

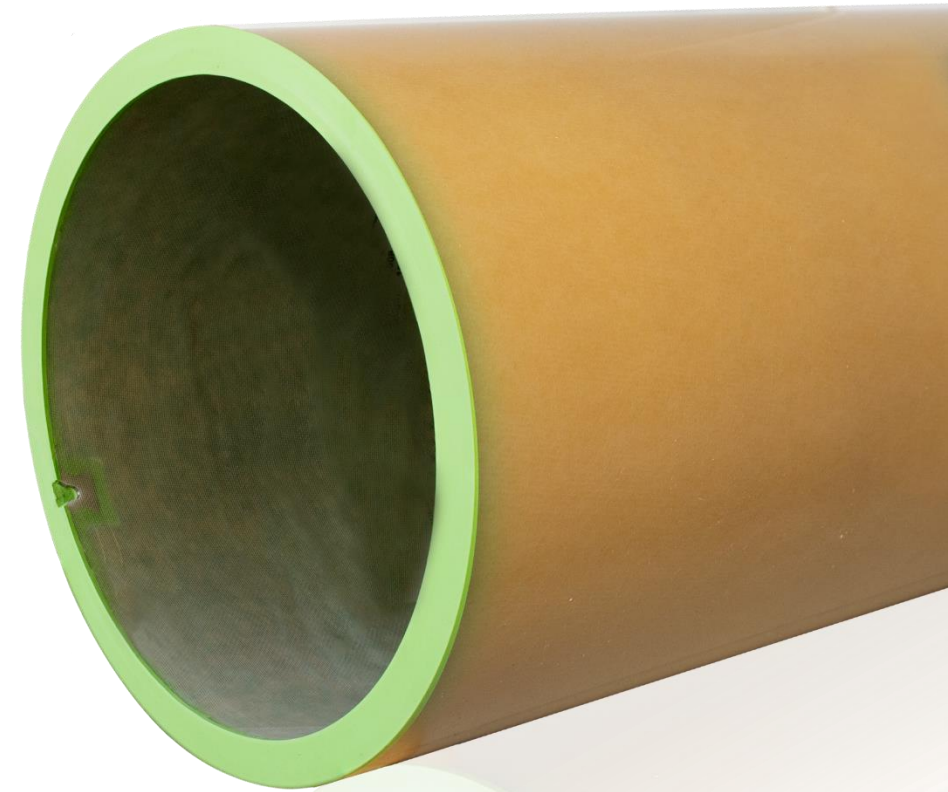


**TECH SLEEVES**  
THE FUTURE IS NOW

# Tech Sleeves Technical Overview



**TECH SLEEVES**  
THE FUTURE IS NOW



- AV Flexologic is the world market leader in mounting machines for the flexographic printing industry
- Allflexo consumables is a leading water-washable flexo plate supplier (Toyobo) in Benelux, Germany and UK
- Leapfrog is a leading 3D Printer manufacturer with global distribution agreements
- Color Control Services is the Romanian factory dedicated to companies within the group, incl. Tech Sleeves

**AV Flexologic**  
*We innovate!*

**All Flexo**

  
**Leapfrog™**  
3D Printers

  
**Color Control**  
SERVICES



### Bruce Hinkel

SALES MANAGER



Bruce Hinkel brings 25+ years of flexo experience to the Tech Sleeves team. "I joined this team to align my passion and experience with the incredible technology and people of AV Flexologic. The products speak for themselves, but it was the ownership and fantastic people that was most attractive to me. With Tech Sleeves added to our portfolio, we have powerful solutions for the Flexo Industry"

### Janet Kraft

SALES AND SERVICE ADMINISTRATION



Janet's eagerness to learn new things and her determination to overcome challenges enable her to seek for solutions. Her motto is: "No challenge is too big to solve." She finds happiness in communicating the customer's wishes to the production and making them come true. Together with Martijn Odijk, she is always there to support you!

### Martijn Otten

MANAGING DIRECTOR



Martijn has a background in mechanical engineering and is passionate about innovation. Martijn is always looking for new ways to improve product performance and provide great customer service. Martijn believes the key to success is being able to deliver high quality and consistent products while continually innovating to make production processes more efficient.

### Razvan Marginean

OPERATIONS MANAGER



Razvan joined the Tech Sleeves team in 2019 as Operations Manager. He brings to the table 9 years of management skills, out of which he worked with Lean and Six Sigma 7 years.

### Guillermo Rodriguez

SALES MANAGER



Guillermo Rodriguez, is a young and enthusiastic commercial-driven professional with a background in International Business and Management. Guillermo transforms complicated technical ideas into user-friendly solutions, which he believes is the key to customer service. He does not mind to roll up his sleeves and offer you the best solution!

### Martijn Odijk

SALES CO-ORDINATOR



Martijn is the backbone of the Tech Sleeves team, always striving to ensure customer delight. He firmly believes that the "Customer is the King". With a background in Industrial Design Engineering and International Business and Languages, he understands both your technical and commercial needs. Proficient in different languages like English, Dutch, German, French, and Spanish, he is ready to support you always.

### Steven van Hamersveld

PROJECT ENGINEER



With Steven's background in mechanical engineering, he has a drive for process improvements. These improvements vary from product development to supply chain automation projects. Every project is carried out with dedication as a project member or as a project leader. Determined to achieve results no matter what it takes, Steven is here for you.

### Nick Vietnieks

BUSINESS DEVELOPMENT



With his keen eye for business improvement and a bulldog approach, Nick is well equipped to steer the business in the right direction. He has a strong focus on ensuring our customers receive the best products available in the market in a timely fashion each and every time. Following several years of building businesses in East Africa and a well-established history within the Tech Sleeves group of companies, he looks forward to continuing to grow the strong name into the future.

### Nathan Rank

TECHNICAL SUPPORT / PROJECT MANAGER



Nathan Rank has 21+ years of experience in the flexographic industry. Beyond support with our mechanical equipment and sleeve products, Nathan has a great understanding of the complete Flexographic process, from plate manufacture to print. "I joined the Americas team because of our cutting edge technologies and focus on the future of the industry", said Nathan about his new role.

# Introduction.

A few of the Tech Sleeves team at **your** disposal

*With these team members alone, over 150 years of combined experience in the flexo industry!*



- Technical comparison chart
- Layer build up on its flexographic mounting sleeves
- Comparison with the competition materials used in build up
- Tech Sleeves Factory Tour
- Force vs Deflection results
- build up standard
- Marketing video on layer build up
- Sleeve and adaptor options
- Sleeve options
- Adaptor technology : Air flow through / Separate air
- Mandrel requirements
- Adaptor options in more detail
- Developments (PU Sleeve / Retractable pin / Carbon bridge / Samples)



## Tech Sleeves Technical comparison chart

					
Tolerances	OD	+/- .0008" (.02 mm)	+/- .0008 (.02 mm)	+/- .0008 (.02 mm)	+/- .0008 (.02 mm)
	TIR	+/- .0008" (.02 mm)	+/- .0008 (.02 mm)	+/- .0008 (.02 mm)	+/- .001" (0,025 mm)
Mounting	Pressure	6-7 bar	6 - 10	6 - 8	7 - 8
	Flow	12 L/s	12 L/s	12 L/s	10L/s
Sleeve dimensions	Repeat	9.5 – 59"	Up to 86.5"	-	8.25 – 74"
	Wall Thickness	.040-4.3"	.27-2.75"	.040-3.93"	.040 – 5.9"
	Max Width	82"	112"	145"	111"
Temperature		140 °F	104 °F	122 °F	122°F
Cleaning		max 15% Acetate	max 20% Acetate	ethanol, propanol, isopropanol, water	ethanol, isopropanol



# Tech Pro Light

## New! Lightweight Technology

At Tech Sleeves, our **mission** is to be a reliable, technology leader while continually exceeding our customer's expectations.

