Weaving Machines

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**Leitung Technologiezentrum Webtechnik**
Feb. 2015–Heute · 5 Jahre 8 Monate
Lindau (B)

Sales Service, Demonstrations, Trails, Exhibitions

**Produktanwendungstechnik Greiferwebmaschine**
März 2013–Heute · 7 Jahre 7 Monate
Lindau (B)

**stellv. Abteilungsleiter Technologiezentrum**
März 2013–Feb. 2015 · 2 Jahre

**Servicetechniker - Sales Service / Demonstrations & Trails**
März 2003–März 2013 · 10 Jahre 1 Monat

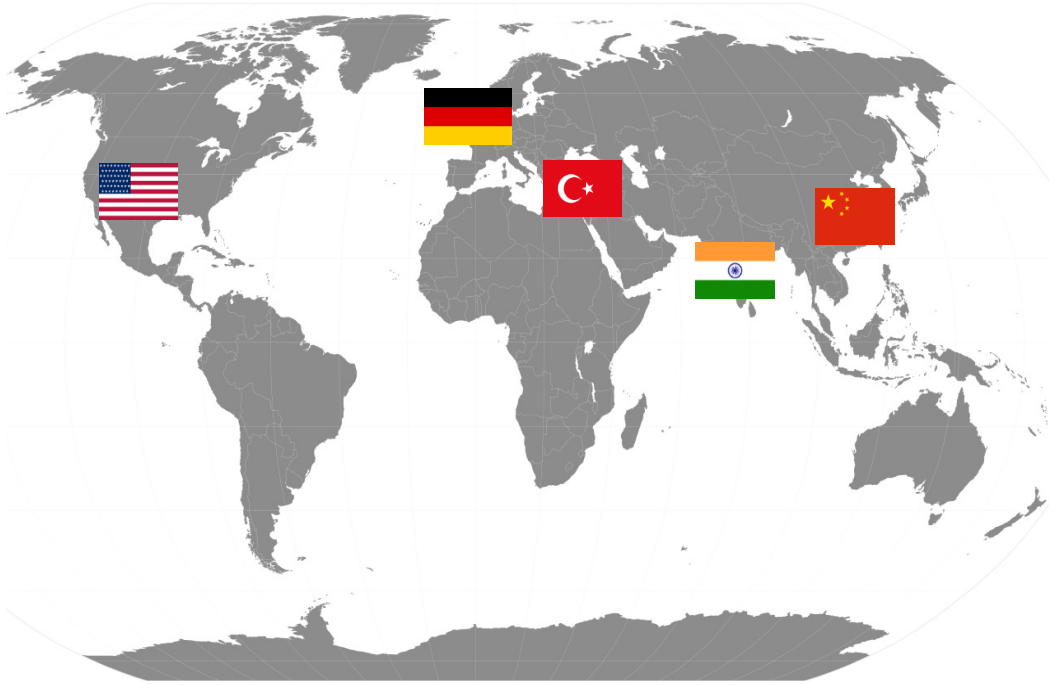
# Our company

**100% „Made in Germany“**

- Headquarter: Lindau on Lake Constance
- Number of employees: 1002, thereof 66 trainees

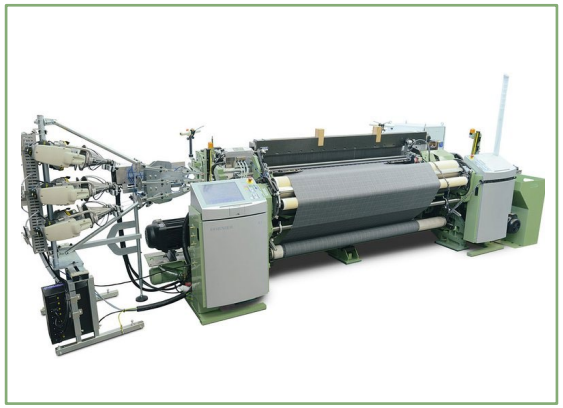
**Sales and service companies**

- American DORNIER Machinery Corporation
- DORNIER Machinery (Shanghai) Co. Ltd.
- DORNIER Machinery India Private Limited
- DORNIER Makina Ltd. Sti.

