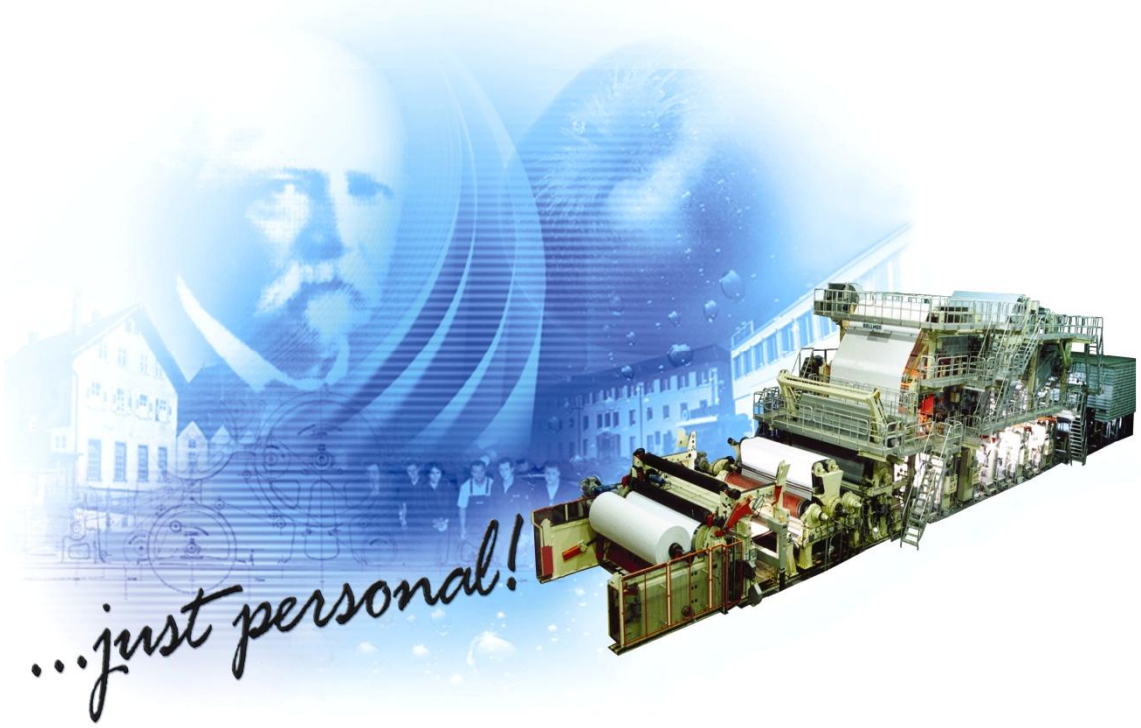
17th Day of Slovene Paper Industry
21. – 22.11.2013

Modernisation of a testliner production



The following 25 minutes...

- **Design finding & determination**
- **Sheet formation**
- **Runnability**
- **Energy saving**
- **Specific requirements**