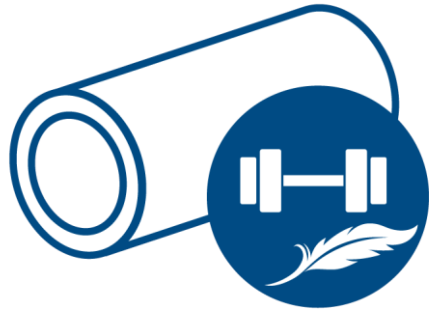
Driven by our customer's feedback, we researched and developed a **new build-up formula** that **reduces the weight of our sleeves and bridges, whilst improving the overall toughness and durability.**

The **Tech Pro Light** printing sleeve is the next big thing in flexo!



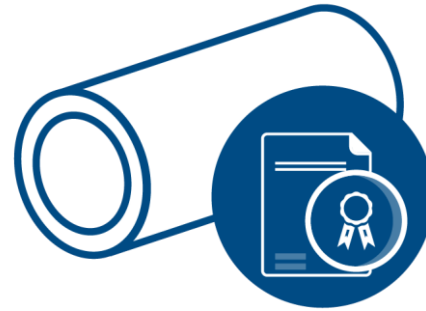


## ADVANTAGES OF OUR NEW FORMULA



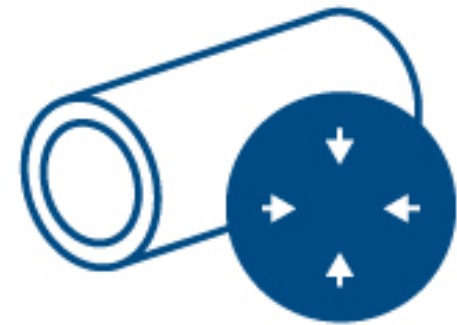
### Up to 40% Lighter sleeve

Advanced lightweight technology that reduces the weight of the sleeve, while its performance remains exceptional



### Improved durability

Our new build-up formula contains lightweight dense foam, which offers dimensional form stability and durability



### Stiffer and stronger sleeve

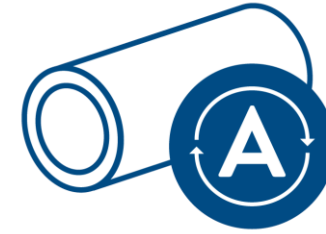
The hardened UV cured outer layer (82 ShoreD) makes our sleeves one of the stiffest in the flexo printing market.

# Ground-breaking lightweight technology

The **Tech Pro Light** range of sleeves and bridges uses **lightweight technology** which was co-developed with our sister company, **AV Flexologic**.

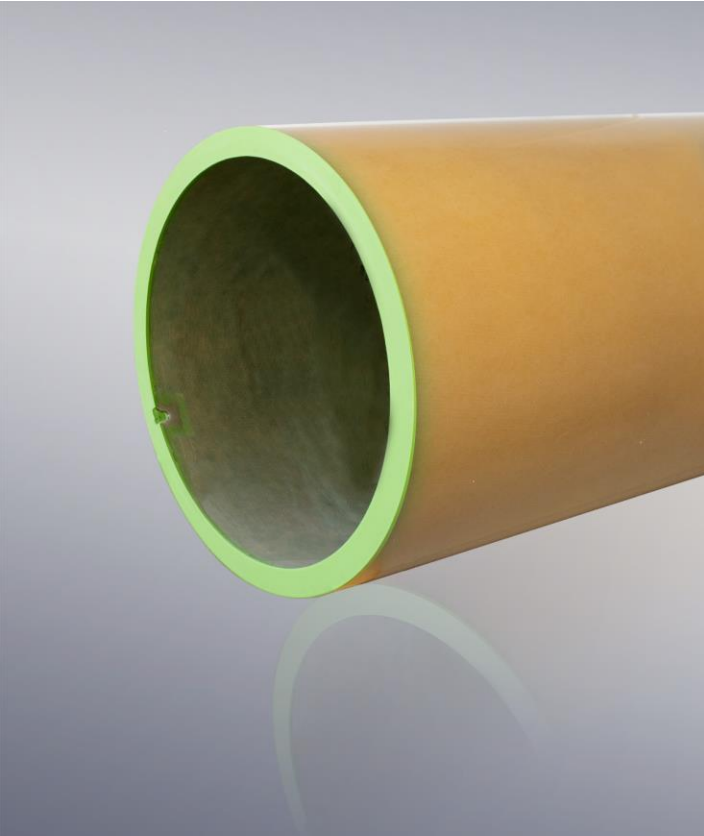
Together the in-house developed machinery in combination with the TIR Sleeve Measurement System, automates the build-up process and offers a measuring accuracy of **1 micron**.

Our latest innovation with the hardened UV cured **Derakane™** resin outer layer is ready to revolutionize the flexographic industry creating one of the **lightest, stiffest and stable sleeves** on the market with **weight savings of up to 40%**





# Why choose Tech Pro Light?



- Up to 40% lighter sleeves and bridges
- Hard outer layer (82 ShoreD)
- Use of Derakane™ resin in UV-cured outer layer
- UV curing technology
- High-pressure resistant
- Excellent form stability
- Minimized overall press bounce
- Durable and long-lasting sleeves



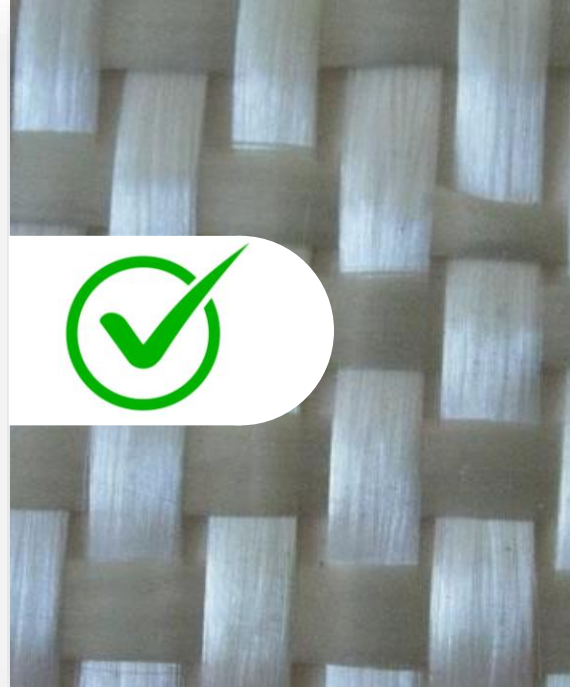
## 1<sup>st</sup> layer: flexible and expandable (primarily Dyneema)

- Dyneema is the worlds strongest fiber
- Light weight and stretchable without cracking
- Prevents slipping on the mandrel
- Highly resistant to moisture and UV / Chemical resistant





What makes our **base sleeve** more stable:



### The Tech Sleeve inner base layer

- Because we use Bi-Axial sheet material in our base layers you will experience less inner core damage around the notch area because we have fibres running perpendicular across and around the sleeve, not on an angle which can cause cracking to travel from the notch area.

