TEXTILE

STÄUBLI

Weaving preparation at its best

Perfect start with Weaving Preparation Systems

Symposium, 25. – 26. April 2016





Agenda

Weaving preparation at its best

- **Short introduction to the Stäubli Group**
- Perfect start with Weaving Preparation Systems
  - Drawing-in machines
  - Leasing machines
  - Warp tying machines

Stäubli Group

- Technological solutions for a vast range of industries – **textile** machinery, industrial **connectors** and **robotics**
- A family owned industrial company which originated in **1892** in Switzerland
- Turnover surpassing one billion Swiss francs with **4'000 employees**
- Present across 5 continents with units in **25 countries**, agents in 50 countries

Stäubli Group

Three strong and globally active divisions

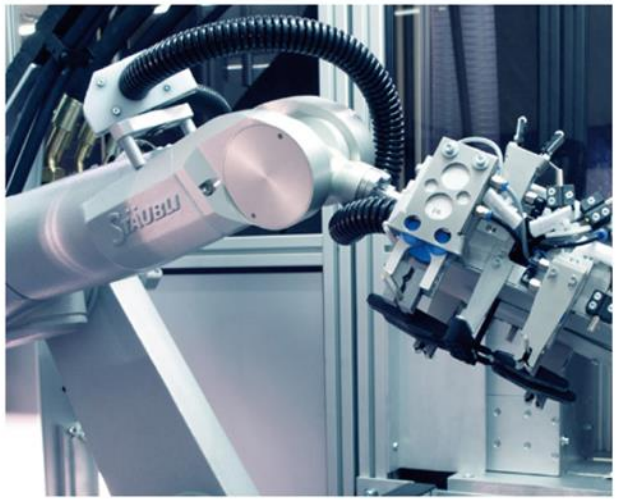
Textile

- Frame weaving
- Jacquard weaving
- Weaving preparation
- Carpet weaving
- Electronic controllers and drives

Connectors

- Fluid connectors
- Electrical connectors
- Tool changers
- Quick mold change systems

Robotics



- 4-axis SCARA robots and 6-axis robots
- Low, medium and heavy payload robots
- Controllers & software

Agenda

Weaving preparation at its best

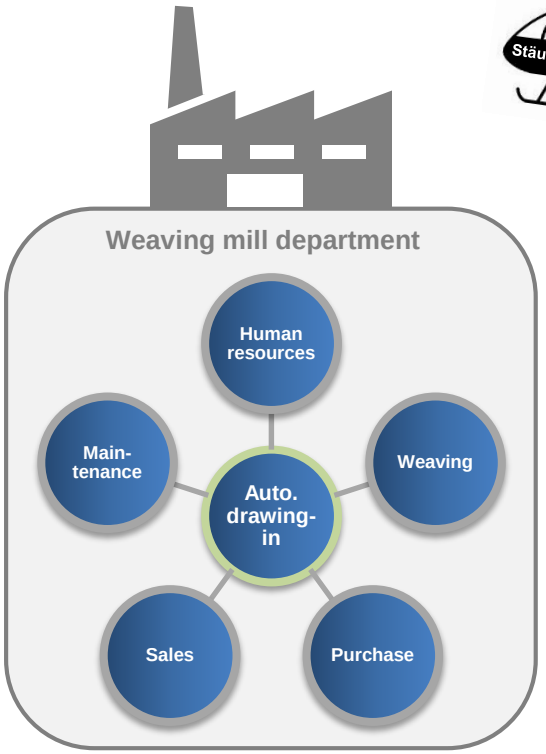
- Short introduction to the Stäubli Group
- **Perfect “weaving” starts with “a good warp”**
  - **Drawing-in machines**
  - **Leasing machines**
  - **Warp tying machines**

Weaving a good fabric

"Quality in : quality out!"

Economics

Automation is an investment …. not a cost!

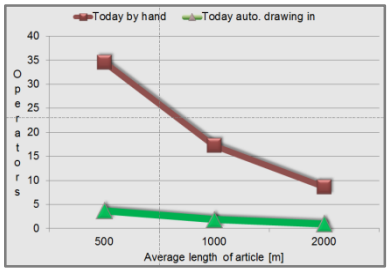


Helicopter view over entire enterprise

Reduction of unproductive working time

Unproductive working time is influenced by

1. Legal holidays
2. Organisation
3. Maintenance & repair
4. Setting-up time
5. Beam-, style changes
6. Running conditions (# end breaks)