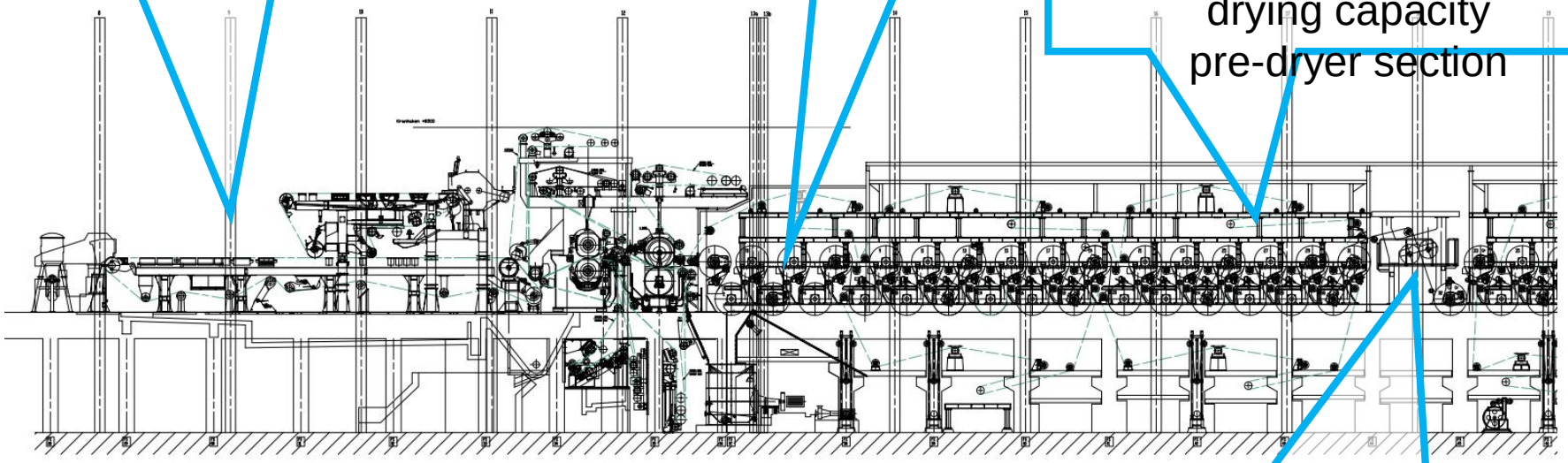
Production data PM

Program:	Testliner, Fluting
Basis weight range	100 – 300 g/m²
Raw stock	100 % waste paper
Future max. production speed	max. 1.000 m/min @ 100 g/m²
Increase of production	30 - 60 % subject to grammage
Design speed	1,000 m/min for the new parts
Wire width	4,700 mm
Operating width of reeler	4,370 mm untrimmed
Production volume	227,000 t/a net

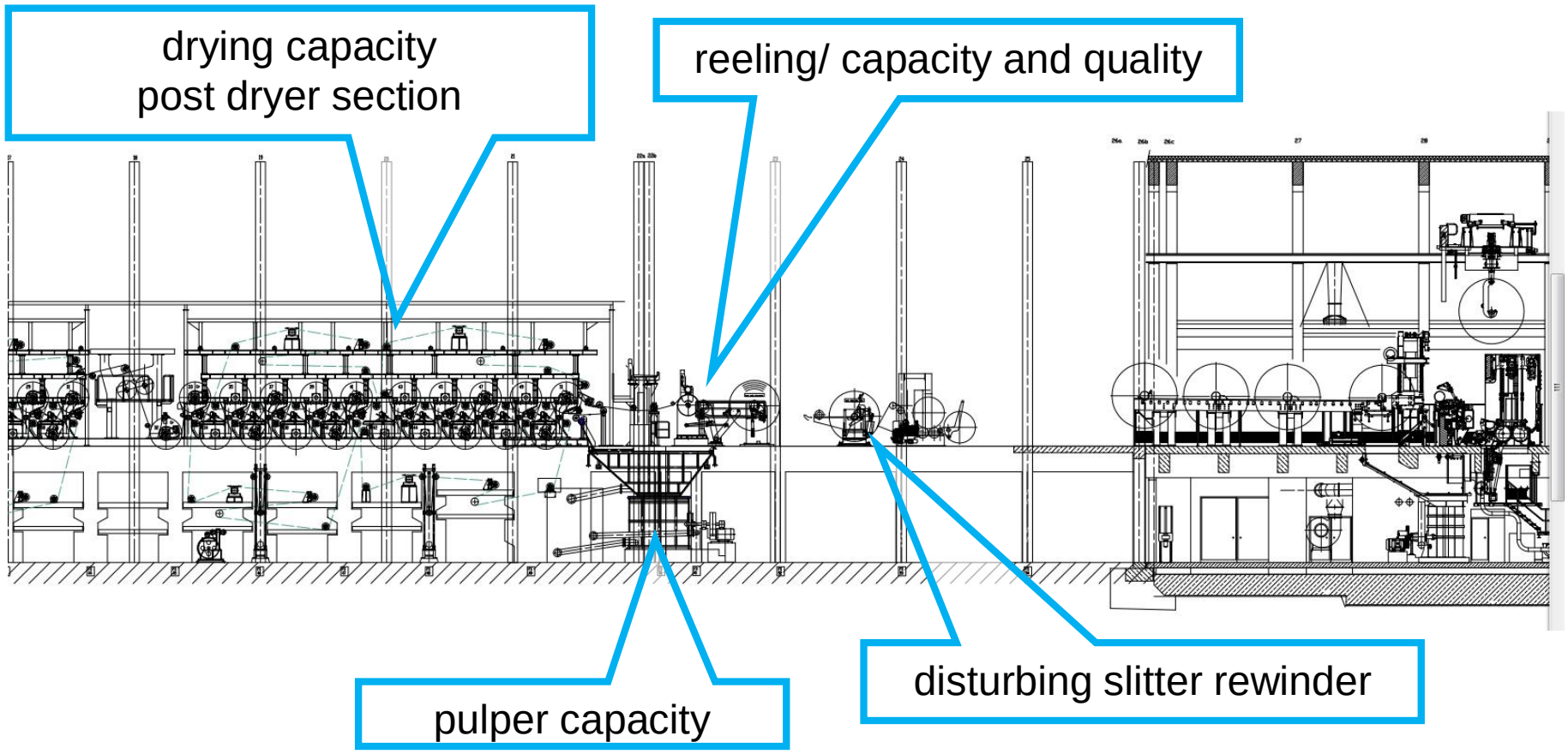
Main targets of the rebuild:

- ►Quality improvement
- ►Increase of production volume
- ►Flexible operation

Original machine configuration bottle necks



Original machine configuration bottle necks



Design finding & determination

High demands on rebuilt PM:

- **Sufficient dewatering capacity of wire sections upon keeping/improvement of quality**
- **Stable web running in pre-dryer section at high speed**
- **Fast transfer (ropeless system, pulper)**
- **High speed sizing with film press**
- **Evaporative capacity pre-dryer & post dryer sections has to be sufficient**
- **Suitability of existing components for new speed**
- **High reeling quality**

Modernisation of a testliner production

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Machine configuration after rebuild, wire section

Situation of existing headbox before modernisation

Situation of existing headbox after modernisation

Modernisation of a testliner production

- Design finding & determination
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- **Runnability**
- Energy saving
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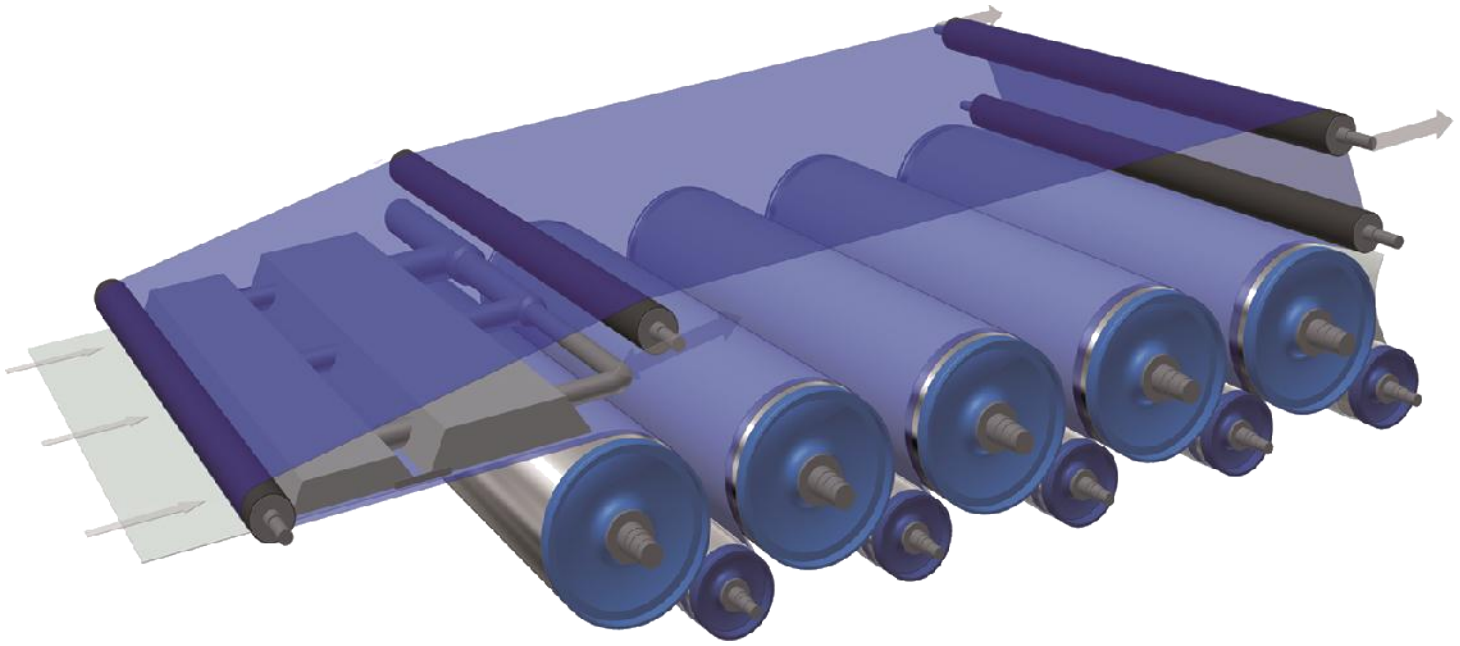
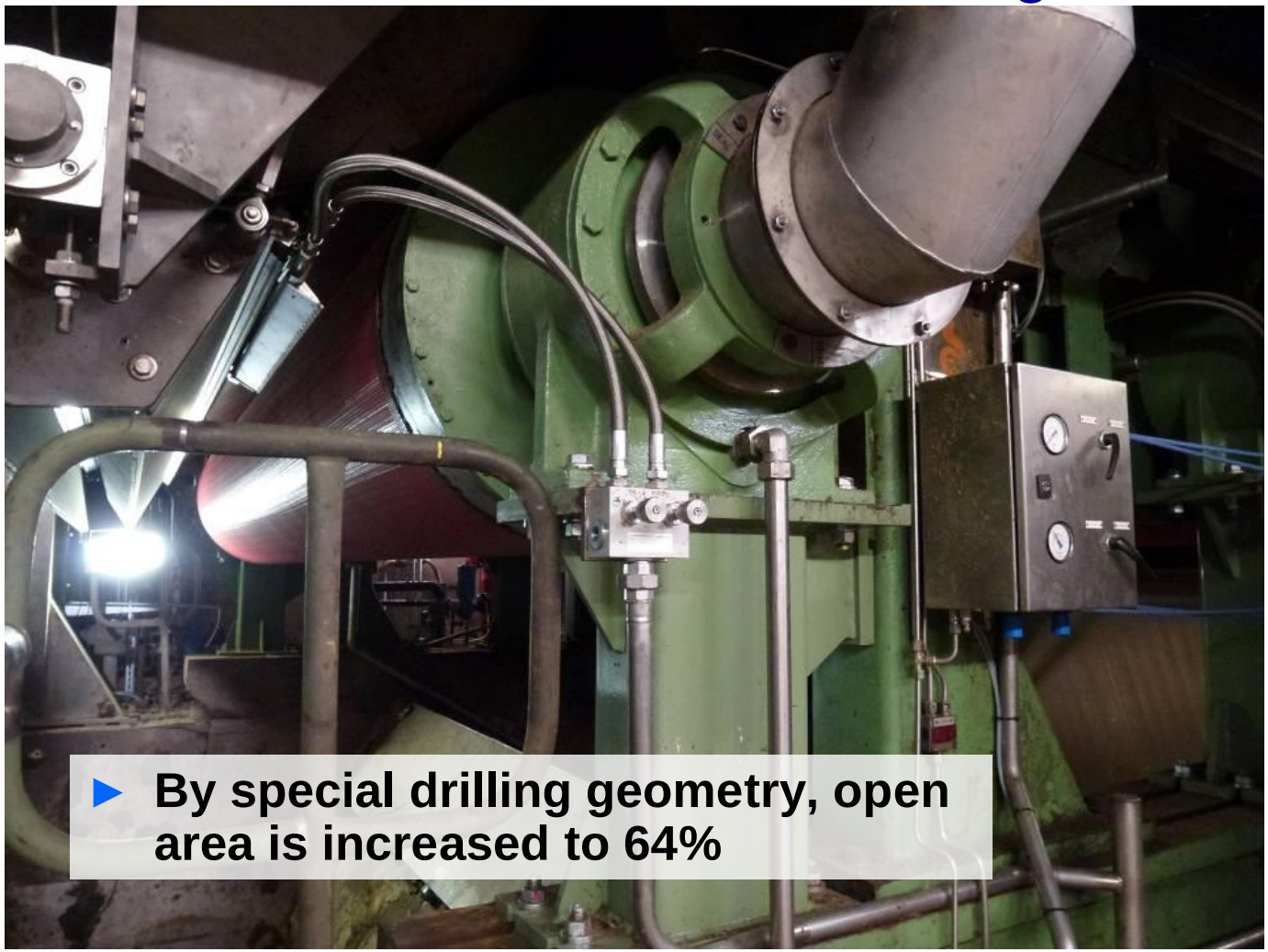
One-row dryer system TURBODrying™ with vacuum rolls