**Dyneema Bi-Axial Fabric**

**Better notch structure in base sleeve**

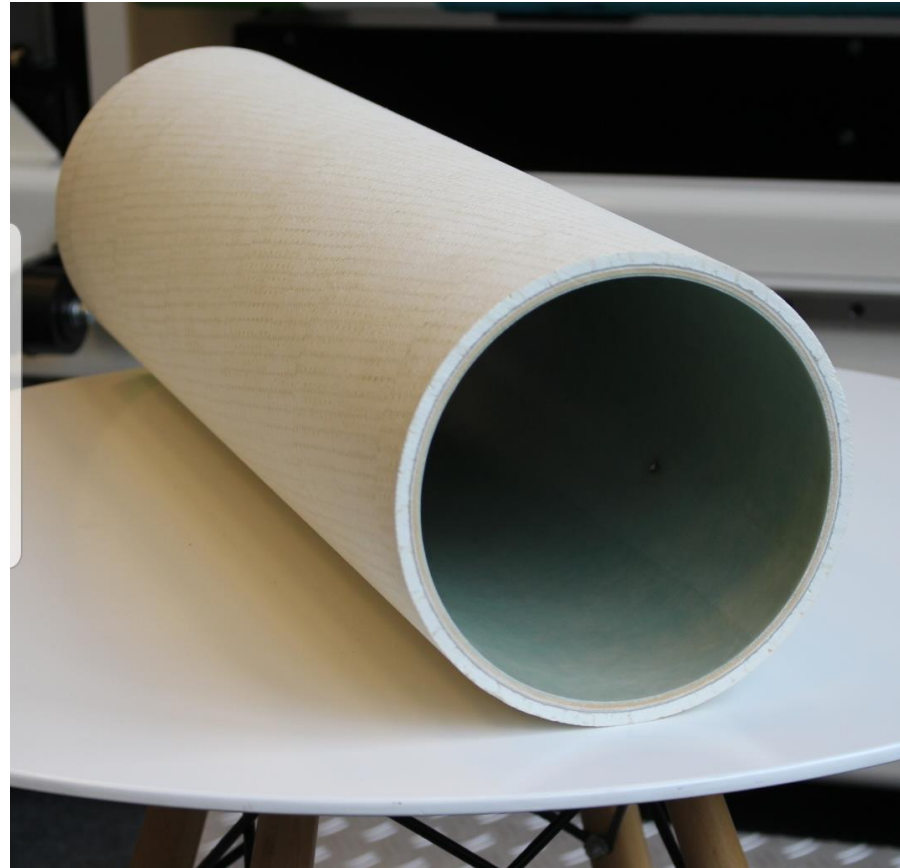
## 2<sup>nd</sup> layer: Compressible Foam

- Awesome rebound resilience
- 50% compressible
- Shock absorbing capacity (less overall sleeve bounce)
- Density of 40 Shore A with .040-.080" (1-2mm) thickness depending on sleeve wall thickness



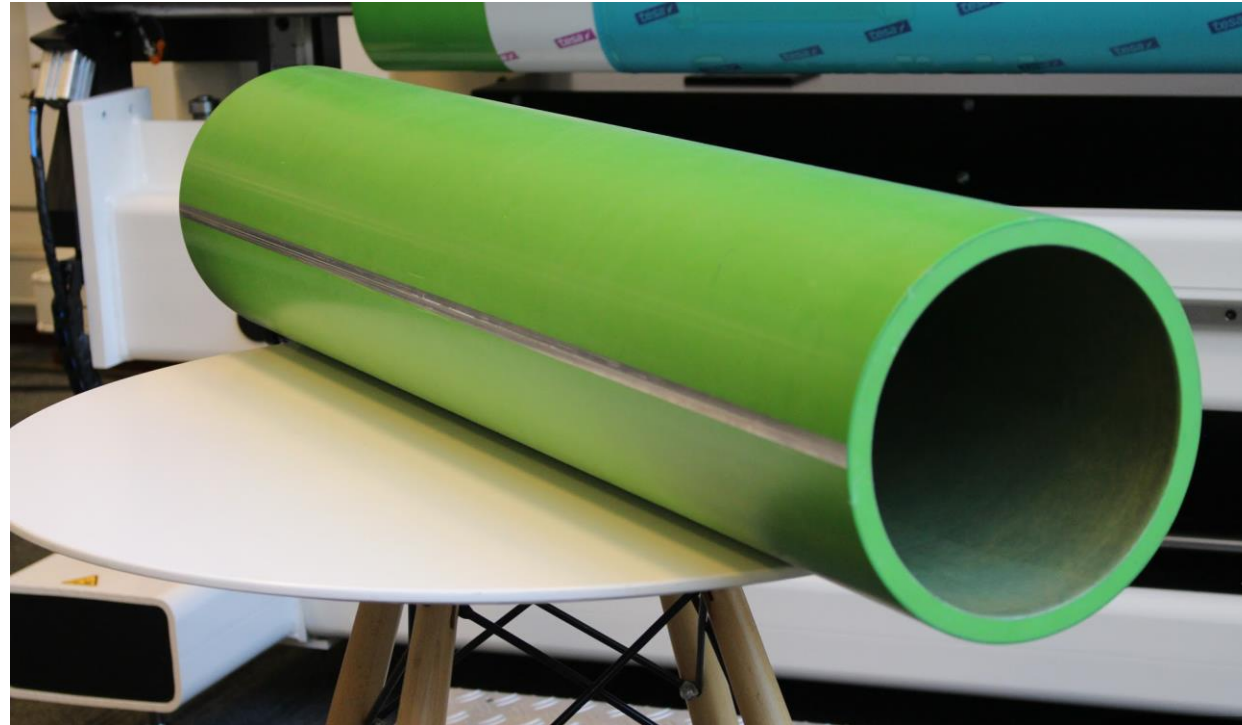
## 3<sup>rd</sup> layer: Tech Light Core material

- *Chemically researched Lightweight Polyurethane core material*
- *Up to 40% lighter than the Tech Sleeves traditional method of producing*
- *Reduced bounce due to it being fractionally less stiffer*



## 4<sup>th</sup> layer: Chemical Resistant Outer surface

- Supreme chemical resistant
- Highly impact and fatigue resistant
- Excellent tape (de)mounting properties
- No swelling





What makes our **outer surface** more stable:

## The Tech Sleeve Construction

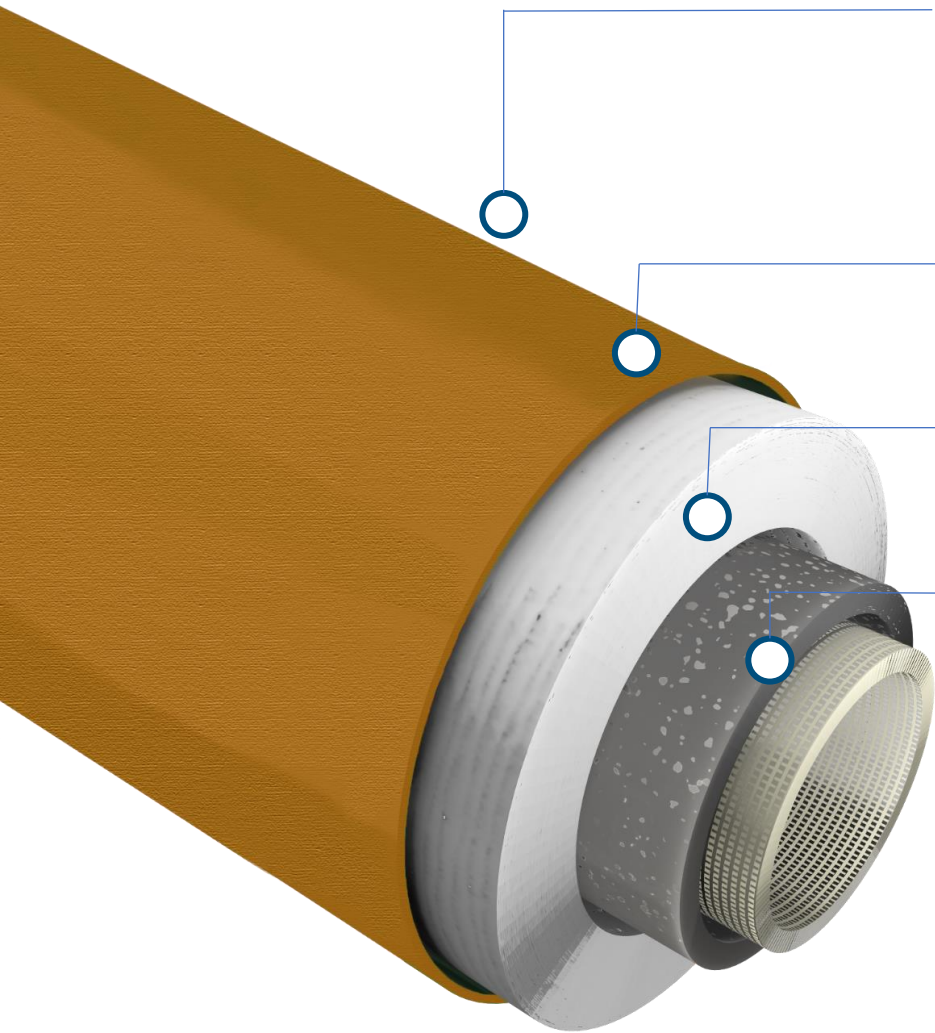
- We use **Epoxy Vinyl Esther Resin** with reinforcing fibers to create a finished hardness of **82 Shore D**.
- Compared to traditional urethane sleeve constructions which are hydroscopic and generally have a hardness of **75 Shore D**.