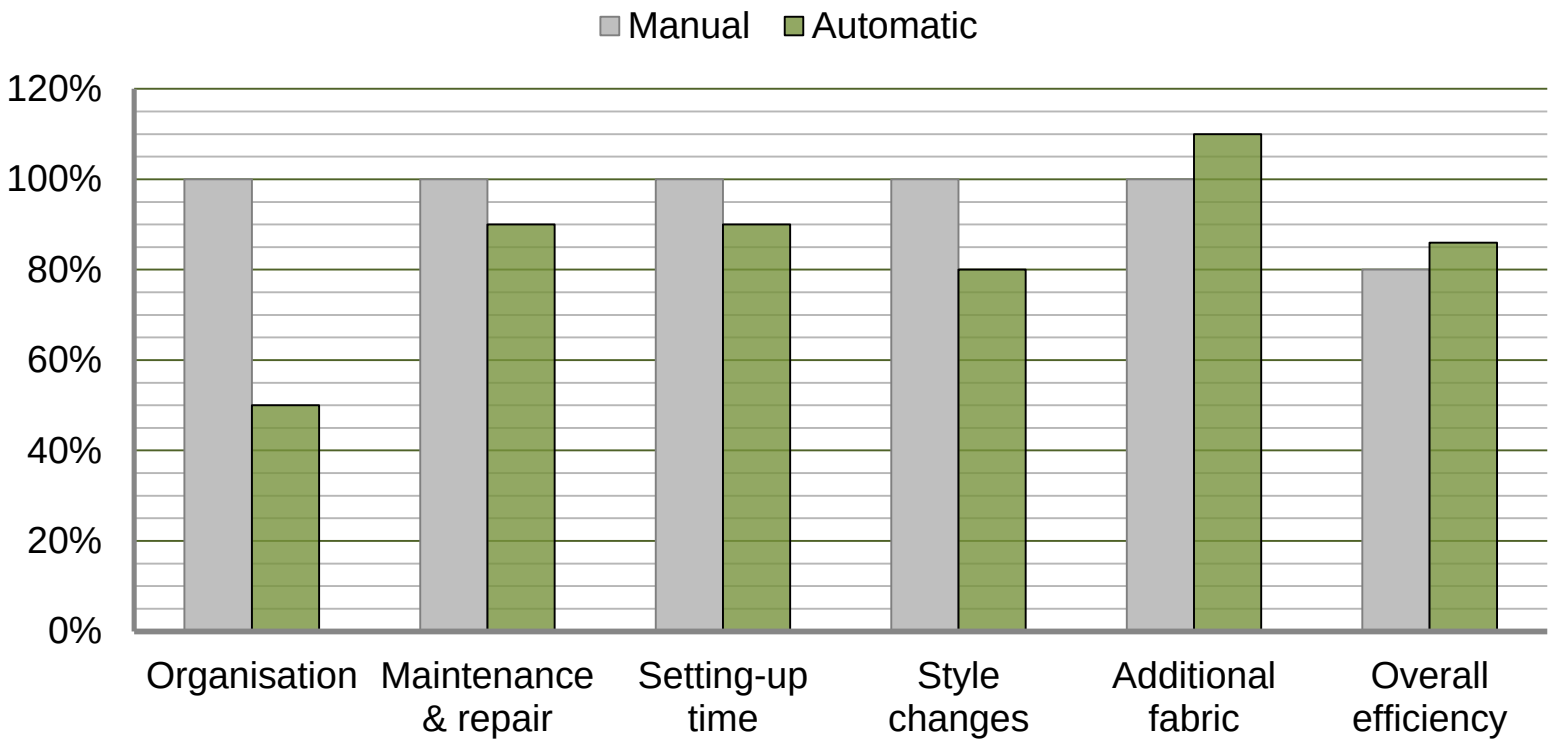
- **Increase of overall efficiency**
- **Additional production**
- **Reduction of second quality**

↳ **Additional profit**

Start thinking about automatic drawing-in from the word go!

Economics

Automatic drawing-in and its benefits



Automatic	1.2 operators per shift	Less fluff and flow. Clean harness	Start-up with **WARPLINK**	**UNI-PORT**, harness & warp beam	Less stops. Perfect warp beam	DELTA SAFIR
Manual	20-25 operators					

Effective Warp Preparation – from manual to automatic drawing-in

- Provide just-in-time availability of the right warp(s) in the right quantity to weaving operations
- Guarantee the right number of ends in the right sequence, colour and parallelism on every drawn warp beam
- Reduce throughput times
- Safeguard optimal cost of operation
- Render reasonable and affordable investment cost with a good return of investment for weavers
- **Expectations to an effective warp preparation**

Challenges in cloth manufacturing

Warp Preparation	Weaving Operation	Cloth buyers/market
▪ More styles to be prepared in less time ▪ Finer, more delicate yarns to be drawn in ▪ Denser warps and/or more critical patterns to be prepared ▪ No-availability of labour	▪ Shorter runs / warps (quick style changes) ▪ Shorter through-put times, higher efficiency requirements ▪ Better loom-state fabric quality	▪ Short delivery time ▪ Pressure on margins ▪ Short piece length