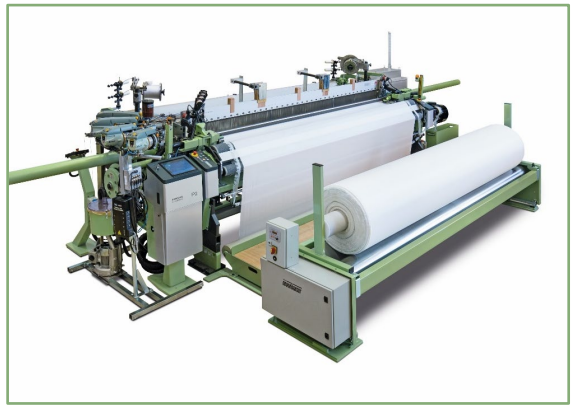


# Divisions of the Lindauer DORNIER GmbH

## Weaving Machines

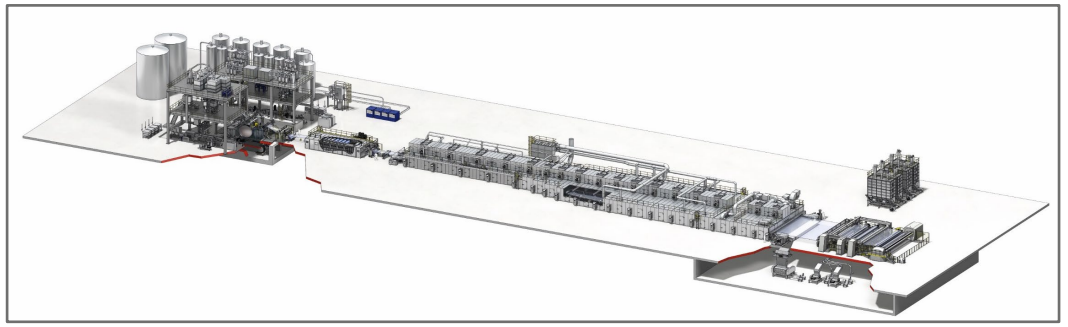


Air-jet Weaving Machines



Rapier Weaving Machines

## Specialty Machines



Film Stretching Lines

## DORNIER Composite Systems®

# Our Technology Center

**Function of the department**

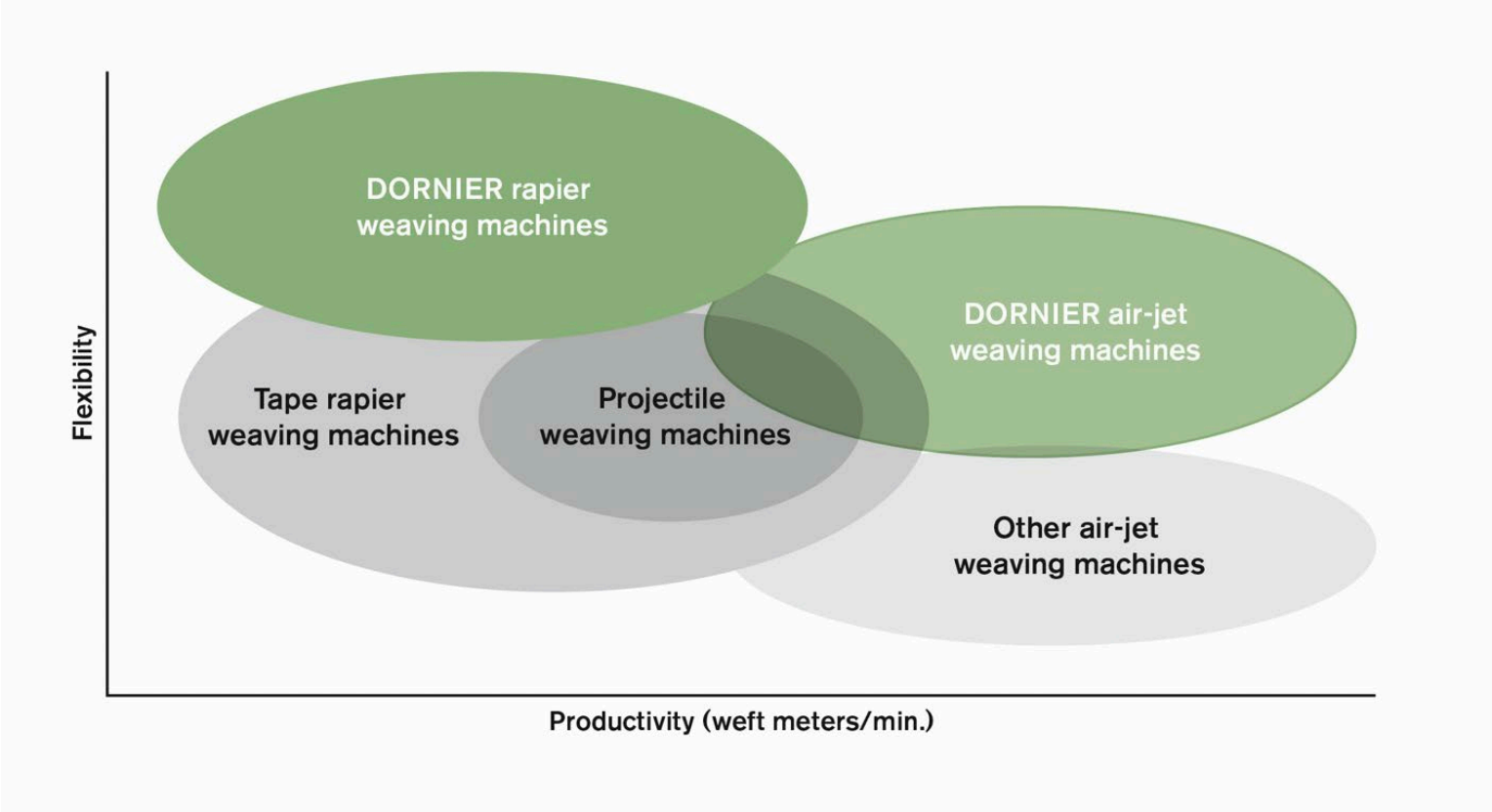
- Weaving trials
- Weft trials
- Trialmachines at customer
- Exhibitions
- Development/Application testing
- Sales support

# Flexibility and effectiveness for sustainable denim production and more

Requirements from the market:

**Flexibility, effectiveness, sustainability**

- Especially from the denim sector: we receive more and more enquiries for article combinations of cotton, elastic, linen, recycled and effect materials, yarns