### This Gives:

1. ***Greater chemical resistance because the materials are not hydroscopic***
2. ***Greater heat resistance***
3. ***A very dimensionally stable mount surface***



# Advanced build-up formula



## Hardened UV cured outer layer

Exceptionally hard and stiff outer layer (**82 ShD**) with UV cured **Derakane™** Vinyl Ester resin. The Derakane™ resin offers exceptional reliability, lower maintenance and extended life use

## Tech Core Light layer

Lightweight core material designed to limit bounce and maximize durability

## Compressible layer

High rebound resilience and 50% compressible without bulging

## Base layer

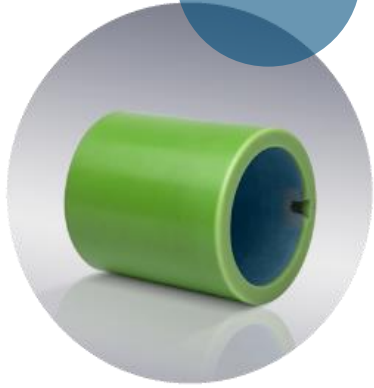
Expandable and extremely durable base layer (1mm) that contains Dyneema, the world's strongest fiber





## Sleeve Options

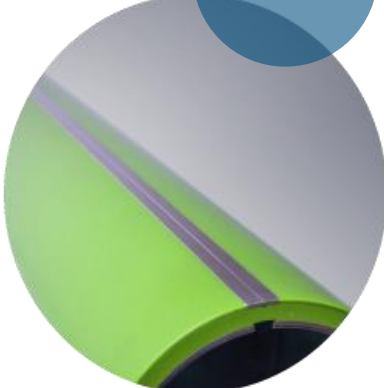
1



### **Rubber edges**

Rubber edges are used to decrease wear and tear of the sleeve and therefore increase its durability. This unique option ensures the longevity of the sleeves.

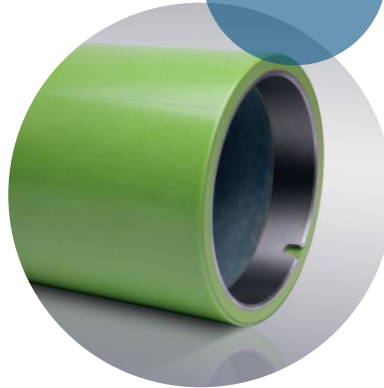
2



### **Metal cutting line**

Prevents damage to the sleeve using a metal plate of 0.5 mm thickness. Finishing with diamond grinder for smooth sleeve surface.

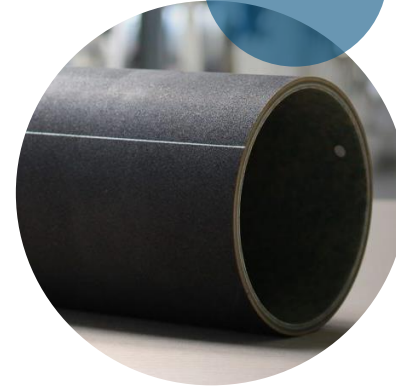
3



### **Full inner metal ring**

The full inner metal ring provides a strong and durable slot solution, but it also saves cost on buying new printing sleeves.

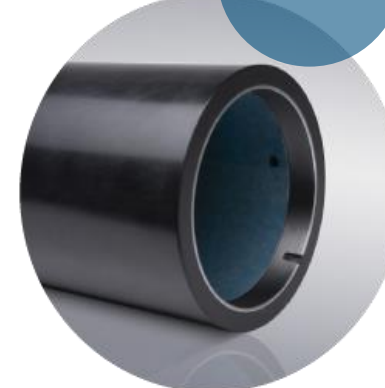
4



### **Compressible**

Compressible 'soft' sleeves have an outer foam layer designed to eliminate the need of compressible tape. By using thin non-compressible tape, the expenses on tape are reduced.

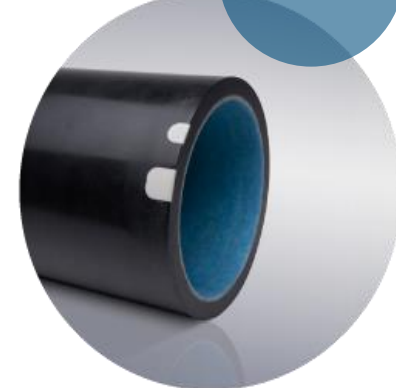
5



### **Conductive**

For anti-static applications that require conductivity from the outer layer to the base mandrel

6







### **Smart Sleeve (RFID)**

Versatile and unique sleeve identification system using RFID with optional sleeve tracking database system



## Material used in sleeve build up versus competition

	 <b>TECH SLEEVES</b> THE FUTURE IS NOW	 <b>FlintGroup</b>	 <b>ROSSINI</b>	 <b>POLYWEST</b> SLEEVE SYSTEMS
Base Sleeve	<b>Dyneema reinforced Vinyl Ester Resin</b>	Glass fiber	Glass fiber	Glass fiber
Compressible Layer	<b>Cellular, water cross linked foamed polyurethane</b>	Polyurethane	Polyurethane	Compressible foam
Core Material	<b>Patented lightweight technology combining two leading materials</b>	Lightweight Polyurethane	Honeycomb built up Polyurethane	Lightweight Polyurethane
Outer Layer	<b>Glass fiber sandwich with Vinyl Ester Resin</b>	Polyurethane	Polyurethane / Glass fiber combination	Polyurethane/glass fiber combination



- Tech Sleeves uses the same materials in every sleeve build up.
- This creates a more durable long lasting sleeve and overtime a lower replacement rate.
- Only one sleeve build with different options to reflect customers needs.



