

*Engineering innovation
in **flexographic
print...***

**BLUE
LINE**

PAPER



*Inviting you into
the world of TRESU*

True Innovation · Development · Trends · Future · Possibilities · Performance

Welcome to the **TRESU** BlueLine Paper

from Søren Maarssø, COO

Unwrapping a well-kept secret

TRESU Group is perhaps the industry's best kept secret. We have expertise at almost every stage of machine building. Several of the world's leading original equipment manufacturers choose our tooling and ancillary technology because of our reputation for precision and craftsmanship. Our multi-station flexo printing lines are driving productivity round-the-clock, at the plants of the world's leading packaging converters.

Focusing on our core competences

What makes TRESU so special is that we are more than just a precision engineering company. In an industry challenged by margin pressure and tight lead-times, we understand that printers seek solutions that help them stay as lean and as productive as possible. Everything we do at TRESU is centered around overcoming these challenges.

With a strong focus on our core competences, as well as the financial backing, we are able to make long-term research and development commitments to bring unique, performance-enhancing solutions to all niches of the flexo and coating markets. Learn more about the five TRESU Group members on Page 3 and throughout the TRESU BlueLine Paper.

Global presence

Today, TRESU Group has over 270 employees worldwide, production facilities in Denmark, Lithuania and the USA, sales subsidiaries in Germany, Italy, China and Japan, and an international agency network providing round-the-clock, local support and know-how.

TRESU TimeLine

1981: TRESU is founded in Denmark

1987: The first chamber doctor blade system is developed

The people

Our success is driven by our people and their unrelenting focus on delivering results the right way – by operating responsibly, executing with excellence, applying innovative technologies and capturing new opportunities for profitable growth. We realize that the best part of innovation comes through working with the customer every step of the way.

Our technicians are supporting customers around the world with training, inspection and maintenance programmes, to ensure the printing operation is performing to the max. And should the need arise, our service team is on stand-by to offer on-site troubleshooting, wherever you are.

Keeping you ahead of the game

With a full understanding of our customers' needs and intentions, we not only build machines with the right printing, coating, converting capabilities suited to the printer's specific niche, but continuously ensure they are optimised so that the customer is ahead of the game in terms of performance, versatility and creativity. With the technology, know-how and vision to support you every step of the way, in TRESU you have a partner to help you innovate and stay ahead in the market place.

Søren Maarssø

Director COO, TRESU Group

Meet the *family...*

TRESU Group is comprised of five business areas:

KeyLine ●●●●●

TRESU KeyLine offers world-leading food processing and packaging corporations a long-term, total partnership for building and maintenance of multiple lines. From the concept stage, TRESU Group works closely with the client to custom-design complete application-specific converting lines that deliver the very highest levels of performance, ergonomics and flexibility. A network of technical engineers ensures first-class global support, including on-line diagnostics, twenty-four hours a day.

Solutions ●●●●●

TRESU Solutions offers bespoke solutions to meet the demanding needs of today's printer. Complete state-of-the-art inline flexo printing machines as well as unique units are constantly being developed for a wide range of needs within the printing industry. Key words in all developments are flexibility and innovation.

Concept ●●●●●

TRESU Concept provides bespoke, multi-process, single-pass printing and converting lines for speciality folding carton, paper and film products. With TRESU Concept, we integrate the latest in flexo and gravure printing technology, with specially configured printing, converting and finishing systems from leading value-chain partners. This means almost all packaging products can be completed in one single pass.

1989: TRESU delivers the first modern 5-colour flexo printing machine

1989: The TRESU seal is patented

1991: TRESU Printer #1 is delivered – a complete high-performance flexo printing machine

Ancillary ●●●●●

TRESU Ancillary offers a wide range of high-performance offset- and flexo ancillary equipment. All products are designed to support optimum performance of the printing process within the label, flexible packaging, coating, wide web, corrugated, tissue, and other market segments.

TRESU Ancillary is the leading supplier of chamber doctor blade technology along with a wide range of complementary ancillary products.

Projects ●●●●●

TRESU Projects applies its engineering expertise to the design of components and systems for a host of industrial applications including aerospace, medical equipment, offshore and energy.

Based on extensive experience, the TRESU Group industry knowledge is backed up by state-of-the-art production facilities for CNC processing, drilling, turning, flame cutting, laser cutting and bending.