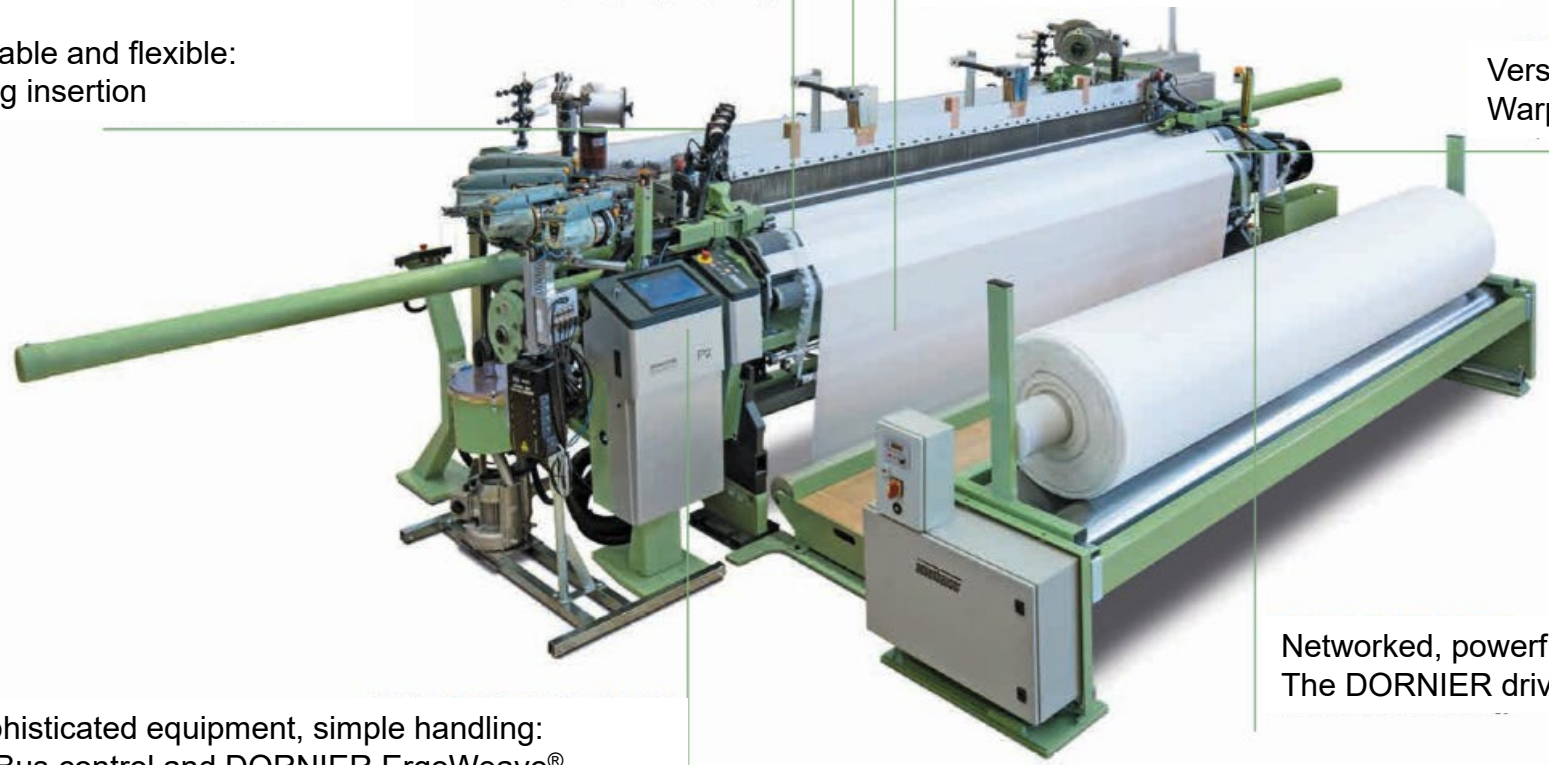
# The DORNIER Rapier Weaving Machine P2

Optimized shed geometry

A seal of quality: The selvedge

Precise and stable:
From the center of the machine

Efficient, reliable and flexible:
Positive filling insertion

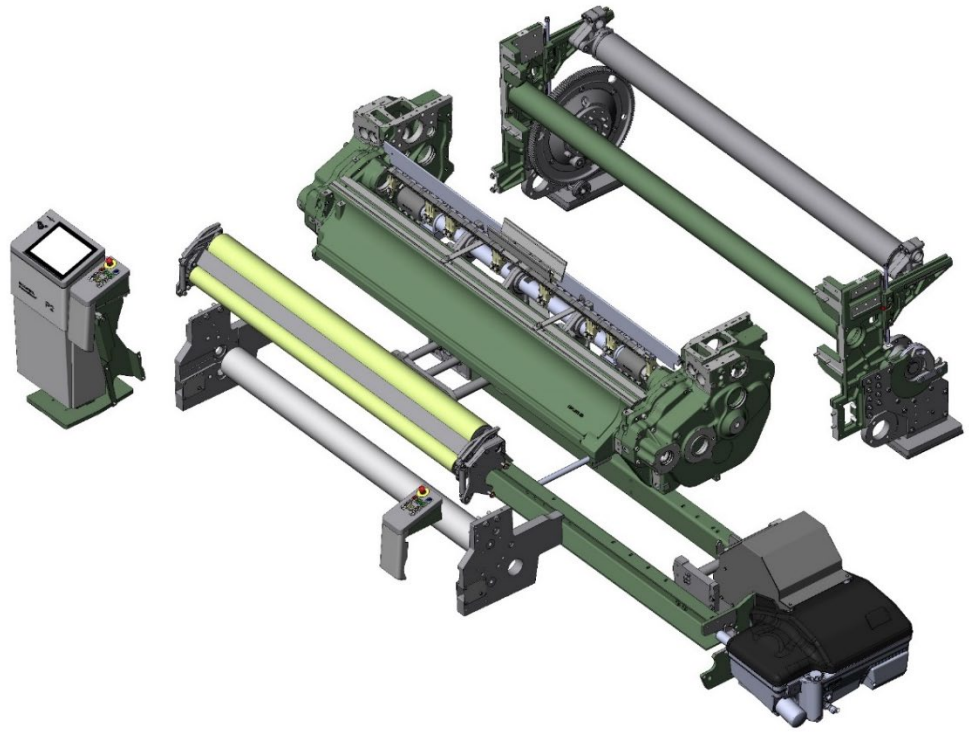


Versatile and gentle:
Warp and fabric movement

Networked, powerful and fast:
The DORNIER drive technology

Sophisticated equipment, simple handling:
FT-Bus control and DORNIER ErgoWeave®

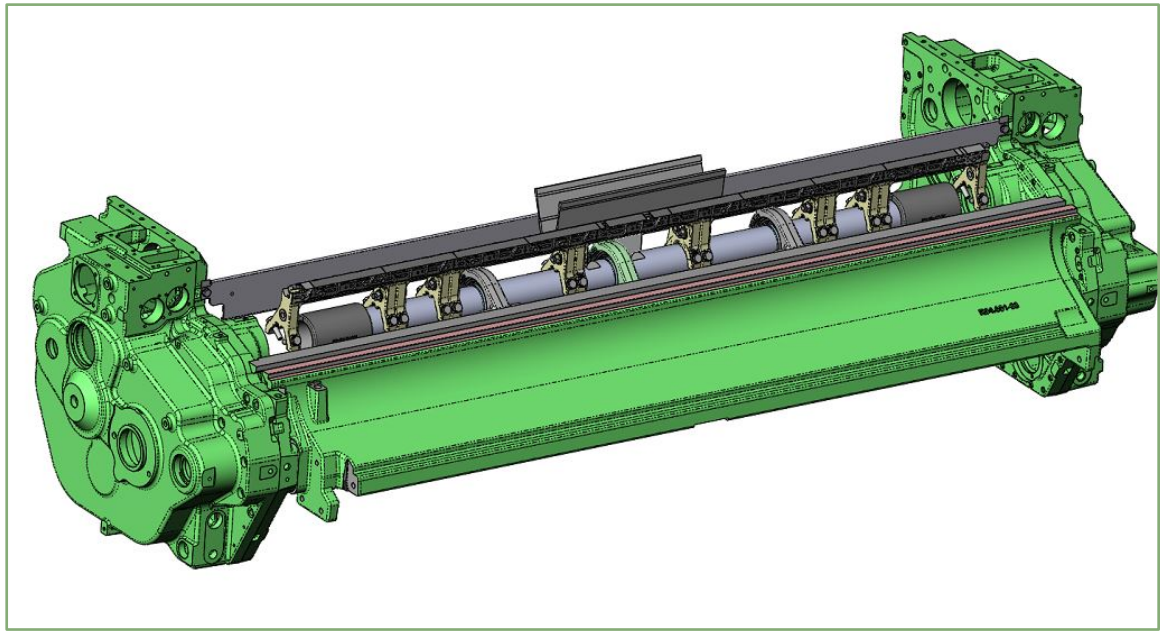
# The DORNIER Rapier Weaving Machine P2



**Modular construction**

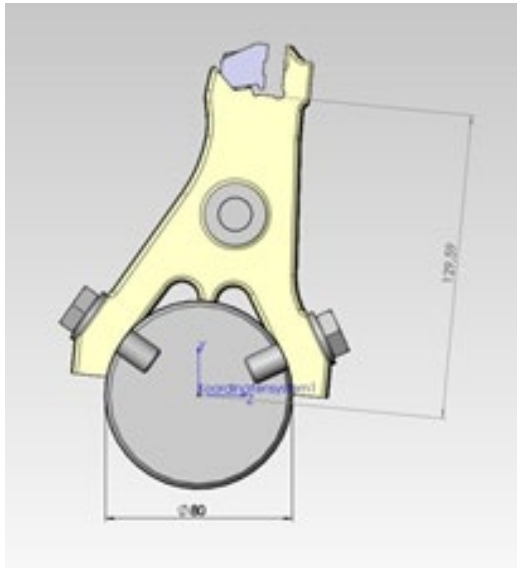
1. Operator control module
2. Center module
3. Shed module
4. Warp module
5. Take-up module
6. Winding module