**TECH SLEEVES**  
THE FUTURE IS NOW

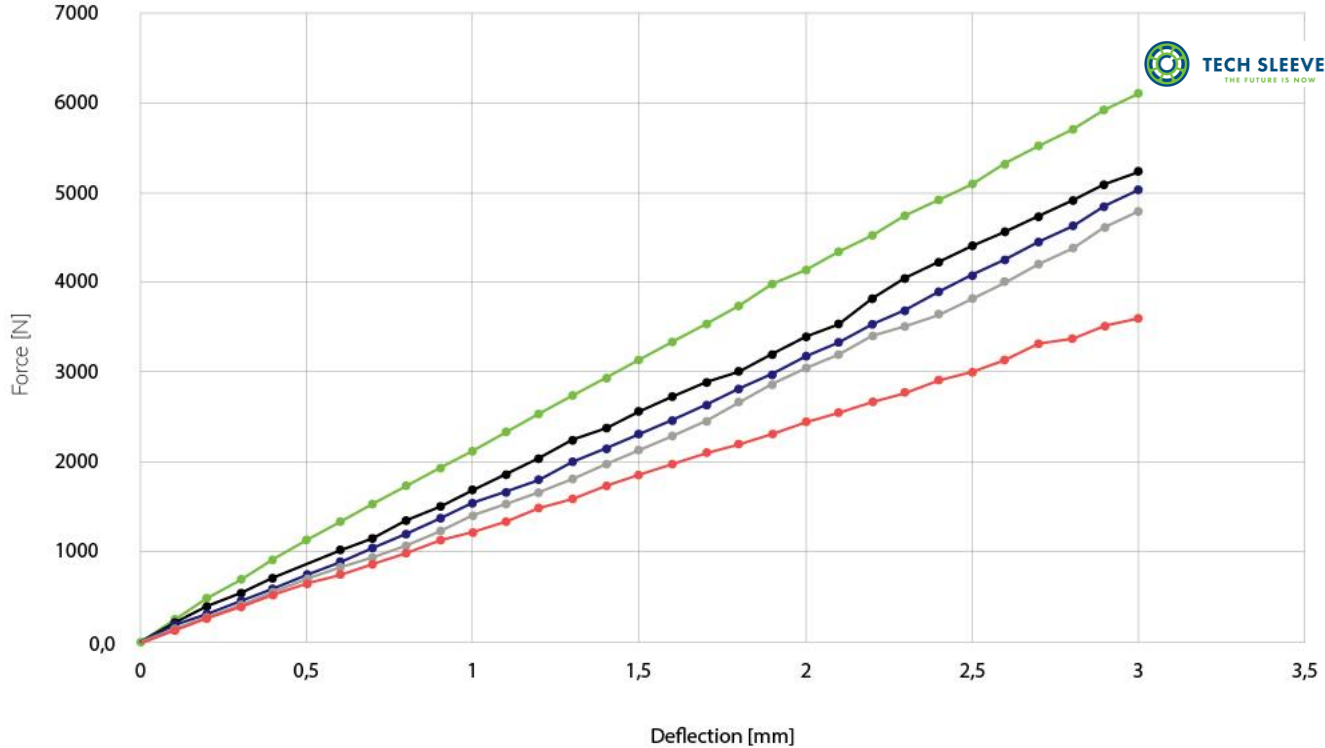
## Tech Sleeves Factory Tour.





## Tech Sleeves Force vs Deflection results

Force vs Deflection



Our choice of materials results in less deflection than the competition.

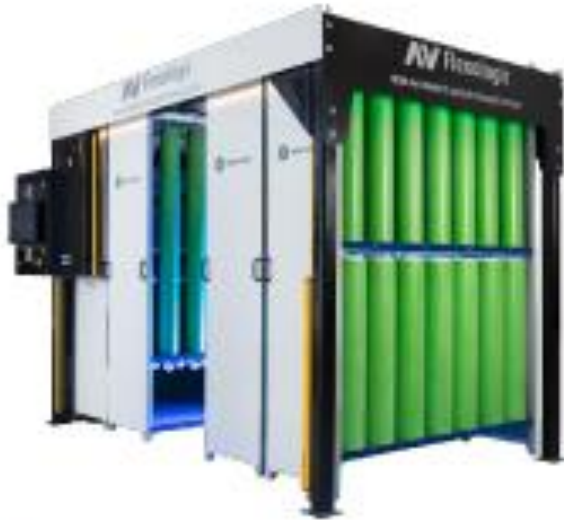
- Competitor A
- Tech-Sleeves
- Competitor B
- Competitor C
- Competitor D





# SUPPORTING EQUIPMENT

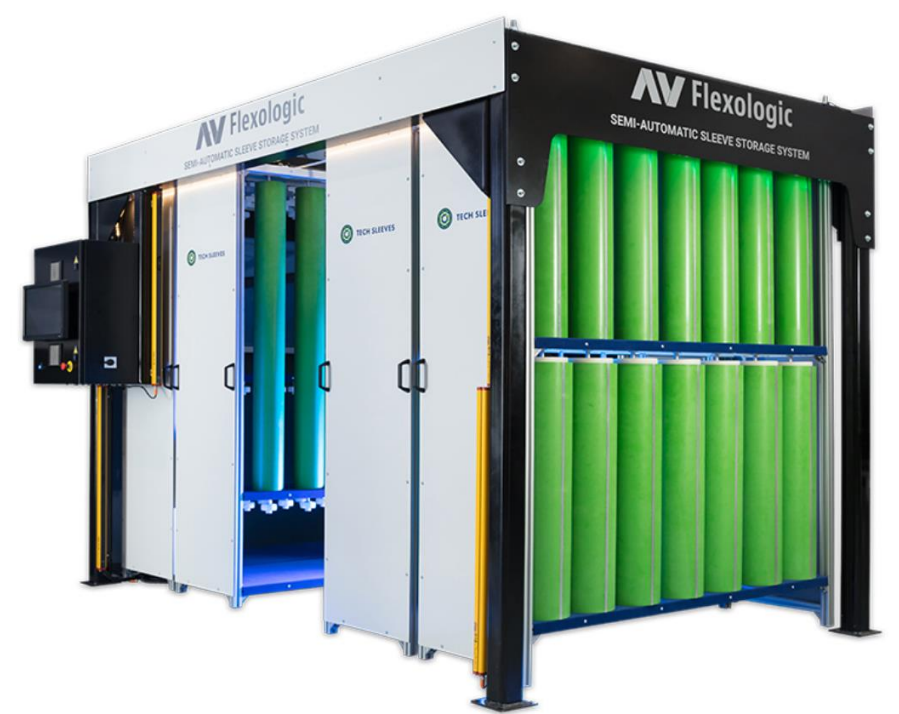
## SLEEVE STORAGE SYSTEM



Our customized Sleeve storage system has been co-developed with AV Flexologic for workspace optimization in the press, while providing optimal protection for your sleeves. Our sleeve storage system has unique features that:

### Features:

- Saves valuable operator time
- Prevents sleeve damage
- Saves costs due to damages



### ADVANTAGES

- Easy and fast retrieval of sleeves
- No manual labour required to move sleeve racks (semi-auto version)
- Possibility to connect to ERP system for further automation
- Automatic security system
- Fully customized project

### BENEFITS

- Custom Engineered
- Sturdy modular design
- Made from tubular steel
- Organized way of storage
- Prevents sleeve damage

# TIR Measurement System

## TIR MEASUREMENT SYSTEM



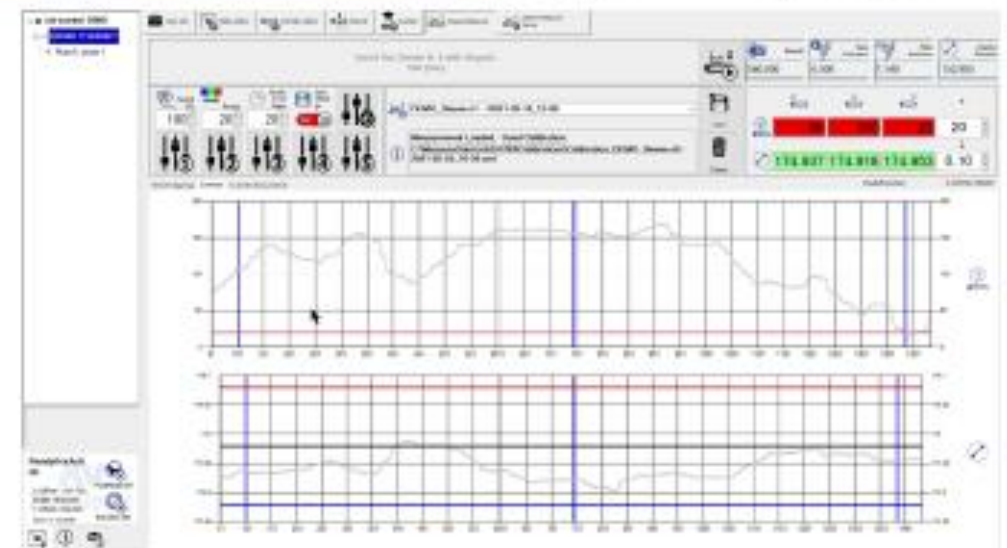
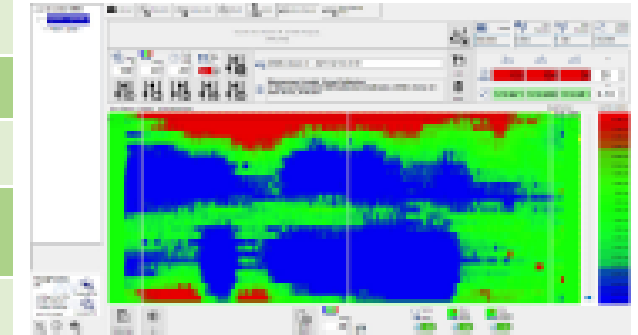
The TIR measurement system is the winner of the International print & innovation award 2015. It analyses the quality of the sleeve or cylinder by measuring the '3D landscape' of the surface. A high quality laser takes the measurement with an accuracy of 5 micron. This information provides a thorough insight on its condition. Subsequently, it can be placed with right pre-settings in the press to prevent press downtime. It calibrates any irregularities to ensure precision on micron level. A full report is generated to keep track of any irregularities. TIR also stores records for future reference.