Drawing in process

Drawing in in 1 stroke:

Input: Complete warp sheet

→ Drop wire

→ Heald

→ Reed

Output: UNI-PORT (complete warp beam with harness)

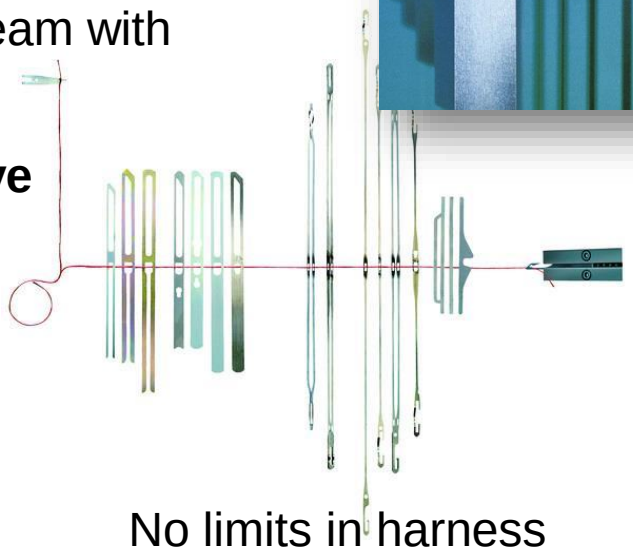
→ **Ready to weave**

Healds

Drop wires

Drawing in hook

Reed



No limits in harness

UNI-PORT

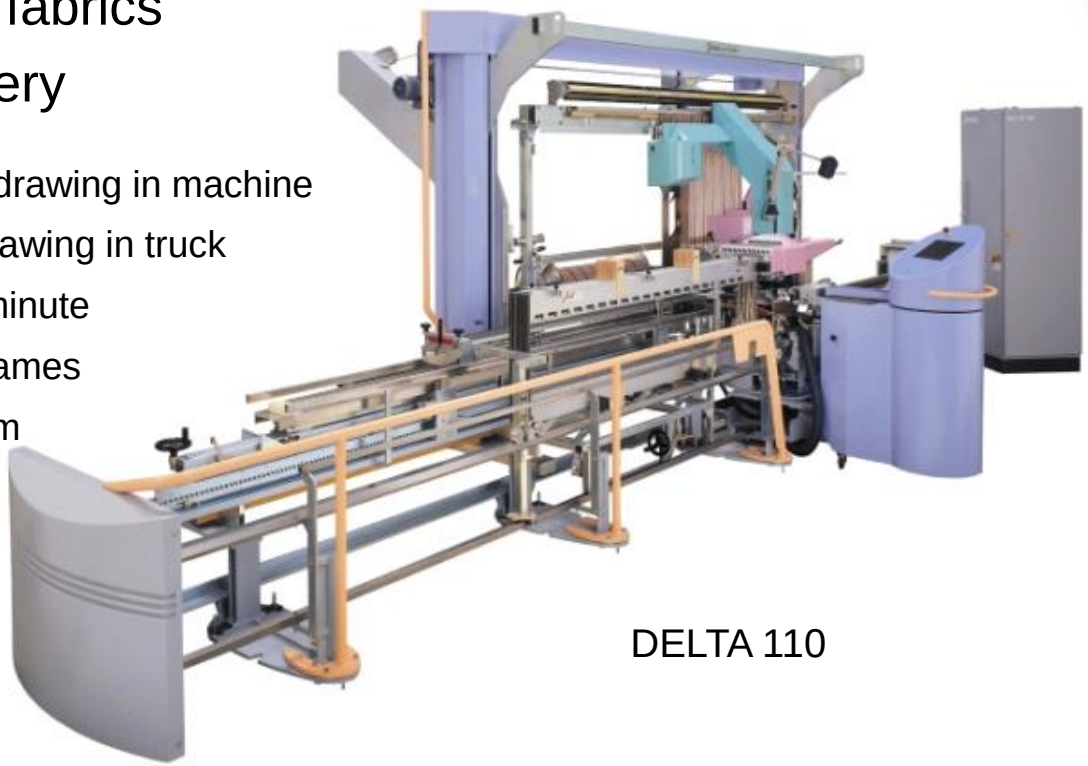
Applications

Most economic solution

DELTA 110

- Women’s and men’s wear
- Shirting fabrics
- Upholstery

- Stationary drawing in machine
- Movable drawing in truck
- 140 ends/minute
- 20 heald frames
- 2.3 m, 4.0 m



DELTA 110

Applications

SAFIR S40

- Denim fabrics
- Bed and table linen
- Protective clothing

Brand new working principle

- **Movable** drawing in machine
- Stationary drawing in station
- 165 ends/minute
- 12 heald frames
- 2.3 m