- **One-row dryer section design**
- **Vacuum rolls instead of drying cylinders**
- **Minimum open draw and high web running stability**

New vacuum roll
drilled rotating shell

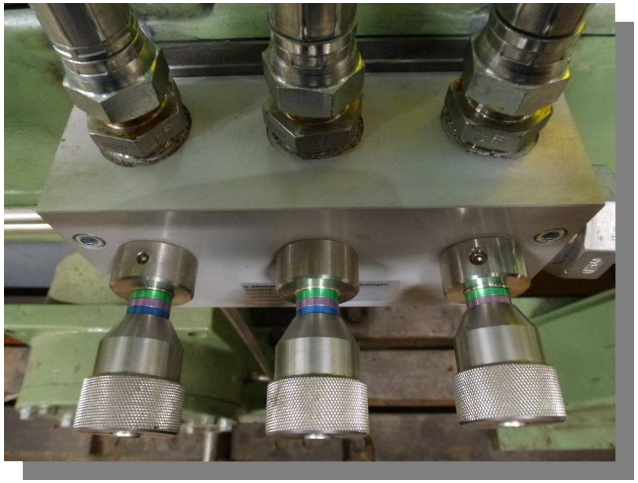


- **By special drilling geometry, open area is increased to 64%**

Additional pre-dryer group

- **Web stabilizers in the pre-dryer section**
- **Ropeless transfer**

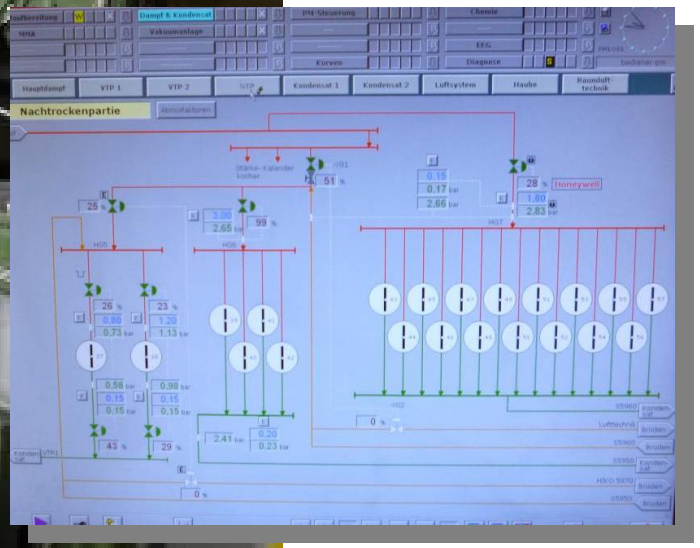
Ropeless tail threading
BELLMER BLowFeed™



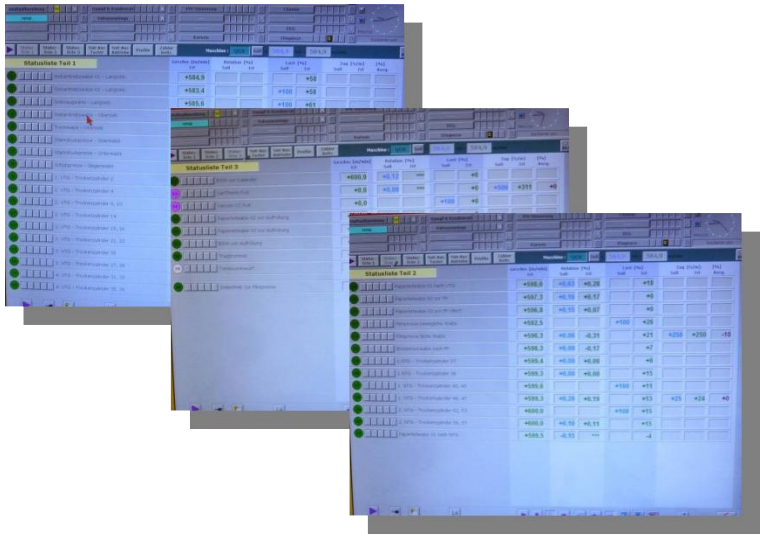
Machine configuration after rebuild, TURBOReeler™

- Reeling diameter 3,200 mm
- Better reeling quality
- Less changes
- Less rejects