## ADVANTAGES

- Reduction in press downtime due to worn out printing sleeves which end up in the flexographic printing press
- Quick and easy usage
- Rigid steel construction
- Prevent press downtime
- Identify out-of-spec sleeves
- Allows better control over the printing process
- Stores the measurement report

## OPTIONS

- Pressure roller for easy and safe tape application without air bubbles
- Cutting knife with an adjustable depth to prevent sleeve damage while cutting tape





# TECH SLEEVES

THE FUTURE IS NOW

FEATURES	BENEFITS
<ul style="list-style-type: none"><li>• Customized engineering</li></ul>	<ul style="list-style-type: none"><li>• Easy transportation of sleeves</li></ul>
<ul style="list-style-type: none"><li>• Ergonomically designed</li></ul>	<ul style="list-style-type: none"><li>• Easy loading/unloading</li></ul>
<ul style="list-style-type: none"><li>• Sturdy tubular steel structure</li></ul>	<ul style="list-style-type: none"><li>• No physical heavy lifting</li></ul>
<ul style="list-style-type: none"><li>• Rubber end rings</li></ul>	<ul style="list-style-type: none"><li>• No damages to sleeves durin transportation</li></ul>
<ul style="list-style-type: none"><li>• 360° rotating wheels</li></ul>	
<ul style="list-style-type: none"><li>• Cart handle</li></ul>	

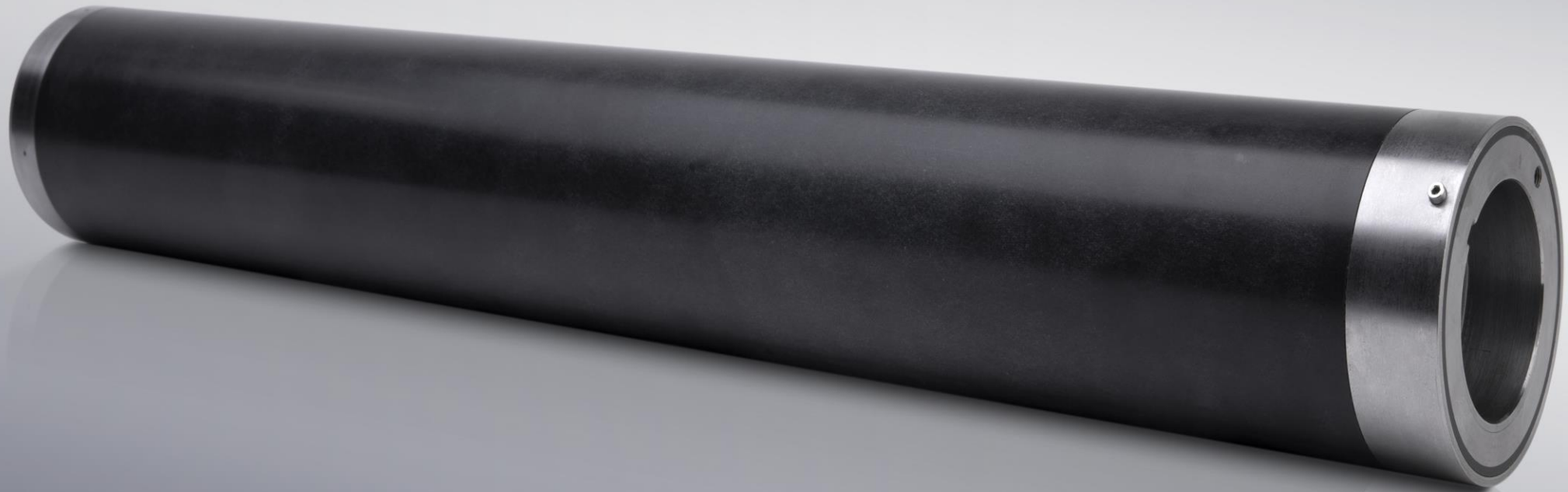
## TECH CART



The Tech Cart is a sleeve carriage or a sleeve cart, specifically designed to eliminate discomfort. By holding the sleeves horizontally, it ensures that you can load and unload the sleeves without any extra physical effort. With the 360° rotating wheels and cart handle, you can easily manoeuvre the cart around.

Along with convenience, Tech Cart® also ensures safety for the sleeves. The felt covered sleeve holder prevents the inner core of the sleeve from scratches. The edge of the sleeve is protected by the rubber end ring on each sleeve holder. The tubular steel structure makes the cart extremely sturdy. Moreover, Tech Cart® can be customized to hold the number of sleeves you need and suit the sleeve sizes as per your requirement. Tech Cart® is thus the ultimate way to transport your sleeves.