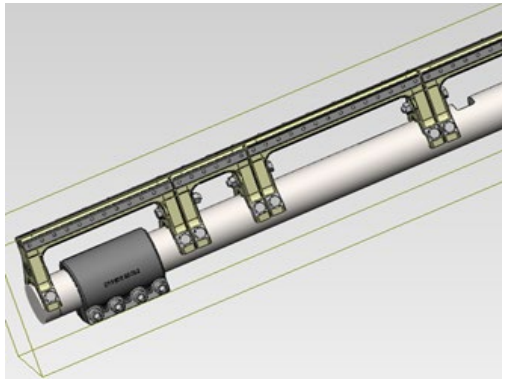
# Center module



- 75 % more rigid central frame structure
- Ensures optimum flow of forces

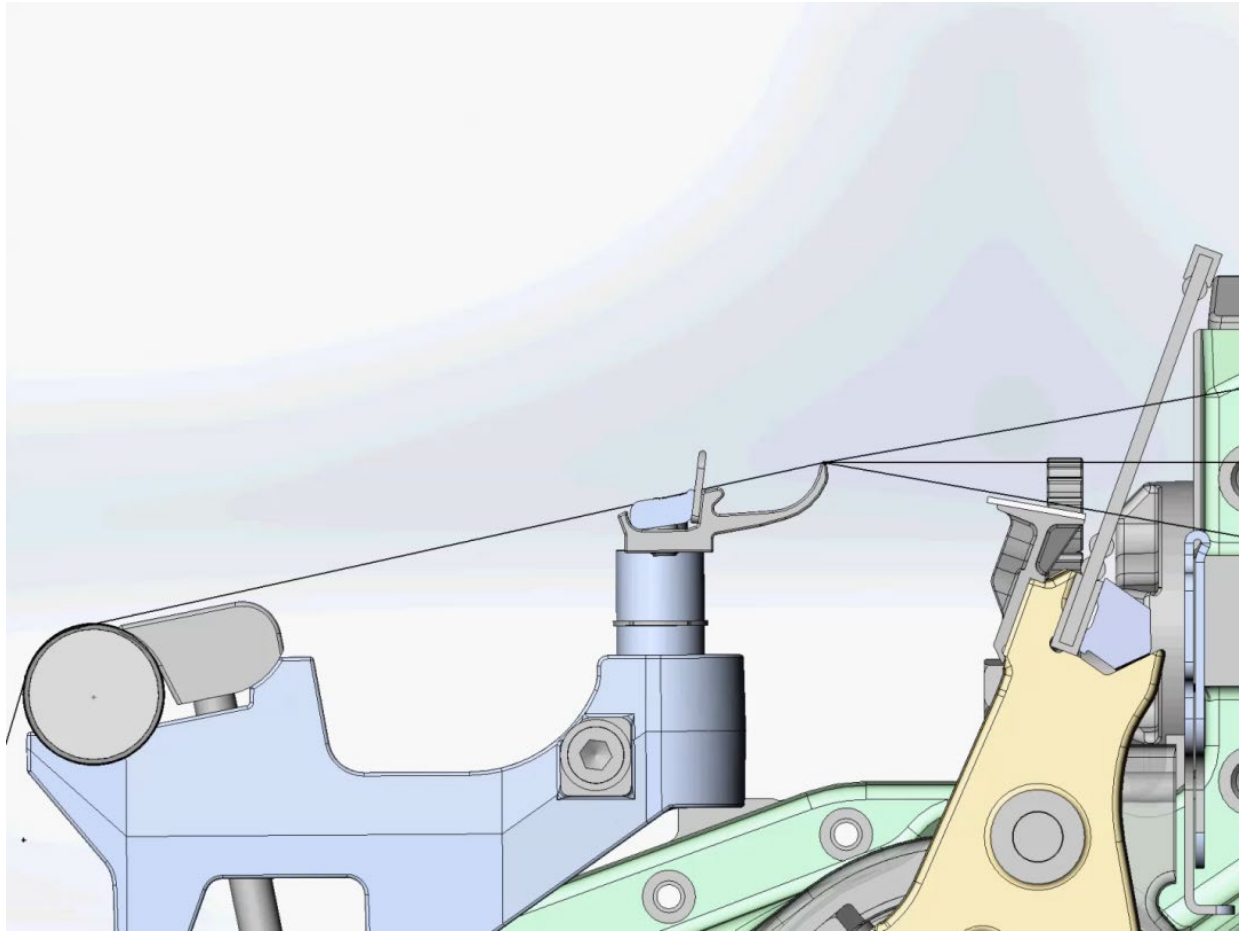
# Reed support





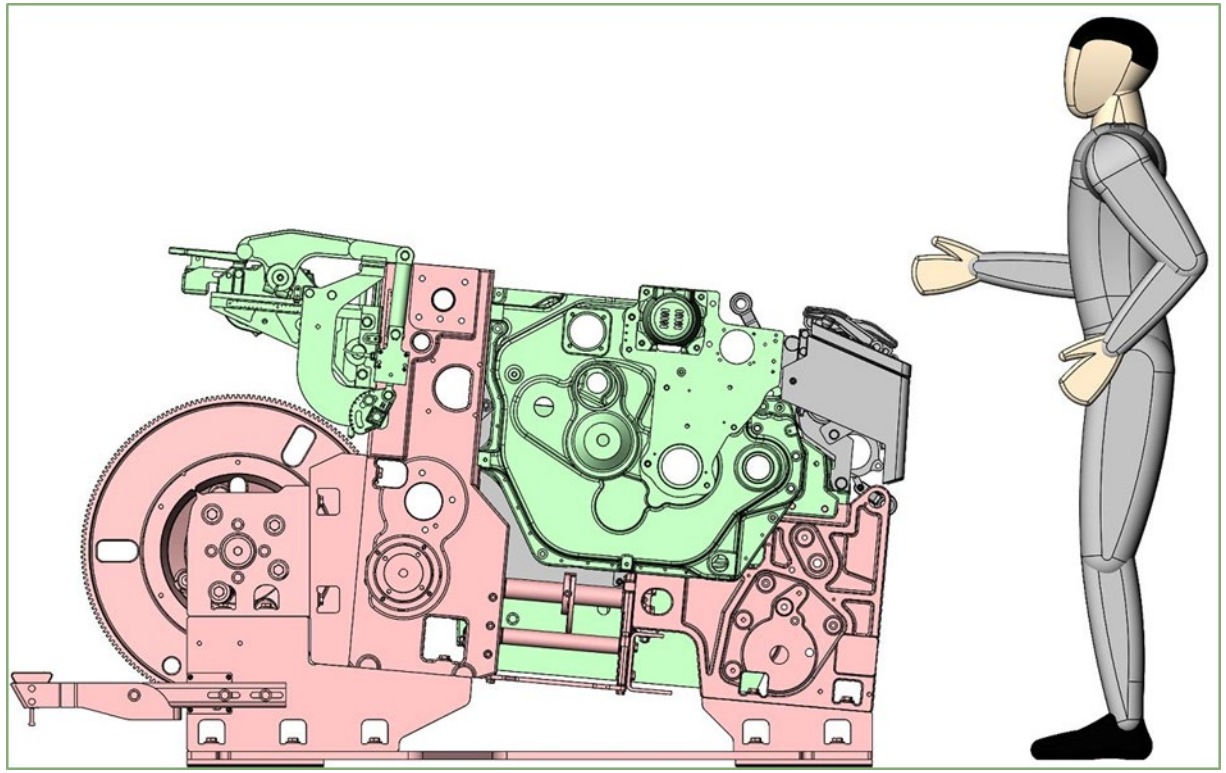
- Fabric quality increased: because of higher stiffness of the reed shaft
- The P2 reed shaft is in the diameter stronger instead of the P1
- Torsion stiffness increased by 50%
- Better start-mark prevention