TRESU
Group

TRESU Ancillary

Applied innovation through close partnership

The benchmark for the printing industry

TRESU Ancillary is the world's leading supplier of chamber doctor blade systems for printing and coating applications. Our division is also an accredited supplier of ink supply systems, conditioners, drying systems, and printing plate cleaning systems to many global press makers. We enhance the competitiveness of flexo, offset and digital printing technologies.

Clean ink laydowns at faster speeds

Our new generation of chamber doctor blade systems enables printers in many printing and coating markets to achieve clean ink laydowns at faster speeds, with minimum make-ready times so presses can run to true potential. We have developed pressure-controlled chambers that prevent air mixing with the ink or coating when it is transferred to the anilox roll. This has overcome the problem of micro-foaming and blistering after it is applied to the substrate.

Another groundbreaking development is our new generation TRESU seals, which form an ideal barrier for your chamber doctor blade system – eliminating leakage and preserving ink quality for several days.

The offset coating system

Based on these innovations we have also launched the UniPrint Combi chamber doctor blade system, so offset printers can add high-value coated features to folding cartons and numerous products, ranging from glue-applied labels to brochures.

1993: TRESU GmbH is established in Celle, Germany

1997: TRESU receives DS/EN ISO 9001 Quality

1993: Chamber doctor blade technology is introduced to the offset industry
2000: E-Line and P-Line doctor blade
Management System certification

UniPrint Combi - Chamber doctor blade system



Next generation seals



Flexo and coating drying technology



P-Line



Shop by Press

manroland MITSUBISHI LITHOGRAPHIC PRESSES

HEIDELBERG KBA KOMORI Kando: Beyond Expectations

Shop by Part



Henrik Kristensen

Henrik Kristensen
Sales Director,
TRESU Ancillary



*"New
Solutions
demand
Innovative
thinking"*



walki



eltromat

//polytype

spgprints



2000: H2 - High-pressure chamber doctor blade and pump system for metallure ink is developed

clamping systems with new patented technology are introduced

2001: TRESU Italia is established in Milan

TRESU Solutions

The custom made solution

Wide range of projects

TRESU Solutions is our customised machine and component-building operation for very precise flexo and gravure printing specifications. The scope of our projects is wide in terms of size and end-use application. These range from integrating a printing or coating unit on to an existing machine, in order to add specialist features inline, to building complete multi-station printing and converting lines.



Competitive edge with bespoke solutions

The need for unique solutions has become more acute in an industry where brand owners and retailers are desperate to find a niche. Standard machines can limit the possibilities, in terms of materials, processes and sequences. Our team of engineers has helped scores of customers to find competitive edge with precision and bespoke printing solutions for many applications. In the search for the perfect solution, we know that the best part of innovation comes through working with the customer every step of the way.



**The possibilities
have no horizon!**



Allan Sander

Allan Sander
Sales Director,
TRESU Solutions



TRESU Concept

Our newest TRESU Group Member

TRESU Concept – the latest addition to the TRESU Group family
– offers innovative and customised product solutions
for a wide range of applications within the packaging printing industry.

Close partnerships – unique solutions

Starting from scratch, we work in close partnership with the customer to develop unique systems of proven technologies that address the value-added part of the packaging supply business – within folding carton board, film, laminates, metallic substrates and paper.

New and creative product packaging

The industry is constantly evolving, and with TRESU Concept we strive to meet tomorrow's demands - and inspire brand new possibilities and creative product packaging in all categories. New ways of thinking, innovative design and strong research and development are at the centre of TRESU Concept.

2002: The high-performance TRESU Printer #25 is now operating 100% shaft-less

2003: TRESU receives DS/EN ISO 14001 Environmental Management System certification

True customisation from vast experience

TRESU Concept goes beyond features and benefits and offers true customisation, from start to finish – thinking, testing, researching and developing with experts in all areas of the workflow - from sleeves to finishing systems - in order to bring the customer's thoughts and ideas to life.

With 30 years of research and development expertise at hand, we offer solutions that provide ultimate flexibility and modularity in configuration.

“Through my **30 years** in the packaging industry I have witnessed **rapid growth** and **development**, as well as **ever-evolving demands** for **productivity, quality, innovation** and **environmental care**.