Extension of steam & condensate system

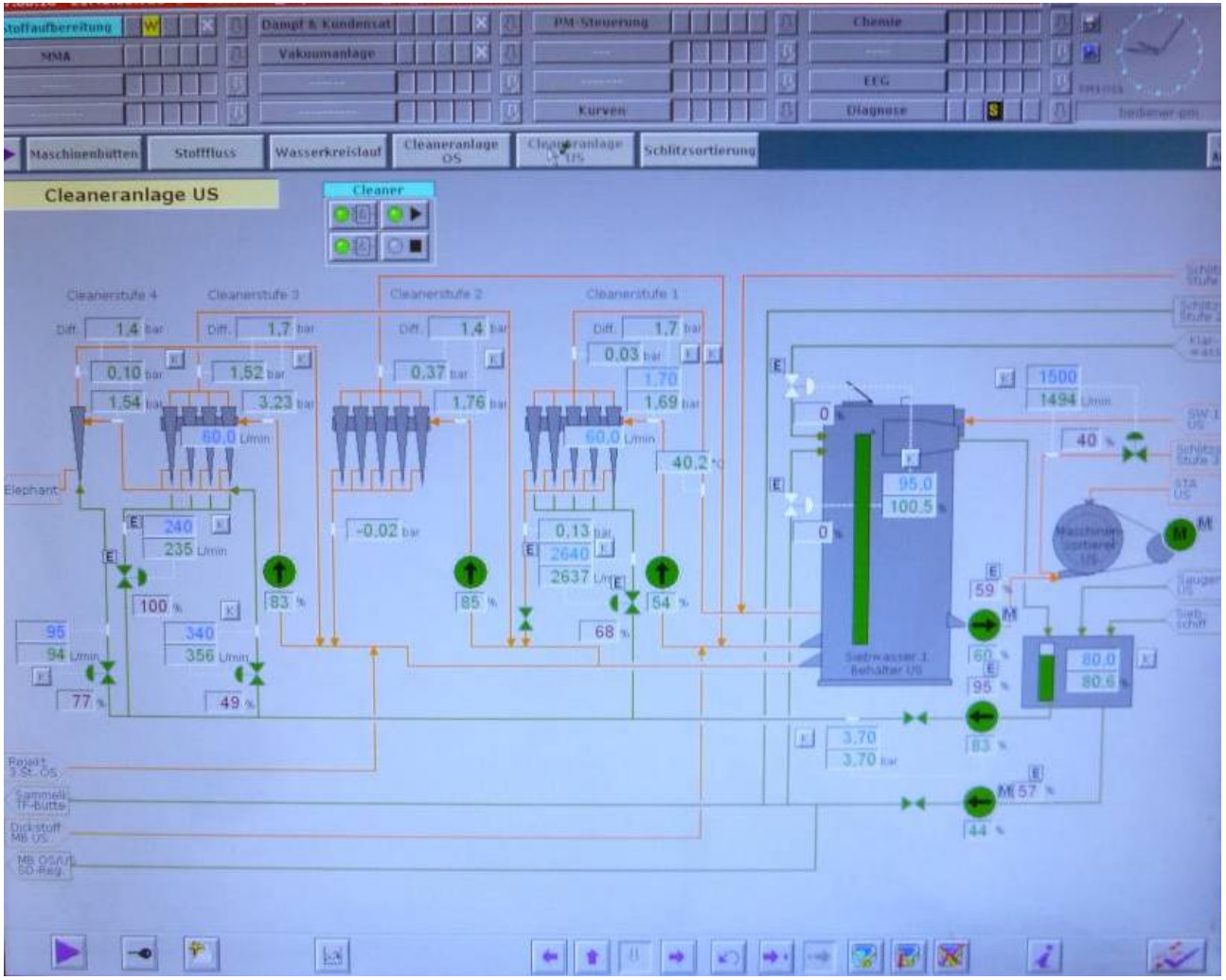


Complete new multi-motor drive



New mechanical drive

Extension of PCS



Machine configuration after rebuild, further components

- **Extension of vacuum system including field piping**
- **> 100 new dry wire guide rolls**
- **Extension of central oil lubrication system**