# Shed geometry



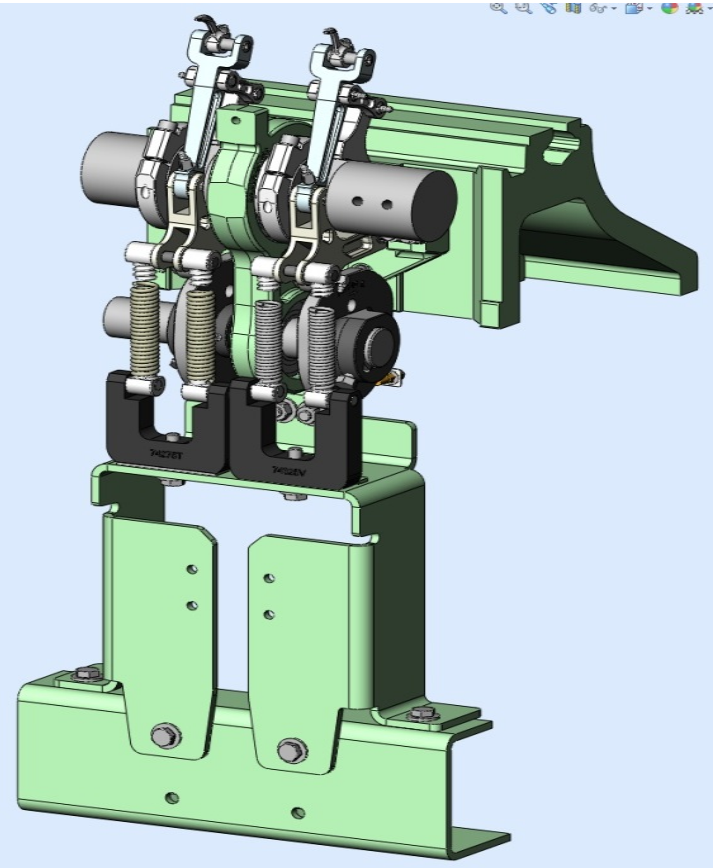
- Reed beat-up angle close to 90°

# Modular machine concept



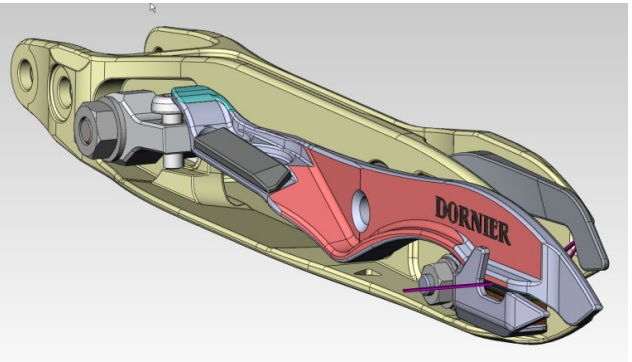
- Reduced machine depth
- Reduced machine height
- = better handling

# Positive filling insertion



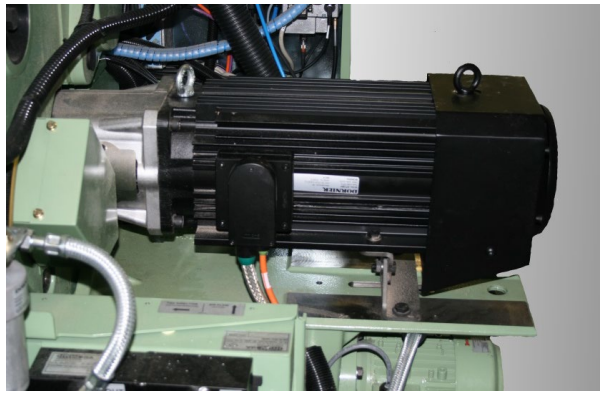
**Positive center transfer**

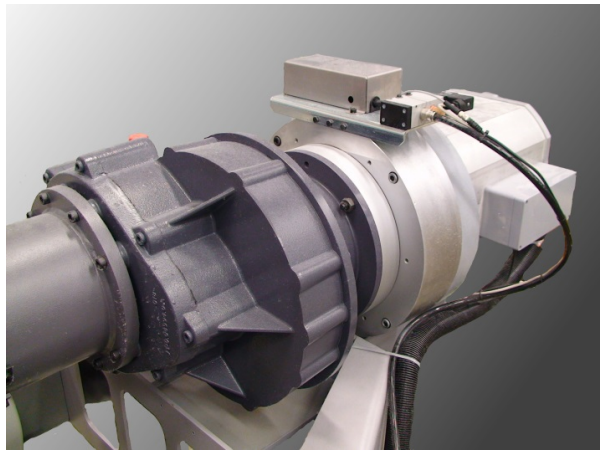
- Similar to passing the baton in a relay race
- Linear movement of the release levers
- Reduced pressure applied by the rapier head to the reed and to the rapier guide lining



# Positive filling insertion

# The drive technology

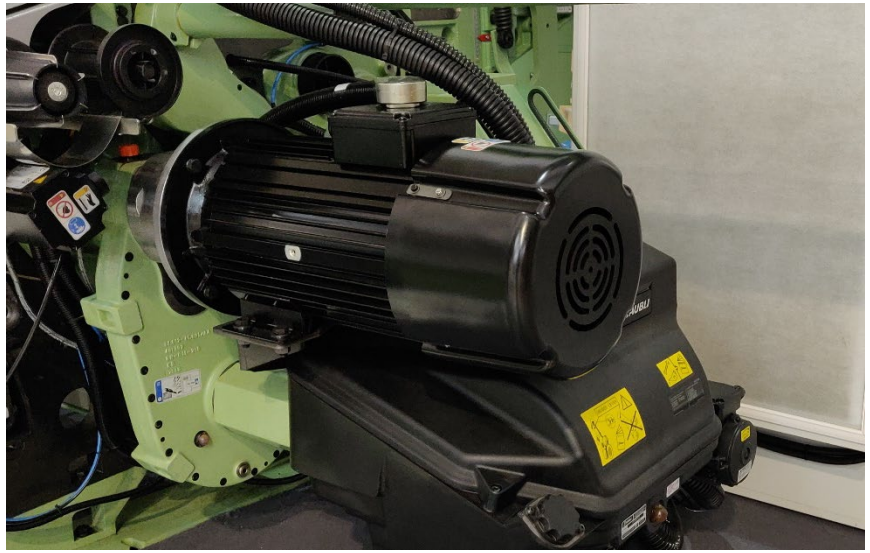




**DORNIER Patent SyncroDrive®**

- Low-maintenance drive system without clutch-brake unit, with a separate motor for the shedding device
- Intelligent drive concept presents extremely low speed fluctuations
- Timing of shed closing is electronically adjustable during full speed operation
- Memorized with the article data and thus reproducible anytime