NEW

SAFIR S40

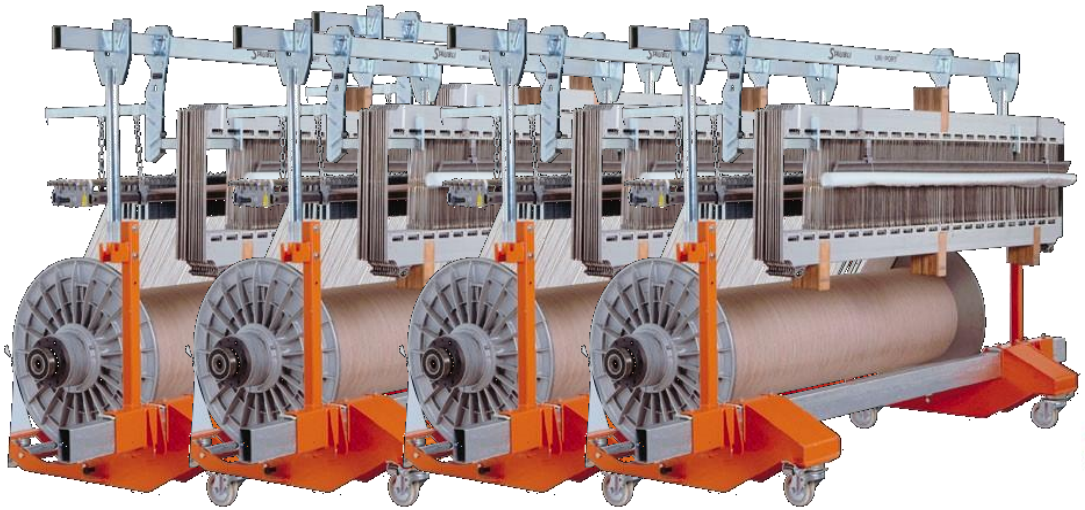
SAFIR S40 DRM for Denim

Benefits

	TODAY	FUTURE
WORKING PRINCIPLE	**100%** warp tying (beam changes)	80% warp tying (beam changes) 20% automatic drawing in (style changes)
		  NEW SAFIR S40
BENEFIT		Increase of quality due to clean weaving machines. Quick style changes Increasing fabric output due to optimized efficiency of weaving mill Short delivery time Quick response to market changes → e.g. **multi-layer Denim**

Process optimizing

Harness carrying system UNI-PORT



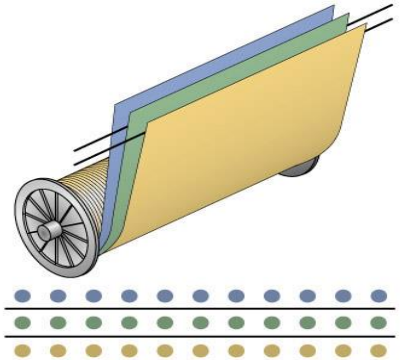
24 hours stock of drawn-in warp beams with UNI-PORT

Laying in harness to weaving machine with UNI-PORT

Warp sheet preparation

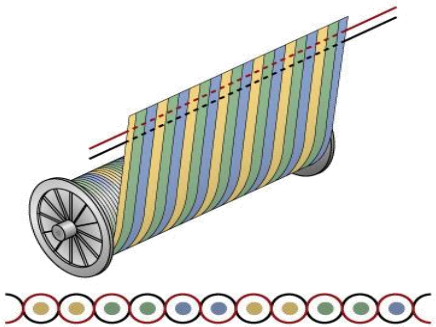
INPUT

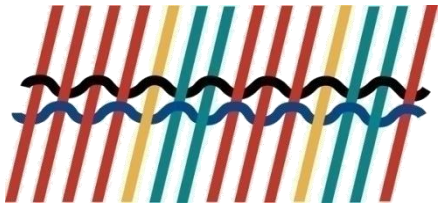
- Direct warper
- Without 1:1 lease
- Up to 8 layers



OUTPUT

- 1:1 lease
- Ready for drawing in





Warp Tying

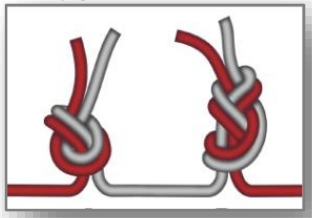
TOPMATIC

Specialist for medium to very fine yarn count

MAGMA

Specialist for coarse yarn

2 types of knots



Yarn count

Ne 3.0, Nm 5 — Ne 760, den 7

Ne 0.3 Nm 0.50 — Nm 50

Application

Carpet weaving

Quick Beam Change

TOPMATIC TPM 301

Thank you for your attention

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