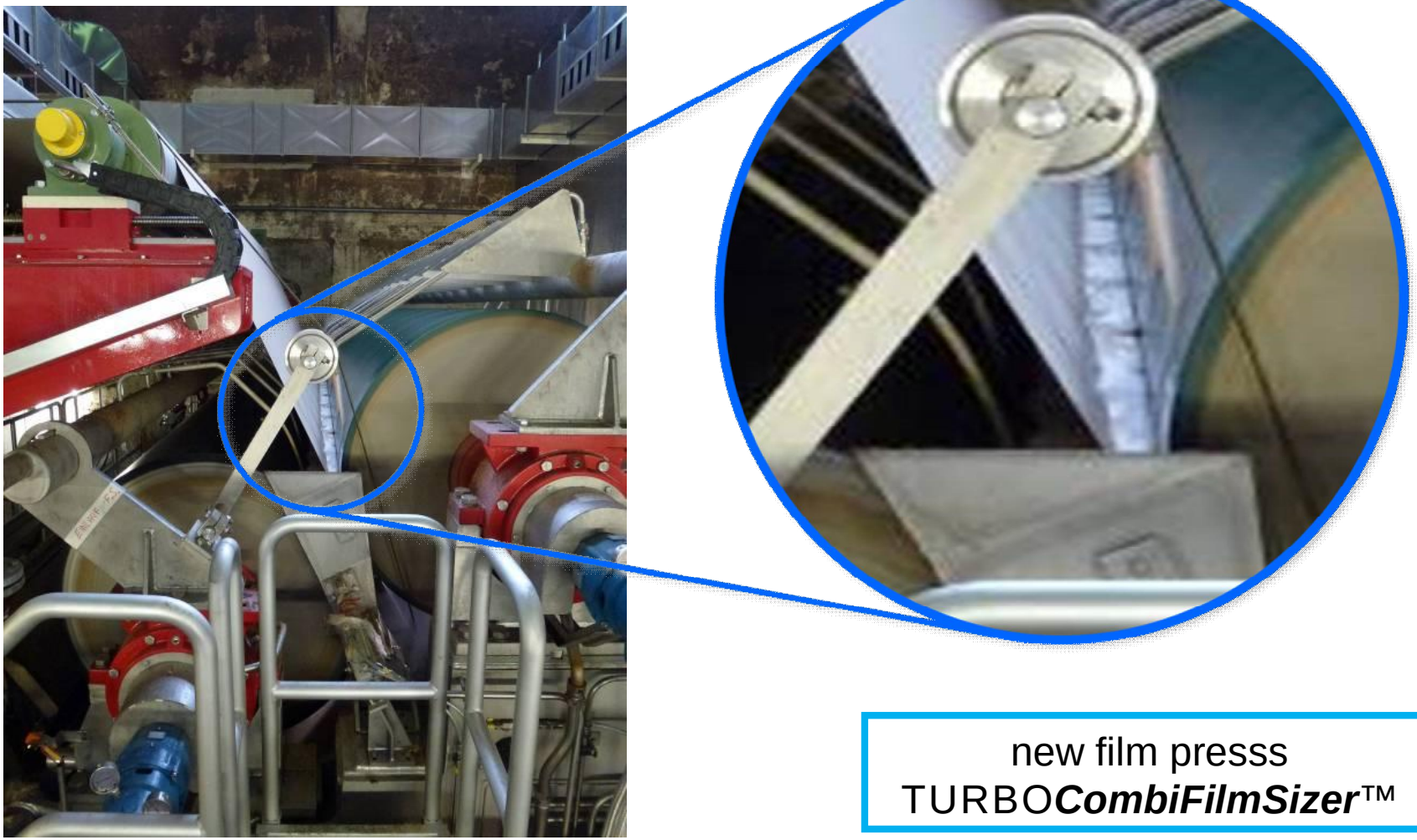
Modernisation of a testliner production

- Design finding & determination
- Sheet formation
- Runnability
- **Energy saving**
- Specific requirements

Machine configuration after modernisation with film press

New film press
TURBO***CombiFilmSizer***™

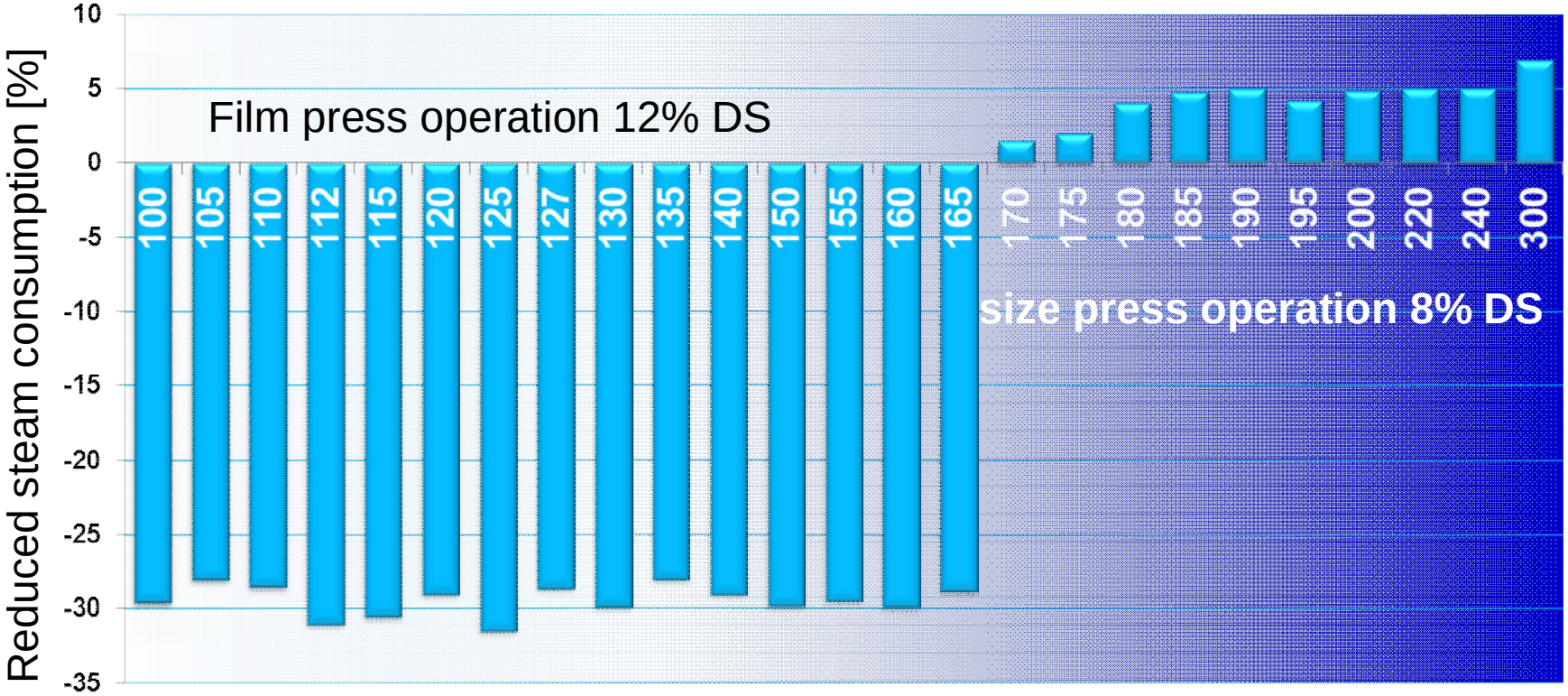
Size press operation for special products