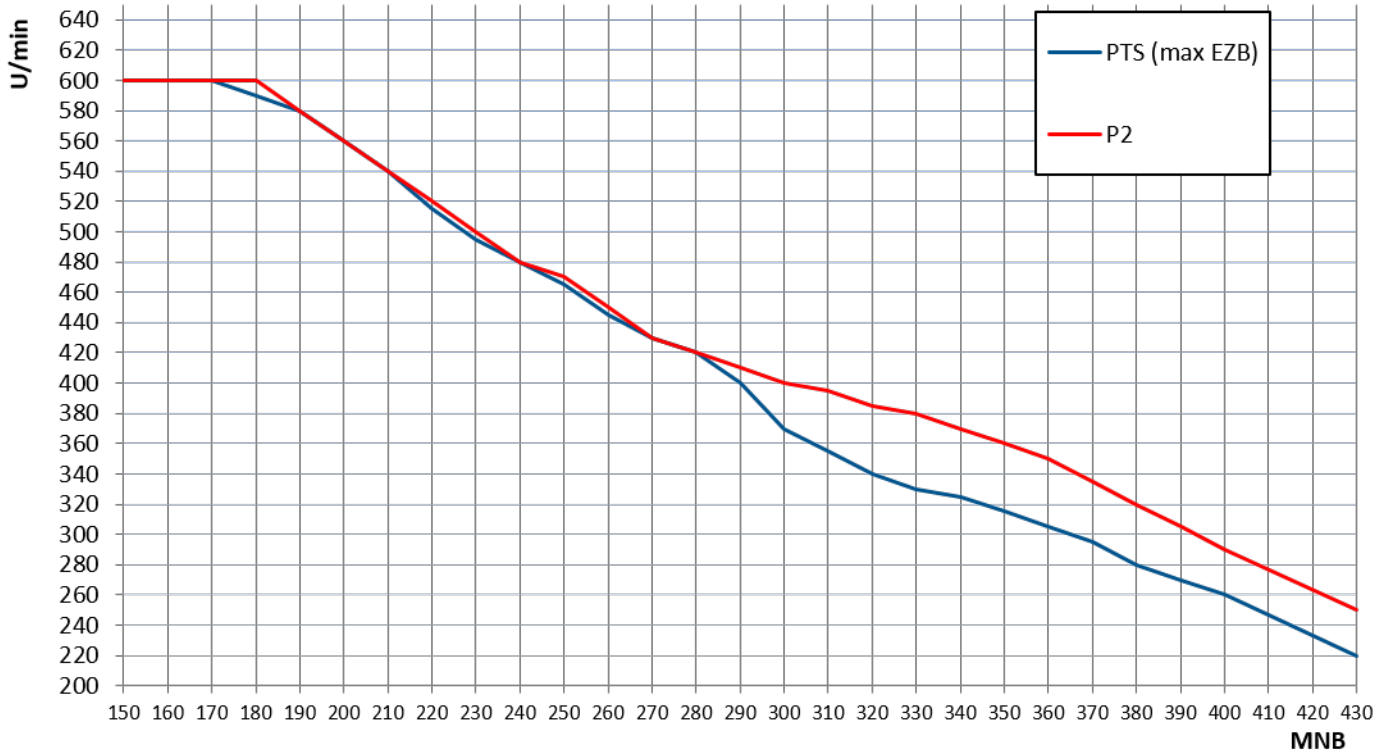
# The drive technology



**DirectDrive**

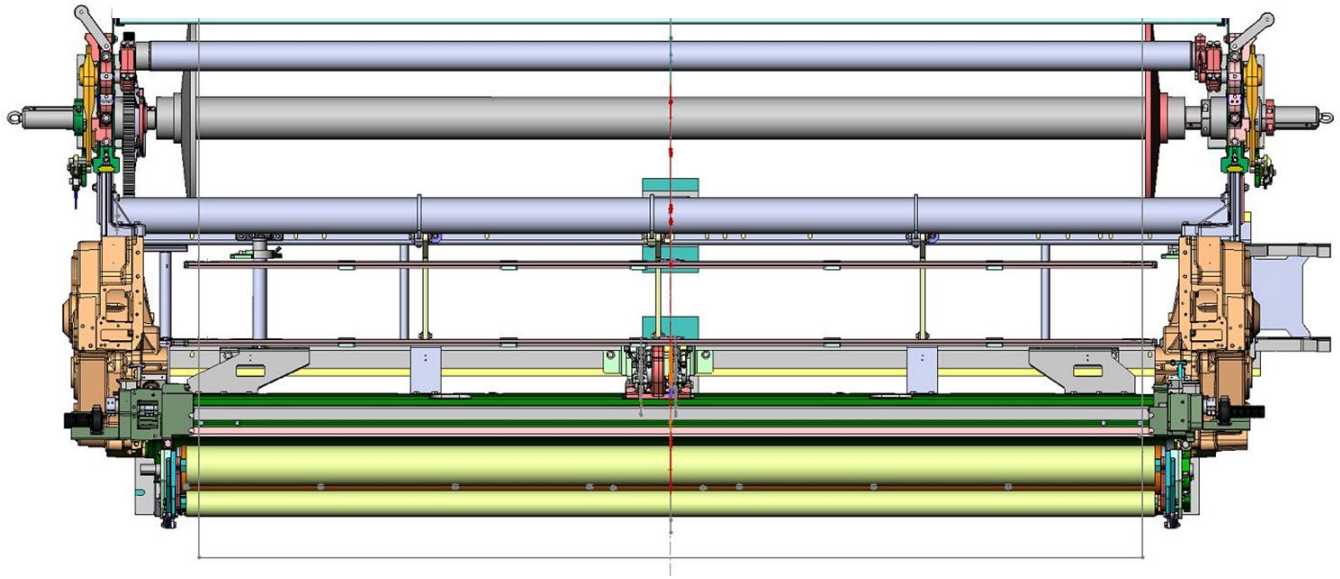
- Represents a reliable and low-maintenance drive concept – without clutch-brake unit
- Lowers the staff workload through reduced set-up times
- Highly dynamic synchronous motor serves as main drive, providing unsurpassed precision for start mark prevention