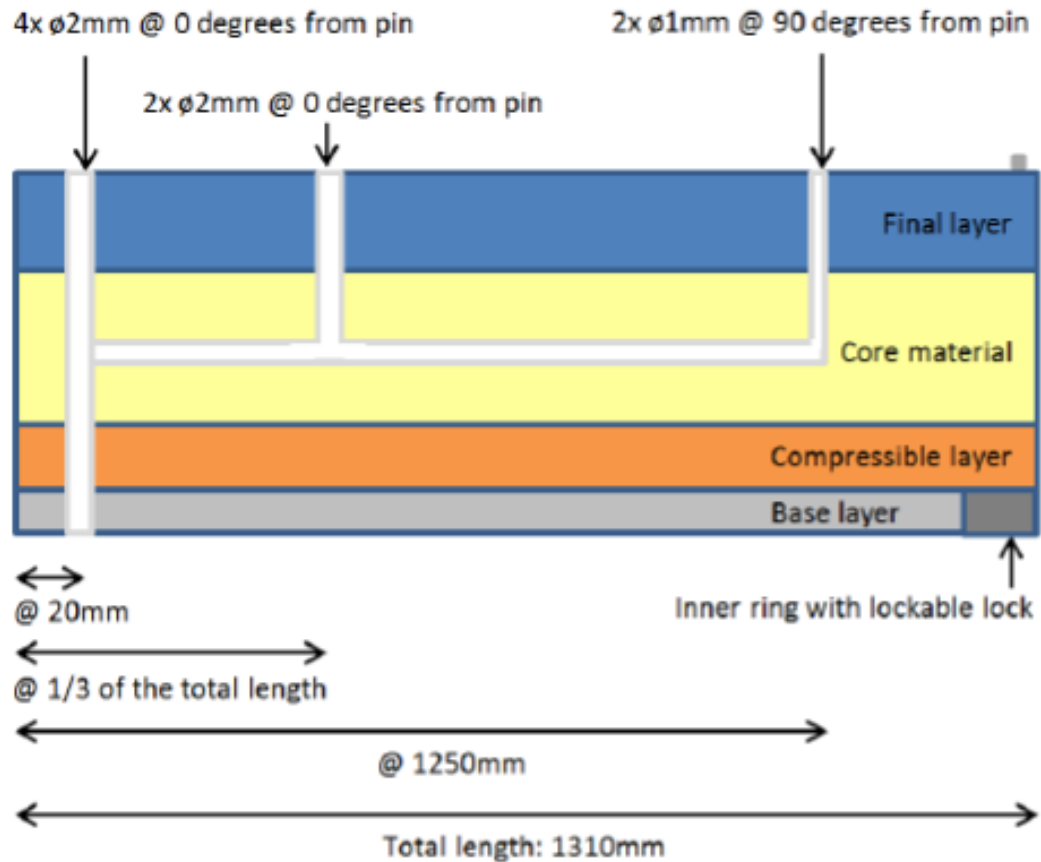
Tech Bridge®



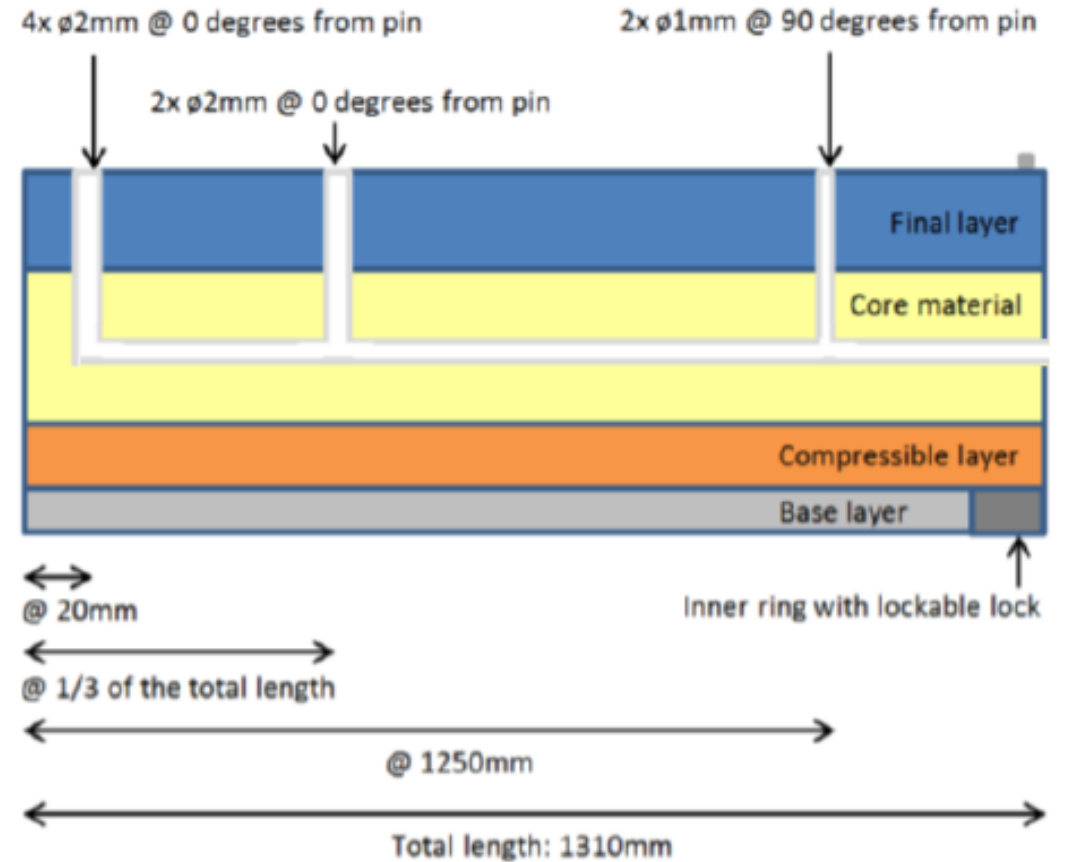


## Bridge Technology – Air flow through vs Separate Air

### Air flow through

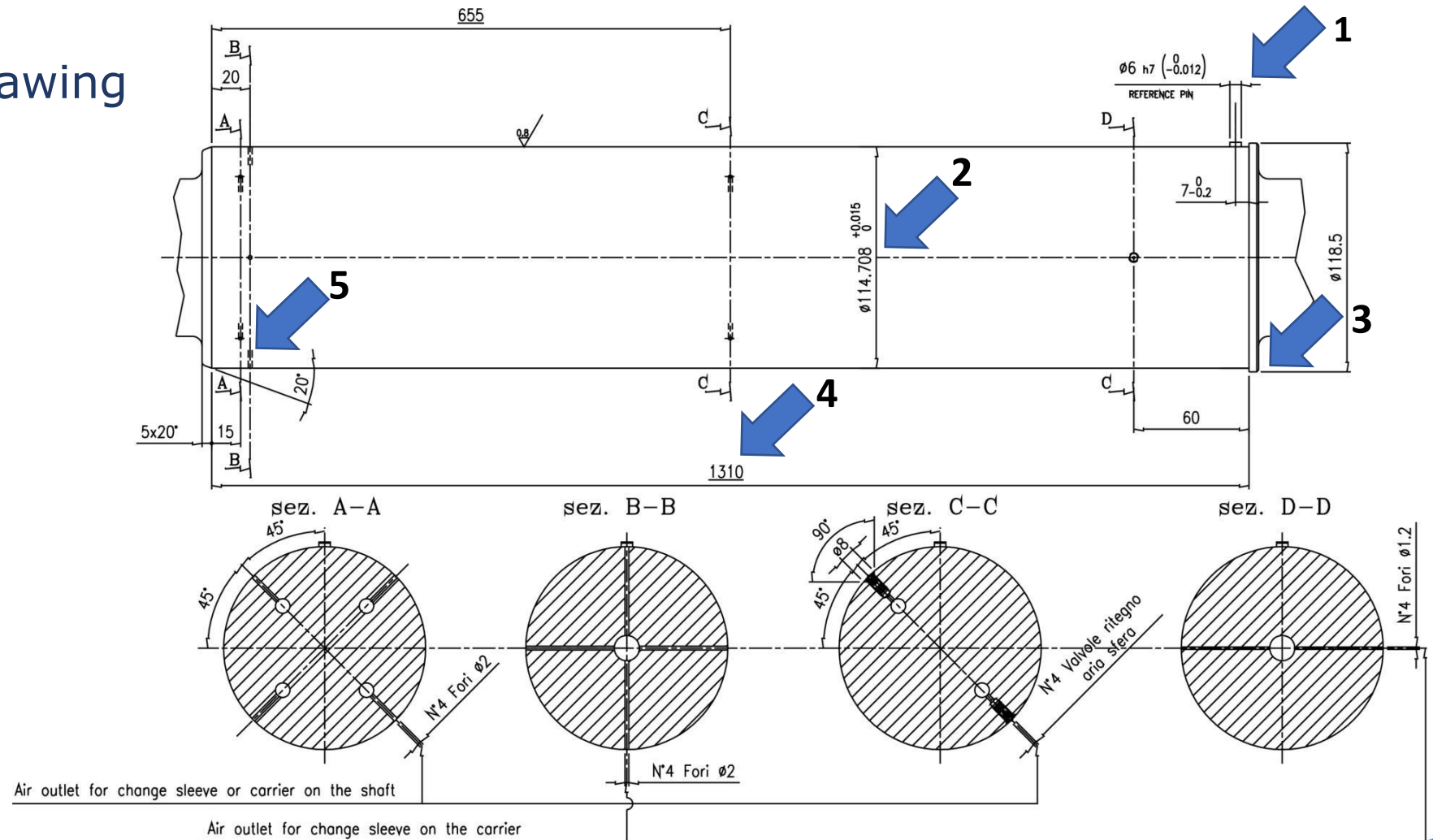


### Separate Air



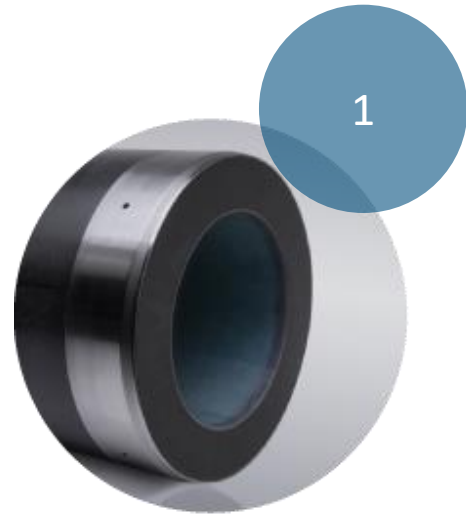
## Example Mandrel Drawing

- 1.Registration pin
- 2.Diameter (BCD)
- 3.End stop
- 4.Print face
- 5.Air holes