This development will **continue** in the future, with **enhanced focus** on new, **creative packaging methods** – the **modern printing press** needs great **flexibility**, and we think **TRESU** Concept offers just that.”



The First TRESU Concept solution

The Flexo Innovator FI 1100 – the complete flexo converting solution for the folding carton and paper market

The Flexo Innovator FI 1100 is the first solution from TRESU Concept. This mid-web flexo printing and finishing concept offers a modular platform, relatively low tooling costs and fast change-over times.

Custom-engineered and assembled at our Danish factory, the FI 1100 offers precision printing at speeds of up to 400 m/min (optional 600 m/min) throughout the run.

Available in roll-to-roll, roll-to-sheet or roll-to-die cutting line, FI 1100 offers the option to include a multitude of possible technologies, such as die-cutting, laminating, embossing, rotary screen, rotogravure and cutting.

The Flexo Innovator FI 1100 features front and reverse-sided printing stations, providing a single-pass print solution for folding carton, paper and numerous other substrates.

Flexo Innovator's technology also assures precise unit-to-unit registration throughout the print run, high-end regulating web tension control technology, rigid design for minimising vibrations, resulting in very high stability throughout the printing process.

Flexo Innovator users have the option to include an in-line roll-to-sheet cutting system. This combines low cost of ownership with high productivity without the high tooling costs or lengthy make-ready times associated with alternative die-cutting technologies.



"Re-designing a traditionally roll-to-roll process **dramatically reduces** raw material, tooling and **waste costs**.

Whilst simultaneously providing **TRESU's** press speeds and stability to **ensure** a **high-quality** end product, **Flexo Innovator** series gives offset printers **cheaper cost** of ownership and **significant improvements** in all elements of the workflow."



Kim-Regin Sutsmann
Sales Director,
TRESU Concept



Research

The customer has a 'known process'
- we research to get to know it.
We check similar processes
- investigate thoroughly to be prepared optimally - in order to deliver, construct and ensure ROI.

Construction

Lean in-house construction and production facilities. Focus on quality in every detail. Know-how and routines - proven, tried and tested - according to current, international certifications and standards.

Development

Continuous improvement and optimisation of all processes and press parts. We ourselves come up with new products, enhancement proposals etc. and offer them to the market place. We are 'cross-innovative' throughout the business units, ensuring optimal results in the cooperation with our customers.

Customisation

Accommodating our customers' needs with adaptable, tailor-made solutions. Whatever we do, we must be able to create optimal processing equipment.

Innovation

We're engaged and ready to take on new ideas. Always with our feet on the ground, seeking new ways of creative solutions, meeting our customers' demands.



Morten Lind Støhs
Morten Lind Støhs
Technical Manager,
TRESU Group

2005: TRESU Japan is established in Osaka
2006: TRESU China is established in Beijing

2004: Royse Inc. is acquired – a US company producing pump systems and chillers for offset industries

2004: TRESU Royse Inc. is established in Dallas

2004: The first Modular Coating System (MCS) is developed

The source of development and construction

Highly skilled, highly involved

The TRESU Development and Construction team consists of 30 highly skilled engineers with a keen focus on true innovation. We take on complete projects and handle the entire process flow. This is where everything is 'shaped' – and thanks to a strong involvement from our sales department, we remain an integral part of the ongoing process and dialogue with the customer.

Cooperating for continuous improvement

In our industry it is essential to cooperate with customers on all levels – meeting and understanding customers requirements, and truly evaluating their needs and possibilities. TRESU Development and Construction continues to adapt and customise without compromising quality.

Understanding the machine-users

We have the welfare of those who operate the press day-in, day-out, uppermost in our minds, too.

We know that achieving the best possible performance depends on understanding and accommodating their needs and concerns, too.

We don't just want TRESU technology to be the leanest, most productive experience in town - we strive to make it the safest, cleanest, easiest and most ergonomic too.

TRESU Development and Construction is constantly trying to reduce process and production cost by developing energy-saving methods - with a keen focus on the environment.

TRESU Printers



Frank Paulsen

Frank Paulsen
Key Account Manager,
TRESU KeyLine



2007: A 21-colour flexo/digital printing machine is installed at SGI, USA
2009: TRESU Printer #50 is delivered



KeyLine – means partnership for a lifetime...