# Performance: Increased speed – pilot series



# Performance: Drawin width

**Center of the machine = Center of the fabric**



Drawin width = MNB – 30
*(P1 / PTS = MNB – 85)*
*55mm gain*

# Dialog Panel

- More space in front of the machine
- Positioning CUA sideways possible

**DORNIER ErgoWeave®**

- Personalized clear menu structured interface, easy-to-operate touchscreen

**Fast-Ethernet-Technology control system**

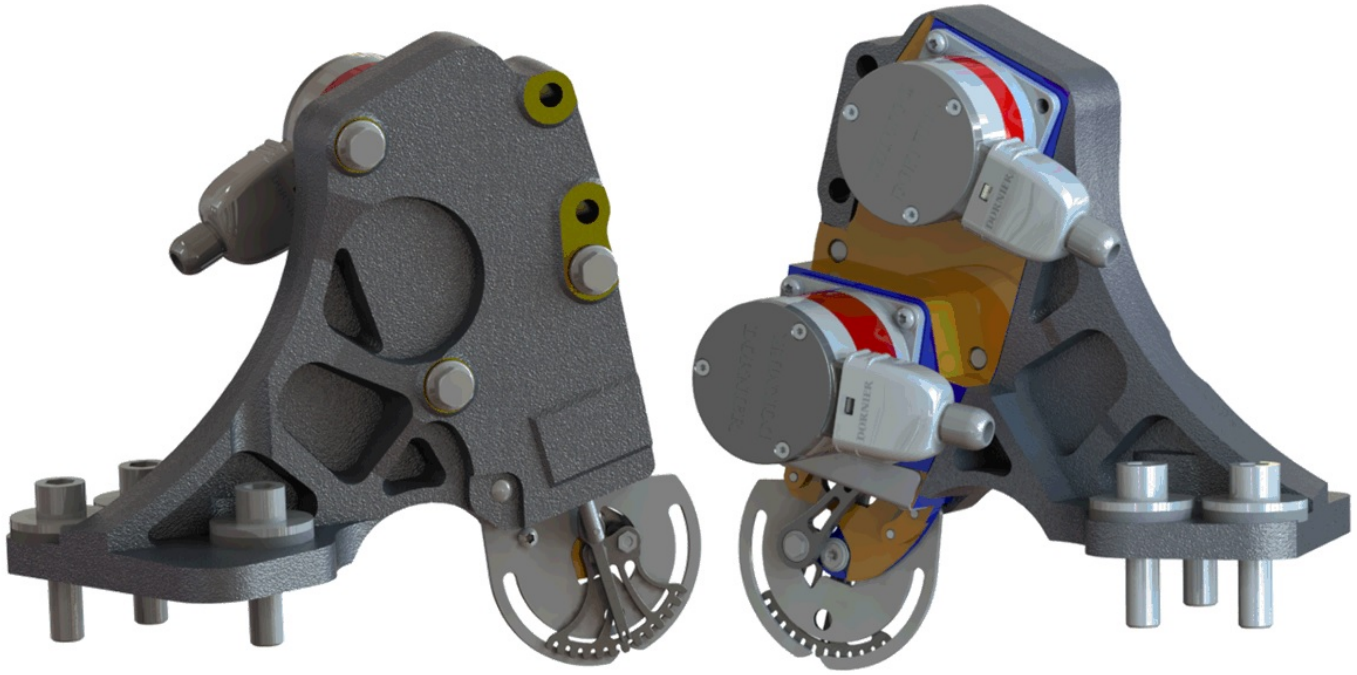
- Reliable transfer of large data volumes in real time
- Less downtime and easier machine handling
- Online documentation and machine data exchange

# Machine types

| | Type | TKN/TGN | TGV | TGP |
|---|---|---|---|---|
| **Warp let-off** | | | | |
| Ground warp beam | max. [kN] | 17 | 27 | 30 |
| Top warp beam | max. [kN] | 9 | 15 | 20 |
| Ground + top beam | max. [kN] | 22 | 37 | 50 |
| **Reed beat-up force** | | | | |
| | max. [kN] | 23 | 37 | 50 |
| | + 10 % tolerance | | 40,7 | 55 |
| Sensor | | No | Yes | Yes |
| **Cloth take-up** | | | | |
| | max. [kN] | 23 | 37 | 50 |

# New developments: DORNIER DisCoS® (DCS)

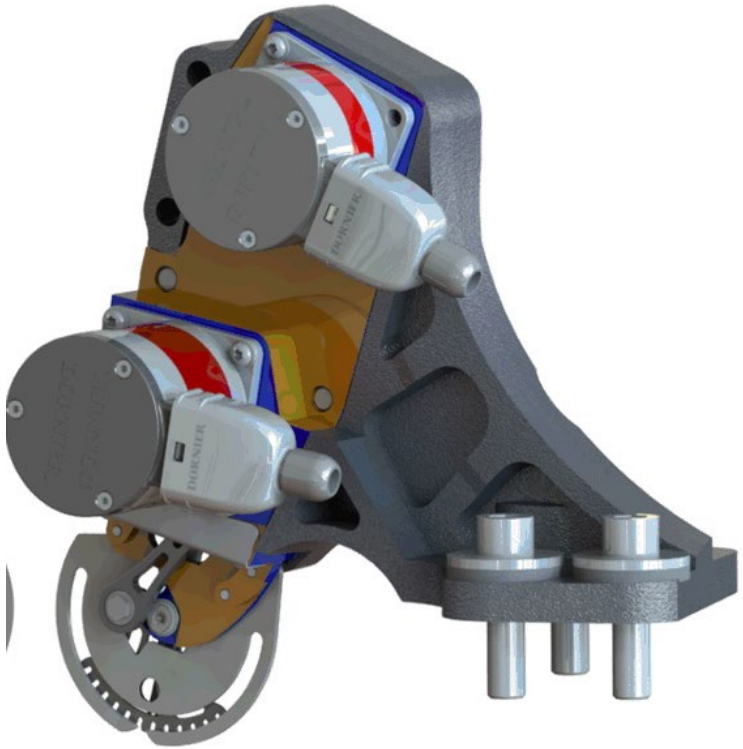
**DisCoS® – new Colorselector System with an point presentation**



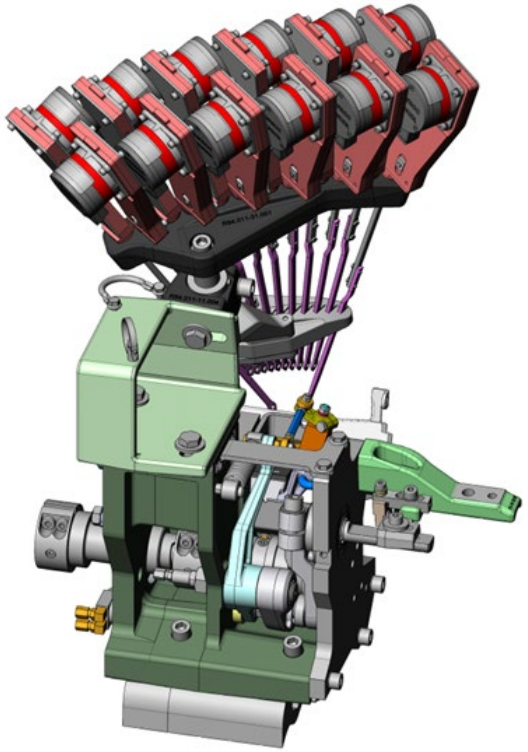
# DORNIER DisCoS®


- **D**(ornier) **C**(olor) **S**(elector)
- Selector and feed system
- Up to 16 colors
- Point-weft-presentation
- Lower rapier speed during thread take-up
- Tool-free working, without draw-in hooks
- Guided draw-in after weft break
- Fixed mounting position, no adjustments
- Settabel motion profiles via DoXWeave dialog panel
- Time-saving in case of weft break