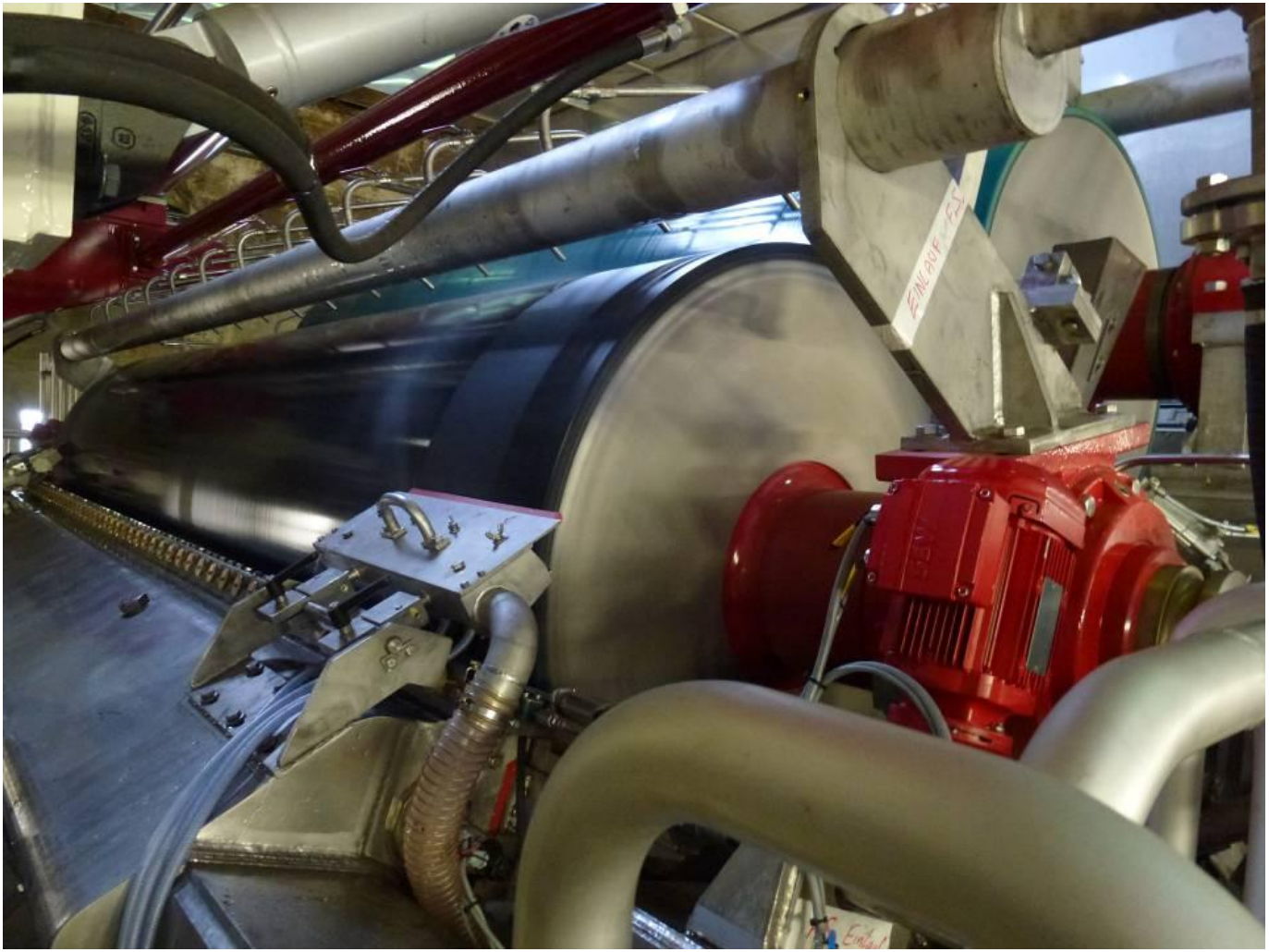
new film presss
TURBO***CombiFilmSizer***™

Energy saving

Reduced steam consumption in post dryer section with TurboFilmSizer, starch application 3-5 g/m² in total



TURBO*CombiFilmSizer*™ in operation



Machine configuration
after rebuild, post dryer section

- **New hood with strong insulation for high dew point**

Machine configuration
after rebuild, post dryer section

- **New air technology**

Machine configuration
after rebuild, post dryer section

- **Adapted air technology**
- **Water recovery (partly)**

Modernisation of a testliner production

- **Design finding and determination**
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Size press operation for special products

Special products require high penetration:

- Grade A — Basis weight 140 g/m²
- Grade B — Basis weight 190 g/m²
- Grade C — Basis weight 240 g/m²

Starch preparation plant