At TRESU KeyLine, we're about much more than building a machine.

We're the building block for a long-term, continuous strategic partnership - a turnkey service that includes not merely building a machine, but constant maintenance and enhancement of the technology through complete life cycles and across multiple locations.

Leading edge

Through KeyLine, we ensure our customers remain at the leading edge of competition, with the specification that is adapted to the market requirements.

Supporting the world's largest carton board converter

TRESU has been supporting the world's largest carton board converter of liquid dairy packaging products for 21 years. During this time, we have custom-built 57 presses for plants on four continents, and co-developed unique components, exclusive to the client, that enhance performance and versatility.

Top of the line – across the board

As a result, the customer, which supplies billions of products each year, is capable of including the latest substrate and ink innovations into its packaging. That means the company can deliver to higher quality and productivity standards, while meeting ever more stringent health, safety and environmental standards.



The Best Part of Innovation

R&D

TRESU Research and Development starts with you, the customer. Interaction is at the centre of our approach - working closely together, identifying problems and needs in order to optimise, innovate, and simplify production processes. We develop the complete package. We research the technology at hand, put together only the necessary components, and deliver creative, strong and lean solutions.

That is where we at TRESU make a difference.

Christian Fogh
Head of R&D,
TRESU Group



Design and Engineering

At TRESU Group we strive to maintain our leading position with constant investment in design and engineering.

Together with our quality partners we are innovating 24 hours a day, driving growth for our customers and redefining what's possible.



2009: UniPrint Combi for offset OEMs is released

2010: TRESU introduces FlexiPrint Reservoir for the Label segment

2010: TRESU is acquired by Erhvervsinvest, a Danish financial investment company

Project Management

We are with you every step of the way, managing and achieving your unique project goals and objectives, while honouring the scope, time, and budget involved.

LEAN, in-house production

At TRESU we continue to optimise all stages of production, constantly introducing new procedures to ensure efficient flow and perfect results. This approach has resulted in a modern factory with flexible practices, high productivity, and effective quality control, ensuring the same high standard every time a product leaves our factory – creating added value for our customers.



2011: The launch of FlexiPrint IMV (Inline Mid Web)
2011: TRESU China opens sales office in Shanghai

2011: Release of patented Next Generation Seals
2012: TRESU Concept line is introduced

Customer Care

The TRESU Service Team offers all our customers the most complete and competent customer service and technical support, 24-hours a day, worldwide.

Let's *pull together* and drive **INNOVATION!**



TRESU Group

14-16, Eegsvej
DK-6091 Bjert
Denmark
Tel: +45 76 32 35 00
Mail: tresu@tresu.com
www.tresu.com

TRESU GmbH

Giftener Str. 9A
31157 Sarstedt
Germany
Tel: +49 5066 9174286
Mail: aju@tresu.de

TRESU Italia s.r.l

Via delle Groane 27/b
20024
Garbagnate Milanese (MI)
Italy
Tel: +39 02 96 59 202
Mail: tresu@tresu.it

TRESU Japan Co., Ltd.

8-1-32, Nanko Naka
Suminoe-ku
Osaka, 559-0033
Japan
Tel: +81 (0)6-4703-0601
Mail: sales@tresu.jp

TRESU China

Huashang Building, Room 613
No. 2 Yanjing Xili
Chaoyang District
100025 Beijing, China
Tel: +86 (0) 10 65911628
Mail: sales@tresu.cn

TRESU Americas

TRESU Royse, Inc.
8517 Directors Row
Dallas, TX 75247
USA
Tel: +1 214 631 2844
Mail: tresu-royse@tresu.com



**The Best Part
of Innovation**

Published by **TRESU Group** Improvements and changes to this text made necessary by typographical errors, inaccuracies of current information or improvements to programs and/or equipment, may be made by TRESU Group at any time and without notice. Such changes will, be incorporated into new editions of this document. Printed versions are to be regarded as temporary reference copies only.

EDITOR IN CHIEF: Nina W. Møller · **TRESU Group**
ARTWORK & PRODUCTION: AddMore Communications

PRESS INFORMATION:

Nina Møller · Marketing & Documentation Manager
Tel: +45 76 32 35 00 · mail: nmo@tresu.dk

3rd revision: 03.04.2013 Publication number: 03042013-03