# DisCoS®

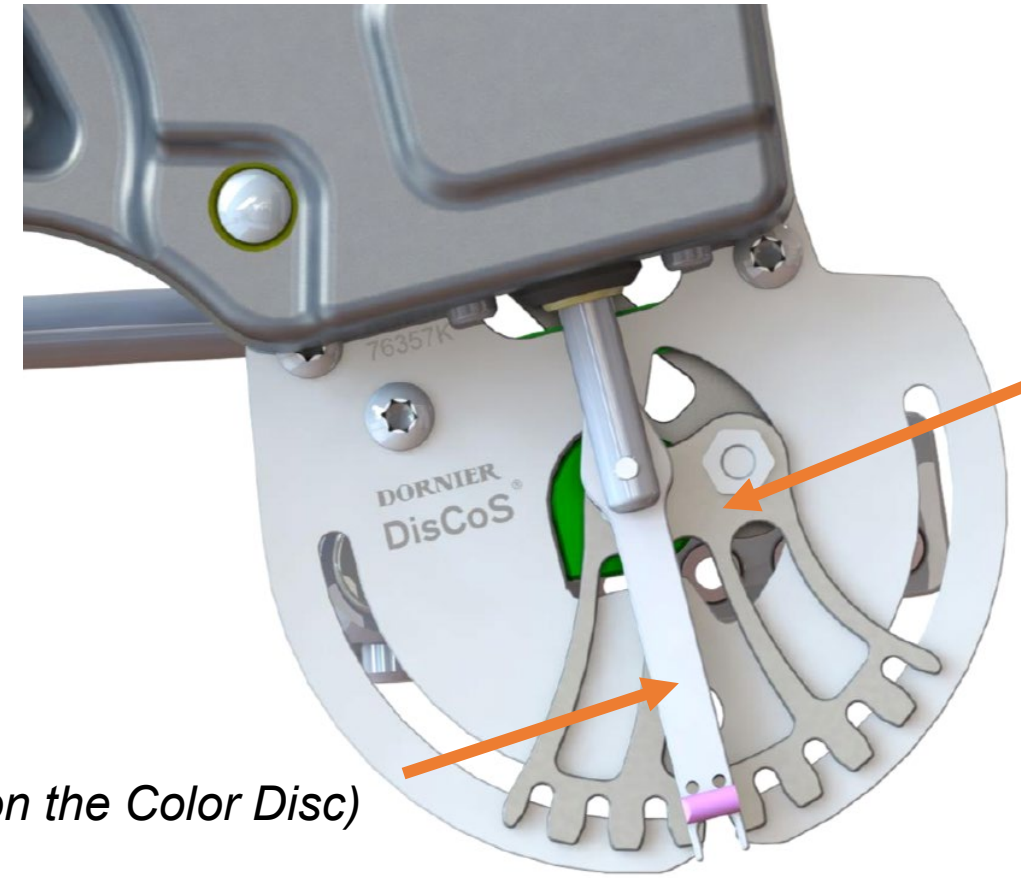


DisCoS®



Color Selectors

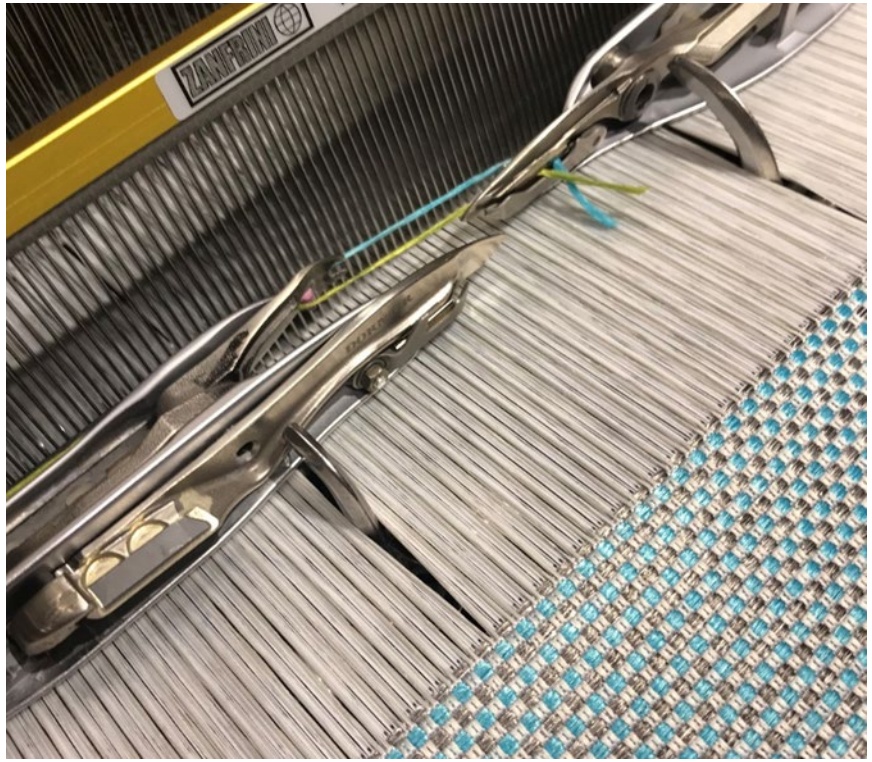
# DisCoS®




Color Disc
*(4 / 8 / 12 / 16 Colors)*

Presentation needle
*(Different sizes depending on the Color Disc)*

# DORNIER DoPPIO®



- **Do**(uble)**P**(ick)**P**(arallel)**I**(nsertion)**O**(peration)
- Double weft rapier heads with free color transfer and parallel weft insertion
- Reduced take-off speed weft bobbins
- Longer running time, as all bobbins are used consistently
- Time-saving in case of weft break
- Easier handling after weft break
- Weaving with APS function
- Knot-free weaving

# Comparison of rapier heads

| Type | HS3 / PA3 | Panama | DoPPIO |
|---|---|---|---|
| Double Pick | ✓ | ✓ | ✓ |
| - Parallel weft insertion | ✗ | ✓ | ✓ |
| - Free color presentation | ✓ | ✗ | ✓ |
| Separated thread take-up | ✗ | ✗ | ✓ |
| Separate center transfer | ✗ | ✓ | ✓ |
| Max. Colors | 2 - 16 | 4 | 8 |
| Over-Stroke | 96mm – 140mm | 140mm | 96mm |

# Summary

With a DORNIER Rapier Weaving Machine you are flexibly prepared for the future on changing markets.

Thank you for your attention