- Drawing always required for air flow through
- Drawing requested for Separate air to analyze usage of bridge

## Bridge Options



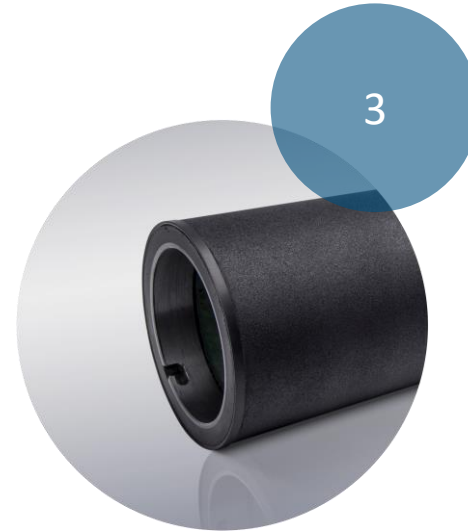
### **Lead edge full metal ring**

Protects the front edge of the bridge from damage by repeated handling of sleeves. Increases durability and lifetime.



### **Miller (ball) valves**

Spring-assisted ball valves close off the airflow when the position is not covered by a sleeve. Improves airflow and mountability.



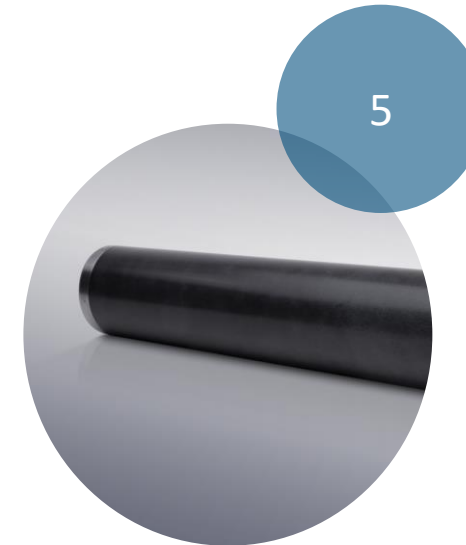
### **Soft Coated**

The Soft Coated Tech Bridges are used to carry flexible, thin sleeves (seamless sleeves) which are available in densities of 40, 50 and 60 ShA. They can be Separate air connection or air-through.



### **Separate air**

Bridges of which the air is fed by a separate air connection from the press (or the mounting machine) from the drive side.



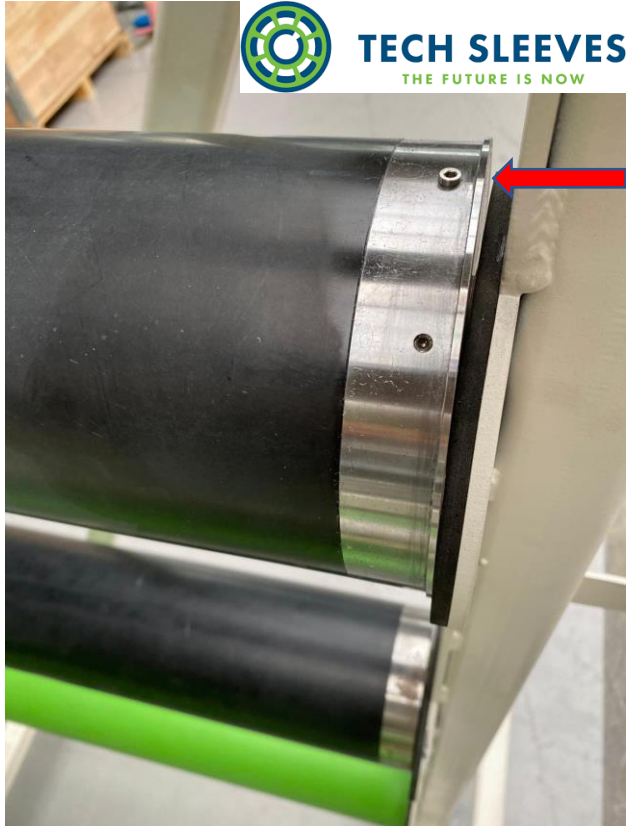
### **Air-through**

Bridges of which the air is fed by air holes in the mandrel.



**TECH SLEEVES**  
THE FUTURE IS NOW

## Tech Sleeves bridge advantages: End ring/Miller Valves



**End ring** with pin on the bridge and a protective lip to avoid the pin ever being sheared off.



**Miller Valves** allow you to control the air-flow of the bridge when valves are closed. The ability to direct the air-flow to where it is required creates ease of mount ability and flexibility to use multiple sleeve widths on one bridge.



**TECH SLEEVES**  
THE FUTURE IS NOW

## Tech Sleeves bridge advantages: Front guide ring



**TECH SLEEVES**  
THE FUTURE IS NOW



Tech Sleeves **front guide ring** allows for a clean mount of any mounting bridge avoiding internal damage to the inner core of the sleeve and damage to the edge of the adaptor from the sleeve mount.

This bridge damaged over time can clearly be seen on this bridge lacking the front guide ring.





**TECH SLEEVES**  
THE FUTURE IS NOW

## Tech Sleeves bridge advantages: Outer rings/Separate air



**The outer ring** now comes on all Bridges. This prevents edge damage which is leading cause of bridge damage



**Separate air** works by using a separate air source that is not from the mandrel. This means the bridge has an additional air source. Airflow and volume are key factors in bridge/sleeve performance



## Tech Sleeves Sleeve samples

- 2 sleeves showing all possible features for sleeves
- Reduced width for ease of transportation
- Sales managers briefcase 😊



Finally would like to talk to you about some of our high profile user partners:

**TRUSTED BY**






# Product Specifications

## TECHNICAL SPECIFICATIONS

Guarantee	12 months for all products and 24 months for Tech Pro+ version @ normal use
Tolerance	Tech Sleeves are guaranteed to have a tolerance on diameter of +/- 0.020 mm / <.001 inches
Precision grinding	TIR < 0.020 mm / <.001 inches (measured on a carrier/cylinder with a TIR value ≤ 0.005 mm)
Outer surface	Smooth and polished
Mounting	On air cylinders with min. air-pressure of 6.5 bar. (12 liter/second)
Wall thickness	0.9 – 110 mm (thicker upon request) / 0.035 – 4.330 inches
Sleeve length	Max. length of 2100 mm for repeat sleeves / 82.677 inches
Repeat length	240 - 1500 mm / 9.449 – 59.055 inches
Register line	Standard 1x axial line included. Extra axial or vertical lines may be added
Register slot	As ordered by customer
Temperature	Tech Sleeves and Bridges can handle a temperature of 60° C / 140° F
Chemical resistance	Resistant against all solvents used in the flexographic industry for plate cleaning
Cleaning advice	Clean with ethyl alcohol mixed with max 15% ethyl acetate
Label	The dimensional specifications are shown on the label inside the Tech Sleeves®

 Flexologic

SEMI-AUTOMATIC SLEEVE STORAGE SYSTEM



**TECH SLEEVES**

THE FUTURE IS NOW